Final Environmental Assessment for the Rooney Ranch Repowering Project Habitat Conservation Plan

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October 2020

U.S. Fish and Wildlife Service. 2020. *Final Environmental Assessment for the Rooney Ranch Repowering Project Habitat Conservation Plan*. October. (ICF 00066.17.) Sacramento, CA. With technical assistance from ICF, Sacramento, CA.

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Acronyms and Abbreviations

AMMs	avoidance and minimization measures
APE	Area of Potential Effect
Applicant	Rooney Ranch Wind, LLC
APWRA	Altamont Pass Wind Resource Area
BAAQMD	Bay Area Air Quality Management District
BCC	Birds of Conservation Concern
BMPs	best management practices
CAA	Clean Air Act
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQ's	Council for Environmental Quality's
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRHR	California Register of Historical Resources
Cultural Resources Survey Report	Cultural Resources Survey Report for the Rooney Ranch Wind Repowering Project
DPM	diesel particulate matter
EA	environmental assessment
EACCS	*East Alameda County Conservation Strategy*
EACCS PBO	*East Alameda County Conservation Strategy* associated programmatic biological opinion
ESA	Endangered Species Act
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
HCP	habitat conservation plan
I-	Interstate
ITPs	incidental take permits
LTMP	Long-Term Management Plan
MW	megawatts
NAAQS	national ambient air quality standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O&M	operations and maintenance

O_3	ozone
Pb	lead
PEIR	Altamont Pass Wind Resource Area Repowering Program Environmental Impact Report
PM_{10} and $PM_{2.5}$	particulate matter
ROG	reactive organic gas
Rooney Ranchf	Rooney Ranch Wind Repowering Project
SF6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SO_2	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
TAC	Technical Advisory Committee
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

Chapter 1
Purpose and Need

This environmental assessment (EA) has been prepared by the U.S. Fish and Wildlife Service (USFWS), pursuant to the National Environmental Policy Act (NEPA). It analyzes the potential impacts resulting from the habitat conservation plan (HCP; Appendix A) for the Rooney Ranch Wind Repowering Project (Rooney Ranch) located in the Altamont Pass Wind Resource Area (APWRA) in eastern Alameda County, California (Appendix C, Figure 1). The project proponent, Rooney Ranch Wind, LLC (Applicant), in coordination with USFWS, has developed a project-specific HCP to support an application for a 36-year incidental take permit (ITP) pursuant to Section 10 of the federal Endangered Species Act (ESA) (16 United States Code 1531 et seq.). Section 9 of the ESA prohibits the take of fish or wildlife species listed as endangered; as applicable to the species affected by the proposed action, the ESA implementing regulations also prohibit take of fish or wildlife species listed as threatened. Regulations governing permits for endangered and threatened species are at 50 CFR 17.22 and 17.32. The ESA and its implementing regulations prohibit take without prior approval pursuant to either Section 7 or Section 10(a)(1)(B) of the ESA. The ESA defines *take* as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 50 Code of Federal Regulations (CFR) 17.3 further defines the term *harm*, with respect to the ESA's take definition, to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Under Section 10(a)(2)(A) of the ESA, any application for an ITP must include an HCP that details the impacts of the incidental take allowed by the ITP on affected species and how the impacts of incidental take will be minimized and mitigated to the maximum extent practicable. The Applicant proposes to avoid, minimize, and mitigate potential impacts on these species through implementation of the HCP's conservation strategies, which use many of the recommendations outlined in the *East Alameda County Conservation Strategy* (EACCS) (ICF 2010) and associated programmatic biological opinion (EACCS PBO) (U.S. Fish and Wildlife Service 2012).

Rooney Ranch is located within the range of three federally listed species that have the potential to be affected by proposed repowering activities. The HCP has been developed to ensure that impacts on these federally listed species are adequately avoided, minimized, and mitigated in accordance with requirements pursuant to Section 10 of the ESA.

Issuance of a Section 10 ITP constitutes a discretionary federal action by USFWS and thus is subject to NEPA, which requires that federal agencies assess the effects of an action on the environment prior to implementation of the action. NEPA requires thorough evaluation of the need for the action and the consideration and comparison of potential impacts of a range of reasonable alternatives to the action, including the No-Action Alternative.

Full reference entries for all citations in this document are provided in Appendix B.

1.1 Background

The Rooney Ranch Wind Repowering Project would be constructed in the 581.7-acre HCP project permit area (hereinafter referred to as the project permit area), which is within the 30,000-acre APWRA in eastern Alameda County (Appendix C, Figure 1). The objective of the Applicant is to construct wind turbines capable of producing 25.1 megawatts (MW) of electrical power that can be distributed to the local electrical grid. The HCP also includes conservation and land management activities that may be undertaken in a yet-to-be-identified mitigation permit area in eastern Alameda County. Together, the project permit area and the mitigation permit area are referred to as the *plan area* throughout this document. The primary land uses in the project permit area and surrounding lands are cattle grazing and wind power production. There are no residential dwellings within

the project permit area, but there are several abandoned structures associated with past agricultural operations and multiple tower pads from past wind power production, including two meteorological towers. The project permit area consists of two parcels owned by the City of Santa Clara and smaller parcels at the site entrance, near Altamont Pass Road, that are in private ownership. Rooney Ranch, LLC, a privately owned company created by sPower to implement this project, has a lease with the City of Santa Clara to develop, construct, and operate the Rooney Ranch Wind Repowering Project. Rooney Ranch, LLC's lease specifies that the City reserves the right to use or lease the land for farmland grazing, provided that this activity will not interfere with the wind facility. As such, there is currently a grazing lease on the land which is expected to continue after project construction. Because the mitigation permit area has yet to be identified, specific land use and ownership characteristics cannot be described. However, most of eastern Alameda County within the APWRA is rolling grassland with grazing and wind-energy generation uses. Rural residences are also scattered throughout the area.

Land within the project permit area is zoned Large Parcel Agriculture, according to the East County Area Plan (Alameda County Community Development Agency 1994). Wind farms are allowed as conditional uses within this designation. The project is also within Alameda County's designated Wind Resource Area identified in the East County Area Plan.

The proposed mitigation permit area will preserve habitat and associated populations for the three federally listed species covered under the HCP. These lands will be located within Alameda County and selected after the permit is issued.

1.2 Species Covered by the HCP

The Applicant is requesting incidental take coverage for the species presented in Table 1-1. All other federally listed plant and wildlife species either do not have the potential to occur in the HCP's plan area (e.g., giant garter snake) or are unlikely to be affected by covered activities because key habitat elements are not present or would be avoided (e.g., vernal pool brachiopods). Other listed species actively considered for coverage under this HCP, but eventually dropped from consideration, are included in Table 2 of the HCP (Appendix A) and Table 3-5 of this EA (Biological Resources section).

Table 1-1. Federally Listed Species Covered by the Rooney Ranch Habitat Conservation Plan

Common Name (Scientific Name)	Status
California red-legged frog (*Rana draytonii*)	FT
California tiger salamander (*Ambystoma californiense*)[a]	ST, FT
San Joaquin kit fox (*Vulpes macrotis mutica*)	ST, FE

FE = federally listed as endangered, FT = federally listed as threatened, ST = state-listed as threatened.
[a] Central California Distinct Population Segment.

1.3 Proposed Action Addressed in this EA

The Proposed Action considered in this EA is USFWS's issuance of a Section 10 ITP for the HCP and its associated covered activities. The Applicant has prepared the HCP for the Rooney Ranch repowering project to support its application for a 36-year ITP pursuant to Section 10 of the ESA. The HCP addresses four sets of proposed activities (referred to as *covered activities* in the HCP): (1) construction, (2) operation and maintenance (O&M) of facilities to implement the proposed Rooney Ranch Wind Repowering Project, (3) conservation, and (4) restoration actions. Conservation and restoration actions are those activities proposed to conserve and protect the federally listed species in Table 1-1 to minimize and mitigate impacts from the construction and O&M

activities. The federal action evaluated in this EA is issuance of an ITP. Accordingly, this EA analyzes the direct, indirect, and cumulative impacts of approving the HCP and issuing an ITP, including impacts of the covered activities. Chapter 2, *Proposed Action and Alternatives*, provides a detailed description of the Rooney Ranch Wind Repowering Project's covered activities, including conservation actions.

1.4 Purpose of and Need for the Proposed Action

USFWS needs to ensure compliance with the ESA and continue to protect, conserve, and enhance the survival of federally listed species and their habitat. The purpose of the federal action is to respond to and potentially issue an ITP to the Applicant that enables the Applicant to develop a commercially viable wind energy facility that would produce up to 25.1 MW of power in the APWRA. This is driven by the need for USFWS to make a decision to authorize take, while allowing the Applicant to produce and deliver renewable energy to the California Independent System Operator power grid that meets California's Renewable Portfolio Standard goals and helps reduce greenhouse gas (GHG) emissions, pursuant to Assembly Bill 32.

This purpose and need establishes the basis for determining whether other viable alternatives to the Proposed Action may meet the project's intended purpose and reduce potential effects. Alternatives considered for this analysis are the No-Action Alternative and the Proposed Action.

1.5 Decision to be Made

Based on the analysis and public and agency comment on this EA, USFWS must decide whether to issue a Finding of No Significant Impact for this EA or prepare an environmental impact statement and Record of Decision. Furthermore, USFWS must decide whether the HCP meets its needs with respect to species protection and conservation and use that decision to issue or deny the Applicant's requested ITP. If the ITP issuance criteria set forth in Section 10(a)(2)(B) of the ESA are satisfied, USFWS must issue an ITP to the Applicant.

In addition, the USFWS must ensure that the project meets the general permit issuance criteria described in 50 CFR 13.21 which is summarized below:

(a) An application must be submitted

(b) The following criteria must be met by the application and the applicant: the applicant has not been convicted of a civil penalty or crime relating to the application activity; no falsehoods were submitted in the application; submittal of justification for the permit; applicant is qualified for the permitted activity; and the permitted activity does not threaten a wildlife or plant population.

(c) The following disqualifying factors must not be present: a felony conviction of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act by the applicant; an applicant's permit revocation under § CFR 50 13.28 (a)(1) or (a)(2); failure to pay any required fees or assessed costs and penalties owed to the United States; and, failure to submit timely, accurate, or valid reports.

(d) The issuing officer may use any information available that is relevant to the issue in substantiating information or qualifications asserted by the applicant.

(e) Conditions of issuance and acceptance include: incorporation of conditions and requirements subpart D, other sections authorizing/governing this activity, and included in the permit by the discretion of the Director; applicant consents to allow entry by USFWS employees to regulate and monitor permitted activity; permit is valid for the time specified in the permit; and the permit may be denied if the applicant fails to meet the issuance criteria set for in this section or any section governing this activity.

Section 10(a)(2)(B) and its promulgating regulations at 50 CFR 17.22(b)(2) and 50 CFR 17.32(b)(2), which contain the following issuance criteria for an ITP:

1. The taking will be incidental;
2. The Applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
3. The Applicant will ensure the provision of adequate funding for the conservation plan and procedures to deal with unforeseen circumstances;
4. The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild; and
5. Such other measures USFWS may require as necessary or appropriate for the purposes of the HCP.

USFWS may decide to issue the ITP conditioned on implementation of the HCP, as submitted by the Applicant, or issue the ITP conditioned on implementation of the HCP as submitted, together with other measures specified by USFWS. If the ESA's Section 10(a)(2)(B) issuance criteria are not met, USFWS is mandated to deny the permit request.

1.6 Scoping and Public Review

This subsection describes the scoping and public review process associated with the Applicant's proposed HCP and ITP application. In support of the application to repower the Rooney Ranch wind energy project on City of Santa Clara-owned land in Alameda County, the Applicant consulted with USFWS (internally) and the California Department of Fish and Wildlife (CDFW). As part of the NEPA review process, USFWS Sacramento Field Office has conducted informal scoping and has contacted the Pacific Southwest Regional Office of USFWS, CDFW, the Native American Heritage Commission, and various Native American groups regarding this project. A summary of coordination with Native American groups is included in the Cultural Resources discussion in Section 3.1.4.2, *Environmental Consequences*, of this EA.

Public comment and additional agency review were received through review of this EA.

Discussions between the Applicant and USFWS during HCP development were conducted with the knowledge and understanding that specific criteria ultimately must be met before a permit issuance decision can be reached. Publication of this EA is an important step in the environmental review process for the proposed Rooney Ranch Wind Repowering Project HCP. The determination as to whether the ITP has met these criteria will be made after the HCP is developed and subsequently revised, as appropriate, based upon public and agency input.

In accordance with NEPA, the Draft EA was circulated for public and agency review and comment from May 28, 2020 to June 29, 2020. The public review period was initiated with the publication of the Notice of Availability in the Federal Register. Following the close of the comment period, USFWS reviewed all comments received during the comment period and developed responses. Revisions to the EA are marked in gray shading. USFWS will document responses to comments, in its Findings and Recommendations on whether the criteria have been met and whether or not to issue the ITP.

USFWS determined that technical analyses should be conducted for the following resource categories.

- Aesthetics
- Air Quality and Climate Change
- Biological Resources
- Cultural Resources

- Geology, Seismicity, Soils, and Paleontological Resources
- Public Safety Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Traffic and Transportation

During the course of preparing these impact analyses, the *Altamont Pass Wind Resource Area Repowering Program Environmental Impact Report* (PEIR) (Alameda County Community Development Agency 2014) was reviewed. Where appropriate, materials from this document were used to describe general effects of wind repowering in the Altamont Pass area and mitigation measures capable of reducing the adverse effects of implementing wind-repowering projects. The Rooney Ranch project is located within the APWRA, and its presence was considered in the PEIR analyses. The reader is referred to the PEIR for more details on general repowering effects and the mitigation measures deemed appropriate by Alameda County Community Development Agency to offset these effects. A list of the mitigation measures from the PEIR that are referenced in this EA is contained in Appendix F.

Chapter 2
Proposed Action and Alternatives

As referenced in the Council for Environmental Quality's (CEQ's) NEPA regulations regarding the contents of an EA (40 CFR 1508.9[b]), NEPA Section 102[2][E] requires federal agencies to develop, study, and briefly describe alternatives to any proposed action that has the potential to result in unresolved resource conflicts. Pursuant to NEPA, federal agencies must consider a range of reasonable alternatives to the Proposed Action when evaluating the environmental effects of their actions (40 CFR 1505.1(e)). This chapter describes the Applicant's Proposed Action and alternatives to that action, including the No-Action Alternative.

2.1 Proposed Action Alternative

Covered activities under the HCP, summarized in this section, are divided into four categories: construction activities, O&M activities, conservation actions, and restoration actions. Please refer to the HCP (Appendix A) for additional detail. Covered activities do not include eventual decommissioning of the repowered project. The wind power facility would be decommissioned, re-operated, or repowered after the project's operational life of 35 years, as indicated in the HCP (Appendix A).

2.1.1 Construction Activities

The Applicant is planning to repower the Rooney Ranch wind project, located on two parcels owned by the City of Santa Clara (the project permit area). The Rooney Ranch parcels are located north of Interstate (I-) 580, with access from Altamont Pass Road (Appendix C, Figure 1). The project would use seven turbines with generating capacities between 2.3 and 4.0 MW to develop up to 25.1 MW (Appendix C, Figures 2a and 2b). The turbines would generally be similar in size and appearance.

The final layout may differ from the proposed layouts illustrated in Figures 2a and 2b (Appendix C) because the exact turbine locations are subject to micro-siting (i.e., small moves to accommodate setback constraints, avian siting requirements, data obtained from meteorological monitoring of the wind resources, and turbine availability). Existing roads would be used where possible, with temporary widening of approximately 2.7 miles of existing roads and development of approximately 1 mile of new roads. Temporarily disturbed areas would be restored within six months and fully restored to original condition within one year. The repowering project would entail the following construction activities.

- Permanent Impact Areas (1.8 total acres)
  - Creation of new access roads (1.0 acre)
  - Turbine foundations (0.5 acre)
  - Meteorological tower (0.1 acre)
  - Substation expansion (0.1 acre)
  - Power poles (0.1 acre)
- Temporary Impact Areas (42.9 total acres)
  - Widening of access roads (7.0 acres)
  - Construction of staging areas (6 staging areas; 15.0 acres)
  - Construction and installation of turbines (seven sites, approximately 2.51 acres each = 17.6 acres).

- Installation of one permanent meteorological tower (0.2 acre)
- Substation expansion (0.1 acre)
- Construction of power collection system (3.0 acres)

The construction footprint acreages above include two potential approaches to connecting the new turbines to the onsite electrical collection system. In most cases, it is expected that underground cables would connect turbine transformers to the substation. In some cases, it may be desirable, because of specific site conditions, to connect transformers to the substation using aboveground power poles. To the extent that power poles are used, the disturbed acreage associated with the power collection system would be reduced.

Project construction would last six months in 2020, including restoration after construction. All work would occur within the May to October time frame. If construction were to slip into 2021, it would occur in the same time frame.

2.1.2 Operations and Maintenance Activities

O&M activities would consist of equipment replacement, collection system repair, and gravel application and repair to access roads as necessary. All of this activity would occur within the project permit area. Maintenance-related ground disturbance would take place within the footprint of the initial construction-related disturbance areas. Road gravelling and road repair activities would occur within the footprint of the 20-foot-wide corridor of existing and new roads. Turbines may need to be repaired or replaced. No new permanent effects are anticipated during maintenance activities, but 0.5 acre of temporary impact is assumed every five years, and temporarily affected areas would be fully restored to original conditions within one year of disturbance. The disturbed area estimate is based upon annual disturbance of approximately 4,500 square feet (i.e., approximately a 50-foot by 90-foot area); actual disturbances could be larger or smaller, depending upon the maintenance work needed.

2.1.3 Conservation Actions

The proposed conservation actions to minimize and mitigate impacts on covered species as required under Section 10(a)(2)(B) of the ESA were developed in collaboration with USFWS and CDFW to be consistent with the USFWS's HCP Handbook and the EACCS (ICF 2010). Please refer to Chapter 5, *Conservation Strategy*, of the HCP for a complete description of the plan's proposed conservation strategy for covered species.

2.1.3.1 Biological Goals

Biological goals are the broad, guiding principles for development and operation of conservation plans; they provide the rationale for the mitigation strategy. Biological goals of the conservation strategy for covered species were developed subsequent to the analysis of potential project-related impacts on covered species as presented in Chapter 4 *Impact Assessment* of the HCP. Please refer to Chapter 5, *Conservation Strategy*, of the HCP for a description of biological goals.

2.1.3.2 Conservation Approach

The conservation approach for the HCP includes both general and species-specific avoidance and minimization measures (AMMs) and compensatory mitigation (Appendix A). Proposed AMMs for the HCP are based upon measures from the EACCS and the associated EACCS PBO (U.S. Fish and Wildlife Service 2012). The HCP proposes compensatory mitigation to offset the permanent and temporary effects of the project on covered species that would be provided by the Applicant through purchase of sufficient credits at a suitable mitigation or conservation bank, or the Applicant would develop its own mitigation by protecting and managing conservation

lands in perpetuity for the covered species. If a bank or banker were used, the conservation actions would not need to be covered under the HCP as the bank or banker would likely have take authorizations for their actions. If the Applicant developed its own mitigation, management actions in the mitigation permit area would be covered. If this action is taken the applicant will provide at least 51.3 acres of permanent mitigation lands (an amount equal to a 3:1 ratio for permanent impacts and a 1:1 ratio for temporary upland impacts) that meet the site selection criteria outlined in Section 5.2.2.1 of the HCP; final acreages would depend upon the location of the mitigation site and adhere to mitigation ratios for the listed species in the EACCS. These management actions would be detailed in a long-term management plan and could include fencing, stock pond repair, cleanout and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control, and other uses approved in the final long-term management plan. In addition, the conservation approach would be guided by resource-specific mitigation measures included in this EA and in the PEIR (Alameda County Community Development Agency 2014). Please refer to Chapter 5, *Conservation Strategy* of the HCP for a description of the applicant's conservation approach, proposed AMMs, and proposed compensatory mitigation commitments. Refer to Chapter 3 of this document, *Affected Environment and Environmental Consequences*, for resource-specific mitigation measures that would become part of the conservation approach if the ITP is issued. These mitigations are also listed in Appendix F of this EA.

Monitoring

Under USFWS policy, monitoring must involve evidence of compliance with the terms of the HCP, verification of anticipated effects, and a measure of effectiveness of the HCP. The monitoring plan proposed under the HCP includes compliance and effectiveness monitoring components.

Compliance monitoring is required to verify and document that all requirements in the HCP are met and the terms and conditions of the ITP are carried out. Proposed compliance monitoring would include completion of preconstruction clearance surveys and onsite construction monitoring performed by USFWS-approved biologists. Both project permit area and mitigation permit area would be monitored.

The primary goal of effectiveness monitoring is ensuring the successful restoration of disturbed areas on the project permit area and maintenance of the mitigation permit area habitat characteristics and listed species populations that would be conducted consistent with a USFWS-approved long-term management plan. Please refer to Chapter 5 of the HCP for a complete description of proposed habitat monitoring and management activities.

If compensatory mitigation for the project will be completed at an approved mitigation bank, these banks have approved monitoring plans, reporting, and adaptive management measures, and thus compliance monitoring will be completed by the mitigation bank under the terms of their banking agreement.

2.1.3.3 Adaptive Management

Onsite Adaptive Management

Adaptive management (the process of modifying and evolving management decisions based upon data collected) is typically practiced in regional conservation plans. For this project-specific HCP, the Applicant has proposed to implement passive adaptive management. The Applicant would monitor the success of the restoration effort to maintain the integrity of habitat onsite. If restoration efforts were unsuccessful, the Applicant would implement additional reseeding to recover upland habitat onsite. Refer to Appendix A of the HCP for more detail on restoration performance standards and commitments to implement remedial measures to help achieve success criteria.

Compensatory Mitigation Adaptive Management

Under the HCP, offsite compensatory mitigation credits may be obtained at USFWS- and CDFW-approved mitigation or conservation banks that have adaptive management measures already in place under the terms of banking agreement(s).

Adaptive management for the land preserved in perpetuity through a conservation easement would be determined through the development of the long-term management plan for the conservation easement obtained by the Applicant.

2.1.3.4 Long-term Management Plan

The overall goal of long-term management is to foster the long-term viability of the mitigation permit area's waters of the U.S., covered species, and covered habitat. Routine monitoring and minor maintenance tasks are intended to assure the viability of the mitigation permit area in perpetuity.

The approach to the long-term management of the mitigation permit area's biological resources is to conduct annual site examinations and monitoring of selected characteristics to determine stability and ongoing trends of the preserved and created waters of the U.S., including wetlands, aquatic and upland habitats for California tiger salamander and California red-legged frog, and dispersal habitat for San Joaquin kit fox. Annual monitoring will assess the mitigation permit area condition, degree of erosion, invasion of exotic or deleterious species, water quality, fire hazard, and/or other aspects that may warrant management actions. Although it is not anticipated that major management actions will be needed, objectives of this long-term management plan are to conduct monitoring to identify any issues that arise and use adaptive management to determine what actions might be appropriate.

The land manager will implement all management activities within an adaptive management framework that allows the land manager to modify management as necessary, based upon changes such as climate change, fire, flooding, or other natural events whose occurrence and effects cannot be predicted, or as needed to improve the effectiveness of management. The land manager will determine how the land is managed and coordinate with the reviewing agencies before making any adaptive management changes to the long-term management plan.

2.1.4 Restoration Actions

Chapter 2 of the HCP includes a number of restoration actions that would be undertaken prior to and following construction activities in the project permit area. Prior to construction, topsoil would be removed and stockpiled for later use. Areas temporarily disturbed during construction would be restored to preconstruction conditions through implementation of a restoration plan (Appendix A in the HCP). Restoration would consist of contouring disturbed areas, spreading topsoil, and hydroseeding the area to promote restoration of the site. Monitoring of restored areas and remedial actions consisting of supplemental seeding, invasive species control, and erosion repair, if necessary, would be completed over a 3-year period following construction. The restoration plan in Appendix A of the HCP outlines the performance criteria and monitoring obligations to ensure the site would be restored.

2.2 No-Action Alternative

Under the No-Action Alternative, the HCP would not be implemented, and the proposed ITP would not be issued. There would be no take of federally listed species as a result of the project. This alternative assumes that existing wind power production facilities and approved repowering wind production facilities in the APWRA would continue to operate into the future. See Appendix C, Figure 3, for a map showing current active and

approved wind projects in the APWRA. Some of these facilities are in the vicinity of the Rooney Ranch project permit area. Current data indicate approximately 400 operational wind turbines in the APWRA (Hoen et al. 2018). Repowering projects that are operational near the project permit area include Golden Hills Phases 1 and 2 and Diablo Winds. The Summit Wind Project to the west has been approved but is not yet constructed. Agricultural uses—dryland farming and grazing—would continue in the project permit area.

2.3 Alternatives Eliminated from Further Consideration

The USFWS considered several approaches to avoid take of covered species: installing fewer turbines, installing fewer roads, and using fewer laydown areas. However, these alternatives would not meet the applicant's objectives (25.1 MW of wind power), and these project elements are needed for an economically viable project for the applicant. By avoiding development of unmodified habitat and repowering an existing wind facility that uses existing disturbed areas as much as feasible, the Applicant has proposed ways to avoid take through project design, while still meeting project objectives.

Chapter 3
Affected Environment and Environmental Consequences

This chapter describes the affected environment (i.e., the environmental and regulatory settings) and the potential environmental consequences that could result from implementation of the Proposed Action. Following the introduction, the chapter is divided into two sections: one describing the setting and impacts relevant to the project permit area (Section 3.1), and one describing the setting and impacts relevant to the mitigation permit area (Section 3.2). Several analyses in this chapter rely on the PEIR (Alameda County Community Development Agency 2014), which applies to the Rooney Ranch project permit area. The resource topics addressed in this chapter include the following:

- Section 3.1.1—Aesthetics
- Section 3.1.2—Air Quality and Climate Change
- Section 3.1.3—Biological Resources
- Section 3.1.4—Cultural Resources
- Section 3.1.5—Geology, Seismicity, Soils, and Paleontological Resources
- Section 3.1.6—Hazardous Materials and Public Safety Hazards
- Section 3.1.7—Hydrology and Water Quality
- Section 3.1.8—Noise
- Section 3.1.9—Traffic and Transportation
- Section 3.1.10—Cumulative Effects

The resource topics listed below are not analyzed further in this EA.

- **Agricultural Lands**. No lands designated as prime farmlands or forestlands are located within the project permit area. Similarly, because wind turbines are a conditionally permitted use on grazing land under Williamson Act contract, there would be no conflicts between covered activities and existing zoning. No adverse effects on agricultural lands are anticipated.
- **Mineral Resources**. There are no known mineral resources in the project permit area, and the Proposed Action is not anticipated to adversely affect mineral resources (Alameda County Community Development Agency 2014).
- **Land Use**. Existing land use would continue under the Proposed Action. No adverse effects on land use are anticipated.
- **Recreation**. No publicly owned or administered recreation facilities or lands, including designated recreational bikeways, are located within or immediately adjacent to the Rooney Ranch project permit area. The nearest designated public bikeway is along the California Aqueduct, approximately 3 miles east of the project permit area. This facility would not be affected by construction or operation of the Rooney Ranch project because of its distance from the project permit area. Some recreational biking does occur along Altamont Pass Road, immediately adjacent to the project permit area, and this right-of-way may become a Class III rural bike route in the future (Alameda County Public Works Agency 2012:3–18, Tables 3-10 and 3-25, Figure 3-3e). The short-term nature of project construction and the implementation of a traffic management plan during construction would minimize effects on this bicycle use. Accordingly, no significant adverse effects on recreational resources are anticipated.

- **Socioeconomics.** The permit project area is located in rural Alameda County and does not contain residences or businesses. The only potential socioeconomic effect would be beneficial, resulting from minor increases in employment for construction and operation of the facility.
- **Utilities**. The Proposed Action is not anticipated to adversely affect the ongoing delivery of utility services.
- **Environmental Justice**. The Proposed Action would not disproportionately affect minority or low-income populations (see Appendix I, *Environmental Justice Technical Memorandum*).

Impact conclusions are included at the end of each impact discussion below. Determinations are made as to the context and intensity of the effect (40 CFR 1508.27) and effects are subsequently categorized as either beneficial, not significantly adverse, or significantly adverse.

3.1 Project Permit Area

3.1.1 Aesthetics

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area. The scenic quality component is the overall impression that an individual viewer retains after driving through, walking through, or flying over an area. Viewer response is a combination of viewer exposure and viewer sensitivity.

3.1.1.1 Affected Environment

Environmental Setting

The landscape surrounding the Rooney Ranch project permit area, located in the central portion of the APWRA, is composed of grass-covered rolling hills, with road cuts to accommodate rural roads and I-580. Numerous rock outcrops are present in the western portion of the Rooney Ranch project permit area. Strings of turbines, power lines, transformers, access roads, and substations are the most visually distinct artificial features throughout the surrounding area. There are numerous turbines from three operational wind projects, totaling 10,603 acres within 1 mile of the project permit area (Golden Hills Phases 1 and 2, and Diablo Winds; Appendix C, Figure 3). Rural residences dot the landscape surrounding the Rooney Ranch project area, but none are within it. Both Altamont Pass Road, north of the project permit area, and I-580, south of the project permit area (Appendix C, Figure 1), are designated scenic routes (Alameda County 1966; California Department of Transportation 2017). Other local roads in the vicinity of the project permit area include Flynn, Grantline, Carroll, and Dyer roads (Appendix C, Figure 1). Existing conditions for visual resources were identified using the Federal Highway Administration methodology (Federal Highway Administration 2015), which provides a systematic, standardized approach for evaluating effects on visual resources. This approach identifies a view's aesthetic value based upon its inherent visual character, its visual quality, and viewer response to it.

Existing Views of Rooney Ranch Project Permit Area

Existing views of the project permit area and surrounding vicinity range from smooth, rolling, grass-covered hills dominated by turbine strings and empty turbine pads, to steep ridges and ravines with no anthropogenic structures.

Sensitive Viewers

Residents

Residents living in the vicinity of the project permit area would be expected to have the highest sensitivity to visual changes because of their familiarity with the view, investment in the area, and sense of ownership of the view. Residents who occupy parcels leased for wind generation facilities would be expected to have the lowest level of sensitivity to change because these landowners have agreed to lease the site for wind energy generation purposes and would therefore be more accepting of related visual changes. Residences are scattered throughout the vicinity of the project permit area. These residences tend to be mostly rural, single-family homes on large land parcels.

Recreationists

Recreationists in the vicinity of the project permit area include cyclists on regional trails and local roadways and users of recreation and preserve areas. Viewers using recreation trails, recreation areas, and regional preserves are considered to have high visual sensitivity because recreationists tend to highly value views in designated recreation areas and could be exposed to these views for extended periods (e.g., hiking along regional trails).

Motorists

Motorists using the roadways near the project permit area are typically commuting, transporting goods and materials, or participating in recreational activities, such as sightseeing on scenic roadways. Roadways traversing the project vicinity range from a high-speed interstate (I-580) to lower-speed, two-lane local roadways (Altamont Pass, Carroll, Dyer, Flynn, and Grantline roads) that traverse the rolling landscape (Appendix C, Figure 1). Motorists' views range from smooth, rolling, grass-covered hills dominated by turbine strings to steep ridges and ravines with no anthropogenic structures. Although more numerous than residents, motorists would generally be less sensitive to visual changes in the project permit area because of the shorter duration of their exposure to the views and the focus of their attention on driving activities.

Regulatory Setting

Please refer to Appendix D for information on relevant state and local regulations. For aesthetics, these include state (California Scenic Highways Guidelines) and local (Alameda County General Plan Scenic Route Element**,** Alameda County General Plan Open Space Element, East County Area Plan) requirements.

3.1.1.2 Environmental Consequences

Approach and Methods

The assessment of effects on aesthetics is based upon review of the preliminary siting plan for Rooney Ranch (Appendix C, Figures 2a and 2b), review of the PEIR, evaluation of existing conditions (i.e., existing wind projects and land uses in the vicinity), and review of the visual photo simulations prepared for the project (Appendix C, Figures 4a–4d).

The PEIR relied on a qualitative evaluation of the visual impacts of repowering the area covered under the PEIR (referred to in this EA as the *program area*) overall and generally compared the new repowered turbines to the existing old-generation turbines. The Rooney Ranch turbines would have a 15-foot longer blade length and rotor-swept area than the turbines evaluated in the PEIR, but would require fewer turbines because each would have a higher capacity than those considered in the PEIR. The longer blade length is not expected to be visually noticeable from nearby roads or residences because the proposed turbines are consistent with the overall dimensions of those evaluated in the PEIR; consequently, the analysis in the PEIR is relevant and appropriate for the project. Accordingly, the Applicant's proposal to use slightly larger turbines would not constitute a new

significant visual effect or a substantial increase in the severity of effects on visual resources compared to those described in the PEIR.

The PEIR presented a broad and thorough analysis of the impacts on aesthetics and visual resources that would result from repowering the program area, and used key viewpoints near the project permit area to develop photo simulations comparing the view under existing conditions with the same view under repowered conditions. To conduct the project-level analysis for Rooney Ranch, analysts used photo simulation techniques similar to those in the PEIR and selected three project-specific viewpoints that were not included in the PEIR to characterize visual changes that would result from project implementation. Figure 4a (Appendix C) shows the locations of these viewpoints.

a. Viewpoint 1—Looking southwest from Altamont Pass Road east of the project permit area (Figure 4b).
b. Viewpoint 2—Looking southeast from Altamont Pass Road west of the project permit area (Figure 4c).
c. Viewpoint 3—Looking northeast near the intersection of Flynn Road and Interstate-580 (Figure 4d).

Visual simulations were prepared for each viewpoint, using the largest and tallest turbine model proposed to ensure a conservative approach to the analysis—that is, a worst-case scenario.

An effect would be considered significantly adverse if the action could lead to any of the following conditions: major alterations to scenic vistas and resources (such as designated scenic routes); major alterations of the existing character or quality of the site and its surroundings; and introduction of a major new source of glare and lighting and associated changes to day or nighttime views in the area.

Effects

Proposed Action

Effect AES-1: Temporary visual effects caused by construction activities

Construction of the Rooney Ranch project would entail grading activities and the presence of heavy equipment associated with installing and constructing new turbine pads and towers, access roads, and associated facilities. Construction activities would be temporarily visible (six months from various locations, including two residences within 2,000 feet of the nearest proposed turbines, and portions of the local roads (primarily Altamont Pass Road) that run adjacent to the project permit area, thereby temporarily changing the scenic vista and its existing visual character. Views of construction areas would be intermittent across a relatively large area, and no residences are located within the 581.7-acre Rooney Ranch project permit area. Views for residents in surrounding areas would be limited by intervening topography and vegetation. Recreationists on area hiking trails at Brushy Peak Regional Preserve, 2 miles west of the project permit area, would also have views of construction activities and equipment. Construction would occur in a manner consistent with Alameda County requirements for workdays and hours. Implementation of PEIR (Alameda County Community Development Agency 2014) Mitigation Measures AES-1, *Limit construction to daylight hours*, AES-2b, *Maintain site free of debris and restore abandoned roadways*, and AES-2c, *Screen surplus parts and materials*, would minimize the visibility of construction activities and equipment. Mitigation Measure AES-1 would restrict construction activities to weekday daylight hours when such activities would be least noticeable to sensitive viewers. Mitigation Measures AES-2b and AES-2c would reduce the visibility of construction activities and equipment through cleanup and screening. Because construction would last no more than six months, the limited visual exposure of residents and recreationists to the construction because of distance and intervening topography and vegetation, and because of the general nature of the area as a wind power production region, the temporary construction activity would not result in a significant adverse effect on a scenic vista and would only minimally degrade the existing visual character of the site and its surroundings

Effect AES-2: Long-term changes in visual character

Changes in the project permit area's visual character would be visible to local residents, recreationists, motorists, and bicyclists on Altamont Pass Road, and motorists on I-580.

The Proposed Action would result in the introduction to the Rooney Ranch project permit area of up to seven wind turbines, all with a maximum height of 502 feet. The project permit area is immediately adjacent to existing and planned wind farms (Appendix C, Figure 3) and has historically been the site of a wind farm with many turbines. Photo simulations in Figures 4b through 4d (Appendix C) compare existing views with the proposed turbines. The visual character of the project permit area for persons passing along I-580 and Altamont Pass Road would be minimally altered for the long-term with the installation of seven turbines. Because of the presence of adjacent wind farms, the minimal number of turbines constructed, and the past use of the site as a wind farm, this project would minimally alter scenic resources and the existing visual character or quality of the project site. Because the project would only minimally alter the visual character of the site, the overall effect of the Proposed Action on visual character would not be significantly adverse.

Effect AES-3: Potential increase of light and glare

As described in the PEIR, all new wind turbines constructed would require lighting to meet Federal Aviation Administration (FAA) air traffic safety requirements. Currently there are no turbines on the site and, therefore, no turbine-related lighting. Lighting on the new seven turbines would introduce a new source of light in a rural setting. Because of the small number of new turbines being lighted, the project would not create a major new source of light and glare that would affect day or nighttime views in the area, and the effect would not be significantly adverse.

Reuse of the substation that already exists on the project permit area, near the site entrance, would also introduce lighting to the project vicinity. This lighting would be needed for site security and safety, which would represent a minor source of light in the rural setting of the Rooney Ranch project permit area. Because all lighting would be directed downward to reduce glare and activated by a motion sensor to minimize lighting, consistent with applicable electrical infrastructure regulations, the project would not create a major new source of light and glare that would affect day or nighttime views in the area, and the effect would not be significantly adverse.

As discussed in the PEIR, repowered wind farms will add new turbines and, consequently, new sources of blade rotation that could cause shadow flicker that may affect local residents. To avoid adverse effects on residents or others passing near new wind farms, Alameda County has established setback requirements for new turbines in relation to certain land use types. Turbines cannot be placed within these setback areas. However, it has been determined that these county setbacks may not be sufficient to fully protect the public from new, taller turbines. Therefore, it will be necessary to implement PEIR Mitigation Measure AES-5, *Analyze shadow flicker distance and mitigate effects or incorporate changes into project design to address shadow flicker*, which is included as a conservation action in the HCP. To comply with the mitigation measure, setback requirements may be increased to avoid the effect. With the mitigation measure in place, the effect would not be significantly adverse.

No Action

No new effects on visual resources near the Rooney Ranch project permit area would occur from the No-Action Alternative. The project permit area would remain in use as grazing land. This alternative assumes that currently planned and approved wind production facilities in the APWRA would continue through their associated project life expectancy (Appendix C, Figure 3), and could affect sensitive viewers near the project permit area.

3.1.2 Air Quality and Climate Change

The resource study area for the analysis of localized air quality effects is the area immediately surrounding and within 1,000 feet of the construction fence line. The effects on air quality are also evaluated regionally within the San Francisco Bay Area Air Basin (SFBAAB) and San Joaquin Valley Air Basin (SJVAB). The climate change study area is much broader due to the global nature of GHGs and includes statewide and global emissions.

3.1.2.1 Affected Environment

Environmental Setting

Air Quality

The primary factors that affect air quality conditions are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Meteorological and topographical conditions are also important factors. Wind and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind-flow patterns. The Proposed Action is within the Livermore Valley climatological subregion of the SFBAAB, which has relatively weak air movement. Maximum summer temperatures range from the high-80s to the low-90s, with extremes in the 100s. The SJVAB has an inland Mediterranean climate that is characterized by warm, dry summers and cool winters. Summer high temperatures often exceed 100°F.

Concentrations of ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and particulate matter (PM_{10} and $PM_{2.5}$) are commonly used as indicators of ambient air quality conditions. These criteria pollutants are regulated under the federal Clean Air Act (CAA). Other pollutants of concern in the study area are nitrogen oxides (NO_X) and reactive organic gases (ROG), which are precursors to O_3, and diesel particulate matter (DPM), which can cause cancer and other human health ailments.

Criteria pollutant concentrations are measured at several monitoring stations. The nearest station to the Proposed Action is the Livermore-Patterson Road station, which is approximately 5 miles to the south. Monitoring data collected at the Livermore-Patterson Road station show that it has experienced frequent violations of O_3 ambient air quality standards over the past 3 years for which monitoring data are available (2015–2017) (California Air Resources Board 2019).

The United States Environmental Protection Agency (USEPA) uses ambient air quality monitoring data collected at local monitoring stations to determine whether geographic areas achieve the national ambient air quality standards (NAAQS). Areas with pollutant concentrations within NAAQS are designated as attainment areas, whereas areas that do not meet NAAQS are designated as nonattainment or maintenance areas. The project areas within the SFBAAB and SJVAB are currently nonattainment for the O_3 and $PM_{2.5}$ NAAQS. The SJVAB is also classified as a maintenance area for the PM_{10} NAAQS. Both the SFBAAB and SJVAB are in attainment for all other pollutant standards (USEPA 2019).

Greenhouse Gases and Climate Change

Increases in human-generated GHG emissions have been unequivocally linked to recent warming and climate shifts (Intergovernmental Panel on Climate Change 2007). Rising atmospheric concentrations of GHGs in excess of natural levels result in increasing global surface temperatures. Higher global surface temperatures, in turn, result in changes to Earth's climate system, known as *climate change*. Although modeling indicates that climate change will result globally and regionally, there remains uncertainty about characterizing the precise local climate characteristics and predicting precisely how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty in precise predictions, it is widely

understood that some degree of climate change is expected because of past and future GHG emissions. The primary GHGs emitted by the project are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). The Proposed Action may also result in emission of sulfur hexafluoride (SF_6), a powerful synthetic gas associated with electric power infrastructure. Unlike criteria pollutants, which occur locally or regionally, the long atmospheric lifetimes of these GHGs allow them to be well-mixed in the atmosphere and transported over distances. GHG emissions are commonly reported in terms of carbon dioxide equivalent (CO_2e), which compares the warming potential of each gas (e.g., CH_4) to that of the same mass of CO_2 (by definition, CO_2 has a global warming potential of 1).

Regulatory Setting

Please refer to Appendix D for information on relevant federal and state air quality and climate change regulations. For air quality and climate change, these include federal (Clean Air Act and Ambient Air Quality Standards, Clean Air Nonroad Diesel Rule, Federal Greenhouse Gas Regulation) and state (California Clean Air Act and California Ambient Air Quality Standards, Statewide Truck and Bus Regulations, Statewide Tailpipe Emissions Standards, Toxic Air Contaminant Regulations, State Greenhouse Gas Regulations) requirements.

3.1.2.2 Environmental Consequences

Approach and Methods

Project construction emissions would primarily be in the SFBAAB. However, some equipment and materials would originate from the Port of Stockton and the city of Tracy, both of which are within the SJVAB. Accordingly, heavy-duty truck trip exhaust emissions that would be generated in the SJVAB have been quantified and included in the construction analysis. Operational emissions would be exclusively in the SFBAAB.

Analysts estimated combustion exhaust and fugitive dust based upon project-specific construction data (e.g., schedule, equipment, truck volumes) provided by the project engineer and a combination of emission factors and methodologies from CalEEMod, version 2016.3.2, the California Air Resources Board (CARB)'s EMFAC2014 model, USEPA's AP-42 Compilation of Air Pollutant Emission Factors, and several other industry-accepted tools. All major design components of the project (e.g., road construction, turbine delivery) were quantitatively analyzed and included in the emissions modeling to ensure that emissions from construction and air quality and GHG effects associated with the completed project were accurately assessed. Operational criteria pollutant and GHG emissions were estimated for routine maintenance activities, worker commutes, and vehicle trips. The GHG analysis also considers emissions from minor electricity consumption and SF_6 circuit-breaker leakage, as well as GHG reductions that would occur from offsetting unrenewable fossil fuel-based electricity with renewable wind-generated electricity. Refer to Appendix E, Section E.1 for additional modeling assumptions.

An effect would be considered significantly adverse if the action could lead to any of the following conditions: conflict with, or an obstruction to, implementation of the applicable air quality plan, violate an air quality standard, or contribute to a cumulative air quality effect; expose sensitive receptors to substantial pollutant concentrations; or generate a significant amount of GHG emissions, either directly or indirectly, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Effects

Proposed Action

Effect AQ-1. Conflict with applicable air quality plans, violate existing or projected air quality standards, or contribute to a cumulative air quality effect

The CAA requires that all federally funded projects come from a plan or program that conforms to the appropriate State Implementation Plan (SIP), so that they do not interfere with strategies employed to attain the NAAQS. Project-level conformance with the SIP is demonstrated through a general conformity analysis, which requires a comparison of project generated emissions to applicable federal *de minimis* levels.

Air quality is inherently a cumulative resource because most criteria pollutant emissions, once emitted, mix into the atmosphere and affect a larger area than an individual project site. Ambient air quality is highly dependent on a multitude of interconnected variables, including cumulative emissions generated by sources located through an air basin, local meteorology, and atmospheric conditions. The NAAQS attainment designations for a region reflect ambient air quality conditions based upon cumulative emissions sources. As discussed above, the project permit area in the SFBAAB is currently designated nonattainment for the O_3 and $PM_{2.5}$ NAAQS; the project-related activities in the SJVAB are also within an area designated as nonattainment for these pollutants and maintenance for the PM_{10} NAAQS. The federal *de minimis* levels are based upon a region's attainment status for each pollutant. Emissions that exceed the *de minimis* levels under modeled conditions are considered to reflect the cumulative effects resulting from contributors within the air basins. Accordingly, the Proposed Action would be considered to have a significant adverse effect on air quality if it would result in an exceedance of *federal de minimis* levels for these pollutants and their precursors.

Construction

Table 3-1 summarizes estimated emissions in SFBAAB and SJVAB from construction of the Proposed Action. Construction would occur in 2020 over a period of six months.[1] Emissions are presented in terms of tons for comparison to the applicable federal *de minimis* levels. The analysis is conservative as it estimates 250 construction days (more than six months) in 2020.

Table 3-1. Estimated Construction Criteria Pollutant Emissions (tons)

Location	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2[a]
SFBAAB						
Rooney Ranch Construction	<1	3	2	1	1	<1
De Minimis Level	100	100	--[b]	--[b]	100	100
SJVAB						
Rooney Ranch Activity	<1	<1	<1	<1	<1	<1
De Minimis Level	10	10	--[b]	100	100	100
Adverse?	No	No	No	No	No	No

[a] Although the Proposed Action is located within a federal designated SO_2 attainment area, because SO_2 is a precursor for $PM_{2.5}$, emissions must be compared to the $PM_{2.5}$ General Conformity *de minimis* threshold.

[b] The Proposed Action is located within a federally designated attainment area for this pollutant. Accordingly, there are no applicable attainment plans or *de minimis* thresholds and these emissions are not subject to the General Conformity Rule (40 Code of Federal Regulations Part 51 and 93, Section III.A).

[1] Emissions were estimated using an advanced construction schedule of 2019. Because emission factors decline as a function of time, the emission results presented are conservative.

As shown in Table 3-2, the Proposed Action's construction emissions are below the *de minimis* levels in both the SFBAAB and SJVAB. The federal action would not conflict with applicable air quality plans, and a formal General Conformity determination is not required. PEIR Mitigation Measures AQ-2a, *Reduce construction-related air pollutant emissions by implementing applicable BAAQMD Basic Construction Mitigation Measures,* and AQ-2b, *Reduce construction-related air pollutant emission by implementing measures based upon BAAQMD's Additional Construction Mitigation Measures,* would also minimize NO_X and PM emissions during construction. These measures would require construction contractors to closely control the amount of disturbed soil surfaces present at any one time and undertake strict dust-suppression actions to control the generation of particulates. The measures also require use of vehicles with best available technology in place to curb fuel combustion-generated NO_X emissions in accordance with the requirements of the Bay Area Air Quality Management District (BAAQMD). Because construction emissions would not violate an air quality standard or conflict with implementation of an air quality plan, the effect on air quality would not be significantly adverse.

Operations and Maintenance

Operation of the Proposed Action would generate criteria pollutant emissions during routine inspections and maintenance that require off-road equipment and worker vehicles. These emissions would occur exclusively in the SFBAAB and would begin following completion of construction.[2] Table 3-2 summarizes the emissions and demonstrates that operational emissions from Rooney Ranch would not exceed the *de minimis* levels. Accordingly, operations and maintenance emissions would not violate an air quality standard or conflict with implementation of an air quality plan, and the effect on air quality would not be significantly adverse.

Table 3-2. Estimated Operational Criteria Pollutant Emissions (tons per year)

Source	ROG	NO_X	CO[a]	PM_{10}[a]	$PM_{2.5}$	SO_2[b]
Rooney Ranch Operation	<1	<1	<1	<1	<1	<1
De Minimis Level	100	100	–	–	100	100

[a] The Proposed Action is located within a federally designated CO and PM_{10} attainment area. Accordingly, there are no applicable attainment plans or *de minimis* thresholds. Neither PM_{10} nor CO emissions are subject to the General Conformity Rule (40 Code of Federal Regulations Part 51 and 93, Section III.A).

[b] Although the Proposed Action is located within a federal designated SO_2 attainment area, because SO_2 is a precursor for $PM_{2.5}$, emissions must be compared to the $PM_{2.5}$ General Conformity *de minimis* threshold.

Effect AQ-2. Expose sensitive receptors to substantial pollutant concentrations

A sensitive receptor is generally defined as a facility or land use that houses or attracts members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Typical sensitive receptors are residences, hospitals, schools, and parks. Emissions generated during construction and operation may expose adjacent receptors to DPM and locally concentrated criteria pollutants, such as CO.

There are no sensitive receptors within 1,000 feet of Rooney Ranch (the nearest receptor, a single-family residence, is more than 1,500 feet away). Long-term operation of the Proposed Action would not result in a significant new source of DPM emissions because it would use minimal and infrequent diesel-powered equipment. Operational activities would also generate minimal traffic and result in negligible criteria pollutant emissions. Because of the distance of sensitive receptors to the site, minimal emissions, and minimal operational traffic, sensitive receptors would not be exposed to substantial pollutant concentrations during operations and the effect would not be significantly adverse.

[2] Operation of the project would begin in 2021. Emissions were estimated using an advanced schedule of 2020. Because emission factors decline as a function of time, the emission results presented are conservative.

Offsite truck trips during construction would be transitory and utilize multiple roads over a widespread area, thereby dispersing toxic pollutants and minimizing exposure. Onsite construction activities would generate DPM, but these activities would occur over a relatively short period (six months), far less than the exposure duration of 30 years that is typically associated with chronic cancer risk (Office of Environmental Health Hazard Assessment 2015). Emissions would also be spatially dispersed throughout the action area and at multiple turbine locations. PEIR Mitigation Measure AQ-2a would also reduce construction DPM emissions and associated health risks to sensitive receptors. This mitigation measure requires construction contractors to minimize the creation of dust and fuel-related particulates through a series of best management practices (BMPs) on the work site. Because of pollutant dispersal and the limited construction duration, and with implementation of PEIR Mitigation Measure AQ-2a, the project would not expose sensitive receptors to substantial pollutant concentrations during construction, and the effect on sensitive receptors would not be significantly adverse.

Effect AQ-3. Generate a significant amount of GHG emissions, either directly or indirectly, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs

Table 3-3 summarizes estimated construction and operational GHG emissions associated with the Proposed Action. Unlike most regional and local criteria pollutants, GHG emissions are inherently cumulative and are not ascribed to air district boundaries. Accordingly, GHG emissions generated in SFBAAB and SJVAB during construction are summed together in Table 3-3. The net effect on emissions during the first year of operation is also presented. Electricity produced by the statewide grid is generated in part by fossil-fueled sources (e.g., natural gas facilities). Because additional renewable resources will be integrated into the statewide electrical grid as a result of the California Renewables Portfolio Standard, the annual displaced emissions achieved by the Proposed Action will decline as a function of time (up to 100 percent renewable resources by 2045, pursuant to California Senate Bill 100). Nonetheless, implementation of the Proposed Action would support the state's long-term GHG reduction goals, which would be a beneficial effect.

Table 3-3. Estimated GHG Emissions from Construction and Operation (metric tons)

Source	CO_2e
Total annual construction and O&M emissions[a]	58
Annual GHG reductions from offsetting grid electricity[b]	-8,733
Annual net GHG emissions in Year 1[b]	-8,675

[a] O&M = operations and maintenance; total estimated construction emissions of 501 metric tons have been amortized over 30 years

[b] Reductions and emissions presented represent Year 1 of operation. Annual displaced emissions achieved by the Proposed Action will decline as a function of time as the statewide grid incorporates additional renewable sources.

No Action

No new effects on air quality or GHG emissions near the Rooney Ranch project permit area would occur from the No-Action Alternative. Under the No-Action Alternative, the Proposed Action would not offset fossil fuel electrical generation, and therefore an annual reduction in GHG emissions totaling 8,733 metric tons would not occur. The No-Action Alternative would not provide the GHG emission reductions of the Proposed Action and would be environmentally worse from a climate change perspective.

3.1.3 Biological Resources

Information for the following analysis regarding potential project-specific effects on biological resources is based upon the findings of a project-specific biological resource evaluation conducted by ICF for the Rooney Ranch project (ICF 2018a), a project-specific review of hydrologic conditions at the project permit area

(Appendix G) and publicly available information regarding both the project permit area and potential mitigation permit area.

3.1.3.1 Affected Environment

For the purposes of this analysis, the biological study area includes the project permit area. The study area for biological field surveys conducted in 2017 and 2018 included a 1.24-mile buffer around this area to account for potential dispersal distance by California tiger salamanders from aquatic breeding habitat. This buffer is an area that is inclusive of dispersal habitat of other pertinent listed species, such as the California red-legged frog and San Joaquin kit fox. All acreages reported in this section refer to areas within the project permit area boundaries and exclude lands within the 1.24-mile buffer, as the buffer area will not be directly affected by the Proposed Action.

The APWRA supports a number of bat species and a broad diversity of resident, migratory, and wintering bird species that regularly move through the area and nest in the APWRA, including the project permit area. Additional information on these species can found in Appendix H, *Avian and Bat Mortality Technical Memorandum*.

Environmental Setting

Biological Communities

The project permit area is dominated by nonnative annual grasslands. Anthropogenic disturbances or features within the project permit area include existing wind energy-generation support infrastructure, such as roads and the electrical substation. Because the previous generation turbines were decommissioned and removed, no wind turbines are currently located on the project permit area. Table 3-4, below, presents the acreages of each land cover type within the project permit area. Table 3-5, below, presents a summary of the aquatic features located within the project permit area. Land cover types and aquatic features are mapped in Figure 5 in Appendix C.

Table 3-4. Approximate Acreages of Land Cover Types within the Rooney Ranch Project Permit Area

Land Cover/Habitat Type	Acres
Nonnative annual grassland	575.3
Pond	0.6
Ephemeral drainages	0.2
Rock outcrop	2.3
Developed/roads/other existing infrastructure	3.3
Total	**581.7**

Table 3-5. Aquatic Resources in the Project Permit Area

Feature Type	Feature ID	Drainage Average Width (feet)	Acreage	Distance to Nearest Construction (feet)	Type of Nearest Construction
Pond (ephemeral)	P-1	--	0.01	225	Temporary access road expansion.
Pond (permanent, stock pond)	P-2	--	0.58	1,200	Temporary work areas for turbine construction.
Pond (ephemeral)	P-3	--	0.03	430	Temporary work areas for turbine construction.
Ephemeral Drainage	ED-1	3	0.02	225	Temporary access road expansion.
Ephemeral Drainage	ED-2	1	0.06	1,600	Temporary work areas for turbine construction.
Ephemeral Drainage	ED-3	2	0.09	960	Temporary work areas for turbine construction.
Total			**0.80**		

Nonnative Annual Grassland

Nonnative annual grassland, the most common land cover type in the project permit area, corresponds to the California annual grassland land cover type identified in the EACCS. Dominant species observed include soft chess brome (*Bromus hordeaceus*), big heron bill (*Erodium botrys*), redstem filaree (*E. cicutarium*), Italian ryegrass (*Festuca perennis* [*Lolium multiflorum*]), and Mediterranean barley (*Hordeum marinum* var. *gussoneanum*). The annual grasslands are grazed to a relatively short height in most areas, and ground squirrel and gopher burrows are present throughout the nonnative annual grasslands in the project permit area.

Ephemeral Drainage

Ephemeral drainages are seasonally wet features; three exist within the project permit area (Figure 5, Appendix C). Two drainages (ED-2 and ED-3) are more than 960 feet from any project activities, and the third (ED-1) is located approximately 225 feet away from project activities (Appendix G).

Vegetation observed within the ephemeral drainages is composed of hydrophytic plant species adapted to wetland conditions. Vegetation typically associated with this feature includes generalists, such as hyssop loosestrife (*Lythrum hyssopifolia*), cocklebur (*Xanthium strumarium*), Mediterranean barley, and Italian ryegrass. Upland species, such as black mustard (*Brassica nigra*), redstem filaree, common tarweed (*Holocarpha virgata*), and soft chess brome, can also occur. Approximately 0.17 acre of ephemeral drainages within the project permit area is classified as a water of the U.S. regulated under Section 404 of the Clean Water Act (ICF 2018b).

Rock Outcrops

Numerous rock outcrops are present in the western portion of the project permit area, nine of which contain variously sized rock pools and are surrounded by annual grassland. The density of rock outcrop pools varied from 1–10 pools per outcrop. The nearest pools are approximately 50 feet away from proposed staging areas. Surveys of the wetland pools located within the rock outcrops identified the existence of vernal pool fairy shrimp (*Branchinecta lynchi*) during periods of inundation (ICF 2018b; Appendix G).

Pond

Within the project permit area, in the southeastern portion of the property (Figure 5, Appendix C), there is one stock pond (P-2) that appears to be a small permanent body of water constructed to retain runoff water for

livestock use (Table 3-5). In addition, there are two small ephemeral ponds (P-1 and P-3) on the southern and southwestern sides of the project permit area. Due to the shallow nature of the ephemeral ponds, characteristically hot, dry summers, and well-draining soil, the ponds only hold water for a short portion of the year, estimated to be up to 1 month after larger rain events. The surface area of the stock pond varies with the time of year. The pond is unvegetated, but may sometimes support a narrow fringe of cattail (*Typha* spp.) or scattered cattail plants.

Special-Status Wildlife and Plants

The HCP covers three federally listed species (see Section 1.2 of this report, *Species Covered by the HCP*). Of these species, only the San Joaquin kit fox has been documented infrequently within the project permit area. Federally listed plant species are not covered because they either do not have the potential to occur in the project permit area due to a lack of available suitable habitat onsite or will be fully avoided if found during botanical preconstruction surveys. Table 3-6, below, presents a summary of potential special-status plant and wildlife species that could occur within the project and mitigation site permit areas and the rationale for each species being carried forward for analysis or dismissed.

Regulatory Setting

Please refer to Appendix D for information on relevant federal and state regulations. For biological resources, these include federal (Federal Endangered Species Act, Clean Water Act Section 404, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act) and state (California Endangered Species Act) requirements.

Table 3-6. Evaluation of Federally Listed Species in the Project Permit Area

Species Name	Status[a]: State	Status[a]: Federal	Criteria[b]: Occur	Criteria[b]: Effect	Criteria[b]: Data	Proposed for Coverage[c]	Notes
Invertebrates							
Longhorn fairy shrimp *Branchinecta longiantenna*	--	E	M	N	Y	N	Numerous rock outcrops are present in the western portion of the project permit area; nine contain various-sized rock pools that provide habitat for longhorn and vernal pool fairy shrimp. However, rock outcrops will be avoided because they are elevated above proposed road improvement and staging areas. Exclusion fencing will be placed between rock outcrops and staging areas to keep workers out of this habitat. Furthermore, visual monitoring of airborne dust, cessation of work if dust is considered harmful on windy days, and additional watering on windy days to control dust will avoid direct and indirect effects.
Vernal pool fairy shrimp *Branchinecta lynchi*	--	T	M	N	Y	N	Two small ephemeral ponds and one stock pond are located onsite. Work on an upslope access road will be approximately 240 feet from one ephemeral pond (P1). The pond hydrology (i.e., surface and subsurface flow) is unlikely to be affected because work will be conducted in the dry season and because of the distance from the work site to the pond and the presence of a non-project road between the work site and the pond, and because stormwater measures will be implemented to prevent erosion (Appendix G). Work would be more than 250 feet from the other two ponds and would consequently not affect their hydrology.
Vernal pool tadpole shrimp *Lepidurus packardi*	--	E	M	N	Y	N	See discussion for vernal pool fairy shrimp.
Amphibians							
California tiger salamander *Ambystoma californiense*	T	T	Y	Y	Y	Y	California tiger salamanders have not been documented in the project permit area, but are known to occur immediately outside it (California Department of Fish and Wildlife 2017). Potential breeding habitat is present within the project permit area in the form of one stock pond and potentially the rock outcrop pools.

Species Name	Status[a]: State	Status[a]: Federal	Criteria[b]: Occur	Criteria[b]: Effect	Criteria[b]: Data	Proposed for Coverage[c]	Notes
California red-legged frog *Rana draytonii*	--	T	Y	Y	Y	Y	Although the project permit area is entirely within designated critical habitat for California red-legged frog (Unit ALA-2), they have not been documented in the project permit area; however, they are known to occur within dispersal distance of it (California Department of Fish and Wildlife 2017). Potential breeding habitat is present within the project permit area in the form of one stock pond. Non-breeding habitat is present in rock outcrops as well as ephemeral drainages and ponds.
Reptiles							
Alameda whipsnake *Masticophis lateralis euryxanthus*	T	T	N	N	Y	N	Alameda whipsnake typically occurs in chaparral and scrub communities that provide a large prey base of lizards and adequate cover and foraging opportunities. The closest scrub habitats are approximately 2.5 miles northwest of the project permit area. Based upon the lack of suitable habitat within the project permit area and the distance from suitable core habitat, Alameda whipsnake is not likely to be in the project permit area and thus, is not likely to be adversely affected by covered activities.
Giant garter snake *Thamnophis gigas*	T	T	N	N	Y	N	Suitable foraging and breeding habitat is not present in the project permit area, and there are no nearby records. Habitat for giant garter snake consists of perennial water and freshwater marsh habitat, neither of which is present in the project permit area.
Mammals							
San Joaquin kit fox *Vulpes macrotis mutica*	T	E	Y	N	Y	Y	Dispersal and denning habitat is present throughout the project permit area. However, the permit area is considered a dispersal area for a potential satellite population from the main Central Valley populations. The most recent 5-year review (U.S. Fish and Wildlife Service 2010) indicates that kit fox populations in Alameda County have declined and no known breeding is occurring. Kit fox density in the project permit area is low due to many factors, including local abundance of coyotes, which are a major predator of kit fox.
Plants							

Species Name	Status[a]: State	Status[a]: Federal	Criteria[b]: Occur	Criteria[b]: Effect	Criteria[b]: Data	Proposed for Coverage[c]	Notes
Large-flowered fiddleneck *Amsinckia grandiflora*	E	E	N	N	Y	N	This species is historically found in native perennial bunchgrass communities which are now increasingly encroached upon by non-native annual grassland communities. No native perennial bunchgrass communities were identified onsite during reconnaissance surveys or wetland-delineation plant list development. Non-native annual grassland communities are present on the project site. The species is only known from three localities in California, although designated critical habitat for the species is approximately 2 miles southeast of the project permit area. Preconstruction surveys will verify that this species is not present. If it is found on the project site, full avoidance of the population will occur.
Palmate-bracted bird's-beak *Chloropyron palmatum*	E	E	N	N	Y	N	There is no suitable alkali grassland habitat within the project permit area.
Contra Costa goldfields *Lasthenia conjugens*	--	E	N	N	Y	N	There are no suitable alkali soils and swales within the project permit area.

[a] Status
E = Endangered; T = Threatened.
[b] Criteria
Occur: The species is known to occur or likely to occur based upon the extent, quality, and distribution of suitable habitats in project vicinity.
Y = Yes; N = No; M = Maybe.
Effect: The species would or could be adversely affected by covered activities.
Data: Sufficient data exist on the species' life history and habitat requirements to adequately evaluate effects on the species and develop conservation measures to mitigate effects.
[c] Proposed Coverage
Y = coverage recommended; N = no coverage recommended.

3.1.3.2 Environmental Consequences

Approach and Methods

To evaluate the potential effects associated with the Proposed Action on biological resources, ICF prepared the *Biological Resources Evaluation for the Rooney Ranch Wind Repowering Project* (ICF 2018a). The following analysis incorporates information presented in that report, as well as the pre-field investigation, reports, hydrology memorandum prepared for the project permit area (Appendix G), and field surveys described below. An effect would be considered significantly adverse if the action could lead to the following conditions: an adverse effect upon wildlife or plant species that results in a population-level effect, for example, removal of suitable breeding or foraging habitat to the extent that local populations are unable to utilize the area in the manner prior to the effect. A non-significant adverse effect is a negative effect to individuals or groups of wildlife or plant species or their habitat, for example, injury or mortality to individuals, changes in behavior that decrease an individual's probability of survival, and degradation of habitat such that it lowers the probability of use by individuals or decreases an individual's probability of survival. A beneficial effect would occur from an action that would directly or indirectly benefit local wildlife and plant species.

3.1.3.3 Biological Resource References

In addition to reviewing previous work conducted in support of the PEIR and the EACCS, ICF biologists searched CDFW's California Natural Diversity Database (CDFW 2018) and USFWS's Information for Planning and Consultation Trust Resource Report species list for the project permit area (U.S. Fish and Wildlife Service 2018).

ICF conducted field studies to map and describe the biological resources present in the project permit area. Each of these studies is described in Appendix E, Section E.2

Surface Disturbance Acreages

Surface disturbance resulting from construction and O&M of the wind energy generation facilities would remove areas of upland habitats within the project permit area. Table 3-7 (below) shows the acreage of upland habitats that would be disturbed. No aquatic habitats would be directly affected under the Proposed Action.

Affected acreages were calculated in a geographic information system by overlaying the Proposed Action facility construction and operations footprints against spatial data collected during general vegetation surveys (See Impact Methodology in HCP Section 4.2 (Appendix A) for specific feature disturbance buffers). Acreages of permanent surface disturbance include only those areas that would be disturbed during the operations phase of the project or those areas that have newly constructed features (new roads, new turbine foundations, etc.). Temporary surface disturbance acreages include all areas to be disturbed during construction of the project. These areas of temporary disturbance would be reclaimed once construction is completed. For the purposes of this analysis, upland habitats include the annual grassland biological community as described in Section 3.1.3.1, *Environmental Setting*.

Additional temporary effects would result from wind turbine repair or replacement, electrical line repair or maintenance, and road maintenance. Such activities would be undertaken only on an as-needed basis. Annual operational disturbance estimates are based upon annual disturbance of approximately 4,500 square feet (i.e., approximately a 50-foot by 90-foot area); actual disturbances could be larger or smaller in any particular year depending upon the maintenance work needed but would not exceed 3.0 acres over the life of the project. Disturbances resulting from maintenance would avoid the areas of ephemeral drainage, the stock pond, and rock pools; therefore, no effects on these landcover types are anticipated.

Table 3-7. Upland Habitat Effect Summary for Construction and Maintenance

Activity	Permanent (acres)	Temporary (acres)
Construction		
Power collection system installation	0.0	3.0
Staging area installation	0.0	15.0
Access road expansions[a]	0.4	6.7
New access roads[a]	0.6	0.3
Turbine foundation installation	0.5	17.6
Meteorological tower installation	0.1	0.2
Substation expansion	0.1	0.1
Power poles	0.1	0.0
Construction Subtotal	1.8	42.9
Maintenance		
O&M work (0.5 acre every 5 years for 30 years) [b]	0.0	3.0
Total	**1.8**	**45.9**

[a] Some existing access roads would be reused to the extent possible or widened to accommodate construction activities; however, some sections of new access road would be required.

[b] Although the operational period of the project is expected to be up to 35 years, ground-disturbing O&M activities would only occur in operational years 5–35 (30 years).

O&M = operations and maintenance

Effects

Proposed Action

Effect BIO-1: Adverse effects on special-status plants resulting from the introduction and spread of invasive plant species

Covered activities have the potential to facilitate the introduction and spread of invasive nonnative plant species by removing vegetation and disturbing soils. Construction vehicles and machinery are primary vectors for the spread of invasive species. Invasive species compete with native species for resources and can alter natural communities by influencing fire regimes, hydrology (e.g., sedimentation and erosion), light availability, nutrient cycling, and soil chemistry (Randall and Hoshovsky 2000). Invasive nonnative plant species could outcompete special status plants and could reduce their populations, but PEIR and adjusted EACCS (Alameda County Community Development Agency 2014, ICF 2010) mitigation measures presented in Appendix F of this EA would minimize, mitigate, and avoid these effects. Adverse effects from invasive plants species would not cause population-level effects to special-status plants because implementing PEIR Mitigation Measures BIO-1b, *Implement best management practices to avoid and minimize impacts on special-status species*, BIO-2, *Prevent introduction, spread, and establishment of invasive plant species,* BIO-5c, *Restore disturbed annual grasslands,* and WQ-1, *Comply with NPDES requirements*, would create a low probability of invasive species introduction and spread in the project permit area. Therefore, there would be no significant adverse effects from invasive plants on special-status plants.

Effect BIO-2: Potential mortality of or degradation of habitat for vernal pool branchiopods

There are no vernal pool features in the project permit area. However, two small ephemeral ponds (P-1 and P-3) and rock outcrop pools are present, and vernal pool branchiopods (e.g., vernal pool fairy shrimp and vernal pool tadpole shrimp) could be adversely affected by construction activities if they are present in these features. The majority of construction activities would take place on grassland habitat along ridgelines; consequently, ground

disturbance (direct effects) to potential vernal pool branchiopod habitat would be avoided. However, indirect effects on habitat associated with road construction or widening and effects on water quality could result from some construction activities because of wind erosion and sedimentation into ephemeral ponds and the rock outcrop pools.

Construction activities are not expected to have a significant adverse effect on the ephemeral ponds for a number of reasons: their distance from disturbance, widening and restoration during the dry season, implementation of Stormwater Pollution Prevention Plan (SWPPP) measures, no new impermeable surfaces being constructed near the ponds, the existing road near the pond P-1 will be widened only temporarily, the existing road next to other features will not be affected, and the incorporation of a measure to carefully consider road design in a way that minimizes the potential for adverse effects (HCP Conservation Measure ADD-10, *Hydrologist Analysis of Design Plans*). This rationale is further detailed below and in Section 3.1.7 Hydrology and Water Quality.

Ephemeral ponds P-1 and P-3 are not anticipated to be directly affected by construction, permanent features, or O&M activities due to the distances between each feature and proposed project components (225 and 430 feet, respectively) (Appendix G). Ephemeral Pond (P-1) is about 225 feet from temporary work expansion on an upslope access road. Work within 250 feet of vernal pool brachiopod habitat is generally considered adverse to pools (USFWS 1996). The pond hydrology is not expected to be affected temporarily by the road expansion because surface and subsurface flows will not be altered (Appendix G) because work will be performed during the dry season, there is a non-project road between the work area and the pond (reducing any effects), and stormwater erosion protection measures from the SWPPP will be in place. Work is farther than 250 feet away from the other ephemeral ponds and is not expected to affect their hydrology as a result.

The density of rock outcrop pools varies from 1–10 pools per outcrop. The nearest pools are located approximately 50 feet away from proposed staging areas, and will not be affected by overland water flow or sedimentation carried by overland water flow because they are located at an elevation higher than where overland flow from the construction sites would occur. However, sedimentation through wind erosion could still occur due to the close proximity of some of the staging areas. EACCS PBO Mitigation Measure INV-1, *If vernal pools, clay flats, alkaline pools, ephemeral stock tanks, or sandstone pools, or roadside ditches are present, a qualified biologist will stake and flag an exclusion zone prior to activities,* requiring the installation of exclusion fencing, would minimize the potential that crews encroach on the rock outcrops. Watering for dust control will be maintained within the staging area and along roads as required in HCP Conservation Measure ADD-9, *Watering of loose soil,* and will reduce the potential for fugitive dust deposits in the rock pools. Additionally, HCP Conservation Measure ADD-8, *Biological monitor for dust,* requires that all activities around rock outcrops within the project permit area will cease if wind speed and direction result in the development of harmful dust.

In addition, implementation of a number of other mitigation measures would reduce potential effects. These include:

- PEIR Mitigation Measures BIO-1b, BIO-1e, *Retain a biological monitor during ground-disturbing activities in environmentally sensitive areas*, BIO-3a, *Conduct preconstruction surveys for habitat for special-status wildlife species*, and BIO-3b, *Implement measures to avoid, minimize, and mitigate impacts on vernal pool branchiopods and curved-footed hygrotus diving beetle*, would minimize any negative effects to rock outcrop or ephemeral ponds.
- PEIR Mitigation Measures AQ-2a and AQ-2b which require project consistency with applicable Bay Area Air Quality Management District construction BMPs to reduce dust, would reduce effects on wetland features.
- PEIR Mitigation Measure WQ-1 would minimize the potential that project-related stormwater runoff would result in extensive erosion or downstream siltation and that project permit area drainage patterns would be altered.

Implementation of the mitigation measures for biological resources, water quality, and air quality would minimize the potential for sedimentation from wind or water erosion to degrade pool hydrology or water quality. No changes to hydrology are expected to ephemeral ponds and rock outcrop pools from construction activities, permanent features, or O&M activities. Accordingly, vernal pool brachiopods, if present in these pools, should not be injured or harmed by the proposed project and effects to their populations or their habitat would not be significantly adverse.

Effect BIO-3: Potential disturbance or mortality of and loss of habitat for California tiger salamander and California red-legged frog

Construction activities, O&M activities, and the creation of permanent features in the project permit area could result in adverse effects on California tiger salamander and California red-legged frog (collectively referred to as *special-status amphibians*) or their habitats (seasonal wetland, ponds, drainages, and surrounding upland areas) through injury or mortality of individuals and loss or degradation of habitat.

Construction activities, such as excavation, grading, or stockpiling of soil, will fill, remove, or otherwise alter habitat for special-status amphibians and could result in injury or mortality of individual amphibians. Potential direct effects include mortality or injury by equipment, entrapment in open trenches or other project facilities, and removal or disturbance of upland habitat that results in damage or elimination of suitable burrows potentially used by California tiger salamander. O&M activities may result in direct effects on special-status amphibians during similar activities. Travel on maintenance roads during the rainy season or when amphibians are dispersing could result in mortality of individuals. Equipment use during maintenance activities such as road repair, firebreak maintenance, or turbine foundation repair, could result in injury or mortality of special-status amphibians. Special-status amphibians may occur in upland areas during periods of dispersal and could be injured or killed as a result of collisions with or crushing by vehicles or construction equipment during construction or O&M activities. Special-status amphibians could also be injured or killed by an unintentional release of vehicle fuel, lubricants, or other contaminants into areas of suitable habitat. For a discussion of contaminant impacts to water quality, see the Section 3.1.6 (Hazardous Materials and Public Safety Hazards) and 3.1.7 (Hydrology and Water Quality). Injury or mortality to individuals from construction or O&M activities would be minimized by PEIR Mitigation Measures BIO-1b, BIO-1e, and BIO-3a, and Species Specific AMMs from the EACCS and its Programmatic Biological Opinion such as limiting construction activities to the dry season, having a Service-approved monitor, and providing exclusionary fencing. By implementing these measures, injury or mortality to individuals should be minimal during the 1-year construction period and during O&M activities, and should not result in a reduction of the local population. As a result, injury or mortality of individuals would not result in population-level effects to these special-status amphibians, and the effect would not be significantly adverse.

The majority of construction activities would take place on suitable upland grassland habitat for California tiger salamander and California red-legged frog and would cause loss and degradation of habitat, both temporarily and permanently. Habitat would be lost permanently to structures created on 1.8 acres of annual grassland. Habitat would be temporarily degraded during construction on 42.9 acres of habitat as changes to the landscape and construction activities would cause avoidance of the habitat or impedance behavior such that it alters movement, sheltering, or foraging. As a result, movement, foraging, and sheltering will be disturbed and reduced for both frogs and salamanders during work activities within the work area and reduced survival during the six month work window would be a potential effect. Six months of reduced survival is unlikely to affect the local population or cause a sustained decline, and thus the effect would not be significantly adverse. Additionally, because movement will be restricted in some areas, breeding success of salamanders may be reduced during the six months of construction. The stock pond is 1,200 feet from construction activities and migrating salamanders may be restricted from getting to and from the pond. Six months of reduced reproductive success in one pond is

unlikely to affect the local population, particularly because not all salamanders breed every year; thus the effect would not be significantly adverse.

Aquatic features within the project permit area are limited to one stock pond, two ephemeral ponds, and three ephemeral drainages. As stated in Table 3-6, breeding habitat for California red-legged frog and California tiger salamander is likely in the permanent stock pond (P-2) with only salamanders potentially using rock outcrop pools. All other features (ephemeral drainages, ephemeral ponds) are likely used as non-breeding habitat for California red-legged frog. Indirect effects resulting from hydrologic changes to aquatic features and the surrounding uplands could adversely affect the special-status amphibians in the project permit area by: reducing survival of eggs or larvae in breeding habitat (concentrated, fast/heavy flows or erosion and sedimentation that cause injury to eggs/larvae); reducing suitability of non-breeding habitat for frogs (concentrated, heavy flows in drainages that cause disturbance to adults); or, reducing survival of eggs or larvae in breeding habitat by intersecting drainage into ponds and shortening the inundation period or feature depth. However, a review of the Proposed Action by a professional hydrologist determined that the primary risk to aquatic features would be from redirected or concentrated runoff that could lead to erosion and sedimentation, such as from construction of roads. Construction of the features along the ridgetops of the project permit area minimizes the potential for adverse effects to watershed hydrology and overland flow into aquatic features as the occurrence of concentrated overland flow in the upper reaches of sub-watersheds would be unlikely (Appendix G). Roads constructed at lower, sub-watershed elevations could alter the hydrology in existing drainages by intersecting concentrated flow in drainages. Given the distance of the roads from the mapped drainages, the extent of proposed restoration, and the extent of BMPs to avoid and reduce sedimentation (see Effect BIO-2) or alter drainage patterns (HCP Conservation Measure ADD-10), this risk was determined to be low (Appendix G) and no hydrologic alterations are expected from any activities or from the presence of features on the landscape. See discussion below for more details on each feature.

As discussed under Effect BIO-2, the hydrology of ephemeral ponds (P-1 and P-3) and rock outcrop pools potentially used by these amphibian species would not be adversely affected by construction of new features or construction activities. Stock pond (P-2) is approximately 1,200 feet from any proposed facility or construction activity and, therefore, its hydrology (through overland or subsurface flow) is unlikely to be altered during construction or permanently. In addition, ephemeral drainages ED-1, ED-2, and ED-3, would not be altered by construction activities and facility features primarily because of their location relative to the construction activities and facility features (Appendix G). Ephemeral drainages ED-2 and ED-3 are at least 960 feet away from the nearest area of disturbance and would be unaffected because of site restoration and lack of connection between the disturbance area and the ephemeral drainages. According to the hydrological analysis (Appendix G), Ephemeral drainage ED-1 is 225 feet away from the nearest disturbance area and is unlikely to be affected by project construction because flow paths from the nearby-proposed road will be restored following construction, most precipitation would directly percolate because of the porosity of soils, and site drainage following construction would carry flow along the road perpendicular to the ephemeral drainage. In addition, construction would generally be limited to the dry season and BMPs would be implemented as part of the SWPPP that would further avoid adverse effects to these ephemeral drainages. Finally, alterations of existing drainage patterns that could potentially affect ponds would be mostly avoided or minimized by HCP Conservation Measure ADD-10 which would require the design of project components within 250 feet of an aquatic feature to be developed in coordination with a professional hydrologist to ensure that project components do not obstruct or alter natural drainage patterns. For example, roads could be engineered to avoid intersecting flows or concentrating flows into aquatic features by first avoiding aquatic features to the greatest extent possible, and then by avoiding grading roads in a manner that concentrates enough flow to create overall flow paths that can erode the road and create erosion where flow exits the road and follows a steeper flow path. In addition, temporary ground disturbances from new or upgraded access roads would be restored to pre-project conditions through grading to original contour and seeding with an appropriate, USFWS-approved seed mixture. Construction is anticipated

to be completed during the dry season (April 15 to October 31), PEIR Mitigation Measure WQ-1 would be implemented, and most drainages and ponds are greater than 250 feet from the nearest construction activity (see Table 3-5). Finally, SWPPP BMPs listed in Effect WQ-1 (such as hydromulch and erosion wattles) and restoration of all temporarily affected areas would be implemented following construction impacts, which would further reduce the potential for changes to existing drainage patterns and potential for erosion or siltation reaching drainages or ponds during the wet season while impacted areas are rehabilitating, as well as in the long term.

Direct and indirect adverse effects to special-status amphibians and their habitat from hydrologic alterations during project construction, from the creation of permanent features, and during O&M activities would be reduced and avoided with implementation of PEIR Mitigation Measures BIO-1b, BIO-1e, BIO-3a, BIO-3b, EACCS conservation measures requiring erosion/sedimentation control and rehabilitation of temporary impacts, and HCP Conservation Measure ADD-10. Mitigation Measure BIO-5a, *Implement best management practices to avoid and minimize effects on special-status amphibians,* would help to avoid adverse effects by requiring the Applicant to adopt BMPs during project construction to avoid affecting special-status amphibians. Implementation of the mitigation measures would reduce the magnitude of these potential effects by minimizing any negative effects to aquatic features and reducing the potential for direct effects to individuals.

O&M activities may also result in temporary effects to Central California tiger salamander and California red-legged frog upland and aquatic habitats. Direct and indirect adverse effects to special-status amphibians and their habitat from hydrologic and upland alterations during O&M activities will be similar to those described for project construction. Equipment use during maintenance activities such as road repair, firebreak maintenance, or turbine foundation repair, could result in injury or mortality of these species similar to that described above for construction activities. Because such a small upland area (0.5 acres every five years) would be impacted by O&M activities each year, movement, foraging, sheltering, and breeding for the population would be only minimally affected and thus, O&M activities that affect habitat should not result in a significant adverse effect to local populations.

Adverse effects to special-status amphibians from temporary and permanent impacts to habitat and individuals would be reduced by implementing avoidance and minimization measures set forth in the HCP (PEIR, EACCS, and HCP mitigation measures) and would be offset through conservation of upland habitat (approximately 48.3 acres) at an Agency-approved conservation bank or applicant-purchased mitigation lands. Applicant-purchased mitigation lands would have to be located in eastern Alameda County as required by the EACCS and at the appropriate ratio defined for the location of the mitigation site. The Applicant may choose to acquire sufficient mitigation bank credits to offset direct and indirect effects to California tiger salamander and California red-legged frog from the Collier Canyon mitigation bank or the Doolan Canyon Mitigation bank which are closest to the project permit area and located in eastern Alameda County. Although the majority of the Collier Canyon mitigation lands are located in Contra Costa County, the mitigation ratios set forth in the HCP for that area of Eastern Alameda County would remain applicable (3:1 ratio for permanent effects and a 1:1 ratio for temporary effects) because of the banks' proximity to the project site. The proposed Collier Canyon and Doolan banks are under review by the USFWS and are not currently approved to sell credits; they may or may not be available for purchase at the necessary time. If these credits are not available, then the applicant maybe choose to purchase credits at Ohlone West Conservation Bank which is located in the far southwestern portion of east Alameda County. Credits purchased at this bank would have a higher ratio for permanent effects because the area is farther away (ICF 2010).

All temporary impacts in the project permit area will be restored to current condition within a year from the impact. With the minimal presence of 1.8 acres of facilities for 35 years and temporary O&M effects of 0.5 acres every five years, special-status amphibians in the long term will use the landscape as they do currently for movement, foraging, shelter, and breeding, therefore, no permanent population changes are expected as a result of the proposed project. Compensatory mitigation of approximately 48.3 acres would offset permanent removal

of upland habitat from constructed features on the landscape as well as the temporary adverse effects to sheltering, movement, foraging, and breeding for the special-status amphibians. A significant adverse effect to special-status amphibians would result if the reproductive potential of the population is reduced because of a large loss of individuals in the project permit area or if there was permanent impediment to dispersal to and from breeding sites; these population-level impacts could cause the population to decline and eventually become extirpated if they occurred consistently over a long period of time and over a large area. The effects to special-status amphibians from the proposed project would not cause these population-level effects because the majority of adverse effects would be temporary, temporarily-affected acres would be restored to pre-existing condition, a small percentage of the landscape would have permanent habitat removal (1.8 acres), O&M activities would have negligible effects to species' behaviors, the project would not permanently impede species movement to and from aquatic features, no aquatic features would be adversely affected by proposed activities, and temporary adverse effects to individuals and permanent habitat loss would be offset through compensatory lands. Accordingly, effects to special-status amphibians would not be significantly adverse.

Effect BIO-4: Potential injury or mortality of and loss of habitat for San Joaquin kit fox

Construction activities in the project permit area could result in adverse effects to San Joaquin kit fox or their grassland habitat. In addition to the permanent and temporary removal of habitat, other potential adverse effects include: mortality or injury of individuals from construction vehicles or heavy equipment, direct mortality or injury of individuals from den collapse and subsequent suffocation, and temporary disturbance from noise and human presence associated with construction activities and personnel. Additionally, exposed pipes, large excavated holes, or trenches that are left open after construction has finished for the day could entrap San Joaquin kit foxes. Behavioral alteration from disturbance during construction could alter movement, foraging, and sheltering behaviors such that survivability rates are decreased temporarily (six months). As described above, the Altamont Hills are part of the Satellite population of San Joaquin kit fox and the area is used mainly by dispersing individuals and not residents. While movement could be impeded through the project permit area, the surrounding landscape would still provide habitat for kit fox movement through the Altamont Hills. Construction of the project would not block movement of individuals through the Altamont Hills to adjacent areas. EACCS Mitigation Measure MAMM-1, *San Joaquin kit fox avoidance* requires the identification of potential dens and avoids adverse effects to individuals through the application of an exclusion zone around occupied burrows if construction in the vicinity of the burrows could not be avoided otherwise. By implementing these specific-specific measures to protect den sites and denning individuals, injury or mortality to individuals will be minimized and likely avoided during the six month construction period and should not result in a reduction of any population whose individuals disperse through the permit area. Because individuals are unlikely to be injured and because movement through the Altamont Hills is not blocked during construction, temporary construction activities would not result in population-level effects.

O&M activities, such as road repair, firebreak maintenance, or turbine foundation repair, may also result in adverse effects to San Joaquin kit fox or their grassland habitat and may cause injury or mortality to individuals similar to those described above for construction activities and should mainly result in temporary impacts. Behavioral alteration from disturbance during O&M activities is not likely to alter movement, foraging, and sheltering behaviors for large areas or timeframes because of the small area impacted annually (0.5 acres every 5 years); any behavioral alteration resulting from these facilities on the landscape is expected to be negligible and should not affect any population of individuals moving through the area.

All temporary impacts will be restored within six months and fully restored to current condition within one year following impact through activities such as grading to original contour and reseeding. In the long term, with the minimal presence of 1.8 acres of facilities for 35 years and temporary O&M effects of 0.5 acres every 5 years, San Joaquin kit foxes will use the landscape as they do currently for movement, foraging, and shelter; any behavioral

alteration resulting from these facilities on the landscape is expected to be negligible and should not impact any population of individuals moving through the area.

Implementation of PEIR Mitigation Measures BIO-1b, *Implement best management practices to avoid and minimize impacts on special-status species*, BIO-1e, *Retain a biological monitor during ground-disturbing activities in environmentally sensitive areas*, BIO-3a, *Conduct preconstruction surveys for habitat for special-status species*, BIO-5c, *Restore disturbed annual grassland*, BIO-10a, *Implement measures to avoid and minimize potential impacts on San Joaquin kit fox* and BIO-10b, *Compensate for loss of suitable habitat for San Joaquin kit fox*, would minimize and effectively avoid the direct loss of individuals from construction and O&M activities. Mitigation Measures BIO-1b, BIO-1e, BIO-3a, and BIO-5c are described above in previous effects discussions. Mitigation Measure BIO-10b would require compensation for any loss of suitable habitat for San Joaquin kit fox. In addition, EACCS Mitigation Measure MAMM-1 would be implemented to avoid and minimize potential adverse effects to San Joaquin kit fox, similar to measure PEIR BIO-10a, through the requirement to identify potential dens and avoid adverse effects through the application of an exclusion zone around occupied burrows if construction in the vicinity of the burrows could not be avoided otherwise.

Temporary effects on 42.9 acres of grassland habitat to movement, sheltering and foraging of kit fox, as well as permanent effects from 1.8 acres removal of grassland habitat, are anticipated as part of the Proposed Action, but these effects would be reduced by implementing avoidance and minimization measures set forth in the HCP (using PEIR, EACCS, and HCP specific measures) and would be offset through conservation of grassland habitat (approximately 48.3 acres) at an Agency-approved conservation bank or applicant-purchased mitigation lands. Applicant-purchased mitigation lands would have to be within the range of the San Joaquin kits fox and located in eastern Alameda County as required by the EACCS and at the appropriate ratio defined for the location of the mitigation site. The Applicant may choose to acquire sufficient mitigation bank credits to offset direct and indirect effects to San Joaquin kit fox from the Collier Canyon mitigation bank, located in eastern Alameda County and neighboring Contra Costa County. Although the majority of the Collier Canyon mitigation lands are located in Contra Costa County, the mitigation ratios set forth in the HCP would remain applicable, including a 3:1 ratio for permanent effects and a 1:1 ratio for temporary effects. Collier Canyon mitigation bank is currently under review by the USFWS and not currently approved to sell credits; they may or may not be available for purchase at the necessary time.

San Joaquin kit fox is federally listed as endangered and state listed as threatened because of habitat loss resulting from agricultural development, infrastructure construction, and urban development (U.S. Fish and Wildlife Service 2010). Loss of individuals in the project permit area that reduces reproductive potential, or permanently impedes dispersal through the Altamont Hills would be a significant adverse effect because it could cause population-level effects. However, with the implementation of mitigation measures (PEIR, EACCS, HCP-specific) the proposed project described above is not anticipated to result in significant adverse effects to San Joaquin kit fox because denning individuals would be avoided, temporary impact areas would be restored to current condition, temporary adverse effects to individuals and permanent habitat loss would be offset through compensatory lands, direct loss of individuals is unlikely to occur, indirect loss of individuals and permanent habitat loss would be minimal, and no barriers to movement would be created; accordingly, no population-level effects are expected.

Effect BIO-5: Habitat removal, displacement, and disturbance effects on nesting raptors and special-status birds, including Birds of Conservation Concern

Implementation of the Proposed Action would result in the permanent removal of 1.8 acres of annual grassland habitat and temporary disturbance of 42.9 acres of grassland used for foraging and nesting by some avian species within the project permit area (see Appendix H for species that may nest and use the project permit area). In addition, the presence of new facilities (primarily turbines and access roads) could result in the

temporary or permanent displacement of some species from the project permit area. Construction in the project permit area could result in disturbance of some nesting species, potentially leading to nest abandonment.

Construction activities during the nesting season (generally February 1–August 31) of white-tailed kite, bald eagle, northern harrier, prairie falcon, red-tailed hawk, American kestrels, barn owl, Swainson's hawk, golden eagle, western burrowing owl, loggerhead shrike, tricolored blackbird and other species could result in direct effects on these species, as well as on non-special-status migratory birds, if they are nesting in the project permit area or vicinity. Suitable nesting habitat may be present in nearly all land cover types in the project permit area. Removal of grassland, burrows, wetland and marsh vegetation, and trees or shrubs with active nests and construction disturbance during the breeding season may result in nest abandonment and subsequent loss of eggs or young.

Because the placement of wind turbines would generally be on the tops of hills and ridgelines in the project permit area, where trees are not generally present, the number of trees to be removed that could be used for roosting and nesting is expected to be very low but will occur. Exclusion of burrowing owls from their burrows during the non-nesting season as part of efforts to avoid or minimize some forms of direct take could result in harm of burrowing owls through increased energy expenditure and increased risk of predation. Implementation of PEIR Mitigation Measures BIO-1b, BIO-1e, BIO-3a, BIO-5c, BIO-8a, *Implement measures to avoid and minimize potential impacts on special-status and non-special-status nesting birds,* and BIO-8b, *Implement measures to avoid and minimize potential impacts on western burrowing owl,* would minimize these adverse effects because they would prevent and reduce loss of individuals from activities; accordingly, population level effects are not likely to occur, and effects would not be significantly adverse. EACCS Mitigation Measure GEN-14, *Grading will be restricted to the minimum area necessary,* would also be implemented which would minimize the area of ground disturbance in the project permit area, and therefore, may reduce the amount of potential owl habitat affected. Mitigation Measures BIO-1b, BIO-1e, BIO-3a, and BIO-5c are described above in other effect discussions. Mitigation Measure BIO-8a would require the Applicant to adopt measures to avoid and minimize potential construction effects on special-status and non-special-status nesting birds. The measures could include avoiding construction near nesting habitat or during the nesting season, or establishing exclusion zones around identified nesting birds; appropriate measures for the species and situation will be determined at the time of construction when species are observed. Mitigation Measure BIO-8b would require implementation of measures similar to those required for BIO-8a, but designed specifically to avoid and minimize effects on western burrowing owls (such as preconstruction surveys, burrow avoidance, establishment of exclusion zones, and monitoring of active burrows).

Effect BIO-6: Avian and bat mortality resulting from interaction with wind energy facilities

Loss of individuals or habitat in the project permit area that appreciably reduces the known population or permanently impedes migration would be a significant adverse effect. An appreciable reduction in a population is defined as a loss in numbers that causes an unsustainable population or a decline in the population that leads to extirpation.

The operation of wind energy facilities has been shown to cause avian fatalities through collisions with wind turbines and powerlines and through electrocution on powerlines. Most collection lines in the project permit area will be underground, thereby reducing the risk of avian fatality from electrocution or collision with powerlines, but, due to inhospitable soil/ground characteristics for burial of lines, there may be some aboveground collection lines, and mortality through collision could result in these areas. Resident and migratory bats flying in and through the project permit area during operational periods may be killed by collision with wind turbine blades or other interactions with the wind turbines. Five bat species have been documented in fatality monitoring programs in the APWRA (Insignia Environmental 2012; Brown et al. 2013; ICF 2012:3-3), of which two (western red bat and hoary bat) are special-status species.

The Service participates in the Alameda County's Altamont Pass WRA Technical Advisory Committee (TAC). The Service's recommendations to those planning projects in the Altamont Pass WRA include micro-siting turbines away from eagle important-use or high-use areas, which includes consideration of eagle nests and nesting habitat. Multiple operators have proposed implementing curtailment programs using the latest technology as an eagle-take avoidance and minimization strategy. The Service will continue to work with the permit applicants, wind operators, and Alameda County to implement measures that will reduce both direct and indirect effects to golden eagles in the Altamont Pass WRA. Because eagles could be injured or killed as a result of operating turbine blades, the lawful operation of the project requires an eagle take permit, Rooney Ranch, LLC, has applied for an eagle incidental take permit under the Bald and Golden Eagle Protection Act for operations of the turbines. The application has requested coverage for direct take (i.e., injury and mortality from wind turbine collisions) and would be subject to the eagle take permit conditions that will require design and operations measures to avoid and minimize injury or harm to eagles; these measures also minimize mortality for other avian species. As the Service processes this application, it will calculate the eagle take risk prediction using the Service's Collision Risk Model as required by its updated 2016 eagle permit regulations (81 FR 91494) for incidental take permits using methods described in the Eagle Conservation Plan Guidance (USFWS 2013). If necessary, conditions for operation and layout may be required through the permit to ensure that fatality rates of eagles do not exceed that which would cause unsustainable populations. Conditions for operation and layout may entail curtailment of wind turbine during high use times by eagles or micrositing of turbines that would change their location on the landscape to reduce collision probability with eagles. The Service's eagle take permit analysis will include avoidance, minimization, and compensatory mitigation requirements to prevent the decline of populations within the Pacific Flyway and provide for a stable and increasing golden eagle population within the project local area population (LAP). Under the *2016 Eagle Take Permit Programmatic EIS* (USFWS 2016), the stable and increasing populations mitigation ratio is 1.2:1 and may take the form of power pole retrofits in the Pacific Flyway. The eagle take permit mitigation measures will ensure that any impact from the project does not result in a significant effect on the LAP or regional population that would cause a decline.

A technical memorandum (Appendix H, *Avian and Bat Mortality Technical Memorandum*) was prepared to evaluate avian and bat mortality from the Proposed Action. The memorandum presents an analysis of estimated fatality rates likely to result from the Proposed Action for selected bird and bat species or species groups. The analysis includes an assessment of potential effects through a comparison of estimates of likely fatalities in the APWRA, which is used to develop a qualitative estimate of the potential for the proposed project to alter the known population status of the species or species group. Local population estimates were not available and because most of the species are migratory, the analysis is attributed to estimated statewide population levels (Partners in Flight 2019). Fatalities were estimated for avian species (American kestrel, barn owl, burrowing owl, golden eagle, loggerhead shrike, prairie falcon, red-tailed hawk, Swainson's hawk, and tricolored blackbird) and species groups (raptors and native non-raptors) and are presented in Table H-3, in Appendix H. The species with the highest fatality rate is the red-tailed hawk, with an estimated average of 11–12 fatalities per year. The species with the lowest fatality rate is the prairie falcon, with an estimated average of 0–1 fatality per year. The average annual fatality rate for Swainson's hawk is zero because only one individual has ever been detected in the APWRA. Overall, the avian mortality analysis presented in Appendix H concludes that the Proposed Action would have little potential to alter avian populations or cause them to be unsustainable, including all raptor species and non-native raptor species. The annual project-specific fatality rates for these species or groups (except golden eagle) were all calculated to impact less than 1 percent of the species-specific statewide population estimates. As described above and in Appendix H, as a result of the eagle incidental take permit process and associated mitigation measures, the fatality rates of golden eagles should not cause local, regional, or statewide populations to be unsustainable. While the eagle permit process is not complete, draft estimates from the Service's Collision Risk Model have estimated a maximum of 3.5 golden eagle fatalities per year for this project (Heather Beeler, pers. comm., March 26, 2020). These estimates are consistent with the range of one to four fatalities per year given in the Appendix H, *Avian and Bat Mortality Technical Memorandum* and would have

a similar, negligible impact to the statewide population. Thus, we do not expect the proposed action to alter the statewide population status or cause populations to be unsustainable for this species. Common raptor species and Birds of Conservation Concern (BCC) were addressed as well. Most of the BCCs have not been recorded as fatalities in mortality studies used in the analysis (Appendix H), thus no mortality or very low mortality is expected for these birds. The absence of recorded fatalities also shows it is unlikely that fatalities attributable to the proposed Project would appreciably reduce their populations at a local or regional scale or cause them to be unsustainable. Fatality estimates for common raptor and native bird species were grouped and not compared to species-specific statewide estimates. Given that the raptor species of concern and the BBC species in the APWRA had minor, statewide population impacts, the Service deduced that these more common raptors and native bird species would have less than or similar small percentage impacts to their populations.

The analysis of potential effects on bats is analogous to the analysis of potential effects on birds, but substantially less information is available, particularly about bat population status. Extrapolating from existing fatality data (Table H-4, Appendix H) and trends observed at other wind energy facilities where fourth-generation turbines are in operation, it appears likely that: 1) fatalities would occur predominantly in the late-summer to mid-fall migration period; 2) fatalities would consist mostly of migratory bats, particularly Mexican free-tailed bat and hoary bat; 3) fatalities would occur sporadically at other times of year; and 4) fatalities of one or more other species would occur in smaller numbers. Due to their great abundance, and because fatalities would primarily occur during migration, when bats from numerous disparate populations may be in the vicinity of the proposed project site, the effects of the Proposed Action would affect only a small fraction of the Mexican free-tailed and hoary bat populations. Both species are assessed as "least concern" by the IUCN due to their presumed large populations; Mexican free-tailed bats are likely in the tens of millions (Appendix H), but the hoary bat population in North America have been estimated at only 2.5 million (Frick et al. 2017). A recent study in the Pacific Northwest estimated that there is a region-wide summertime decline in the probability of hoary bat occurrence (Rodhouse et al. 2019). However, hoary bat migration patterns are not well understood (Rodhouse et al. 2019) and it is unknown if individuals in the Altamont contribute to the Pacific Northwest population. Although hoary bat mortalities in the Altamont do seem to be predominantly breeding age adults, the effects of the proposed project would accrue to what is assumed to be a very large bat population because it occurs mainly during migration and would thus affect potentially only a small fraction of the hoary bat population. As a result, in the absence of any evidence of low or declining population status in the project permit area, the fatality rates anticipated under the Proposed Action are unlikely to have any population-level effects upon these species (likely less than 1 percent). Incidental fatalities of other bat species would be expected to occur infrequently and have little potential to result in population-level effects upon the affected species.

Consistent and accurate mortality monitoring in the Altamont Pass WRA is important because the TAC evaluates the results to determine the need for adaptive management measures. Per the PEIR's Mitigation Measures BIO-11i and BIO-14d, avian adaptive management programs will be implemented if avian fatality rates do not decrease after 3 years of project operations. Bat adaptive monitoring programs will be implemented if fatality monitoring results in a point estimate for the bat fatality rate that exceeds the 1.679 fatalities/MW/year threshold. The adaptive management actions would be aimed at collectively decreasing fatality rates of eagles and other avian and bat species. Post-construction monitoring (as required by PEIR mitigation measures discussed below) once the turbines are in operation, will provide data to quantify the actual extent of avian and bat fatalities from the Proposed Action and will contribute to the body of knowledge supporting future analyses. Implementation of PEIR Mitigation Measures BIO-11a, *Prepare a project-specific avian protection plan*, BIO-11b, *Site turbines to minimize potential mortality of birds*, BIO-11c, *Use turbine designs that reduce avian impacts*, BIO-11d, *Incorporate avian-safe practices into design of turbine related infrastructure*, BIO-11e, *Retrofit existing infrastructure to minimize risk to raptors*, BIO-11f, *Discourage prey for raptors*, BIO-11g, *Implement post-construction avian fatality monitoring for all repowering projects*, BIO-11h, *Compensate for the loss of raptors, including golden eagles, by contributing to conservation efforts*, BIO-11i, *Implement an*

avian adaptive management program, BIO-14a, *Site and select turbines to minimize potential mortality of bats*, BIO-14b, *Implement post-construction bat fatality monitoring program for all repowering projects*, BIO-14c, *Prepare and publish annual monitoring reports on the findings of bat use of the project area and fatality monitoring results*, BIO-14d, *Develop and implement a bat adaptive management plan*, and BIO-14e, *Compensate for expenses incurred by rehabilitating injured bats,* will reduce the rates and effects of avian and bat collision and mortality within the project permit area. All of these mitigation measures are required as part of the project's approval through the City of Santa Clara and the PEIR (Alameda County Community Development Agency 2014) and its Mitigation Monitoring and Reporting Program. After mitigation, the effect would not be significantly adverse. The purpose of PEIR Mitigation Measure BIO-11f, is to reduce the establishment and concentration of fossorial mammals around turbines during turbine design and siting. The measure entails moving boulders (rocks greater than 12 inches in diameter) away from turbines and placing gravel around tower foundations to discourage small mammals from burrowing near turbines with the intent of reducing attractants for raptors. The measure may alter the distribution of fossorial mammals (by limiting habitat in the vicinity of turbines) but would not be expected to reduce the abundance of prey or burrow habitat for other special-status species in the project area.

Based on the analysis conducted in Appendix H, the effect of avian and bat fatalities from potential collisions with wind turbines and other project-related features will be adverse because mortality will occur. However, the effect is not expected to be significantly adverse because it will not reduce bird or bat populations to an unsustainable level. Implementation of mitigation measures from the PEIR will further ensure that fatality rates do not cause avian and bat species populations to be unsustainable and thus, effects from the proposed project on avian and bat species would not be significantly adverse.

Effect BIO-7: Potential for construction activities to temporarily remove or alter bat foraging habitat

Construction of the proposed project may degrade bat foraging habitat by replacing vegetation with non-vegetated land cover types and potentially removing selected trees that may provide roosting habitat for bats. Due to the low number of existing trees within the project permit area, this effect is anticipated to be minor or have no effect. Although construction would create a temporary increase in traffic and noise in the project permit area during daylight hours, construction-related noise and traffic during nighttime foraging would not occur to disrupt acoustic foraging methods used by bats. Therefore, this activity is anticipated to have minor or no adverse effect on nocturnal foraging by bat species potentially occurring within the project permit area. Accordingly, effects to local or migrating populations are not expected to occur and effects from construction activities to foraging bat habitat would not be significantly adverse.

No Action

Under the No-Action Alternative no new effects would occur to any of the biological communities, special-status species, or waters of the U.S. within the Rooney Ranch project permit area. Land use would remain in agricultural uses.

3.1.4 Cultural Resources

Information included in the following analysis is based upon the *Cultural Resources Survey Report for the Rooney Ranch Wind Repowering Project* (ICF 2018c) and the PEIR. Please refer to these reports for additional detail related to the context of cultural resources in the project permit area and detailed descriptions of the methods used for this analysis.

3.1.4.1 Affected Environment

This section describes the affected environment pertaining to cultural resources and the potential environmental consequences that could result from implementation of the Proposed Action.

Environmental Setting

Prehistoric Context

The prehistoric context for the project permit area provides an overview of the human occupation in the region. Although the project is located in Alameda County, one of nine Bay Area counties, the cultural context of the project permit area and its immediate vicinity more closely follows that of the Central Valley. Early inhabitants of the Central Valley used the various habitats found throughout the valley, including riparian forest, marsh, alkali basins, oak savanna, and foothill woodland communities. They created a sophisticated material culture and established a trade system involving a wide range of manufactured goods from distant and neighboring regions, and their population and villages prospered in the centuries prior to historic contact (Rosenthal et al. 2007:147, 149). At the time of initial contact with European settlers (1773–1821), approximately 100,000 people, or about one-third of the state's native population, were living in the Central Valley (Cook 1955; 1976; 1978; Moratto 1984:171).

Ethnographic Context

The ethnographic setting for the project permit area provides an overview of Native American use in the region. The project permit area is located on the eastern boundary of the Ohlone traditional land and the western edge of the Northern Valley Yokuts traditional area. The territory of the Ohlone people extended along the coast from the Golden Gate in the north to just below Carmel to the south, and as far as 60 miles inland, encompassing a lengthy coastline and several inland valleys (Levy 1978:485–486). *Yokuts* is a term applied to a large and diverse number of people inhabiting the San Joaquin Valley and Sierra Nevada foothills of central California. The Northern Valley Yokuts are the historical occupants of the central and northern San Joaquin Valley (Wallace 1978:462). The *Cultural Resources Survey Report for the Rooney Ranch Wind Repowering Project* (ICF 2018c) contains summary descriptions of Ohlone and Northern Valley Yokuts cultures.

Historical Context

The project permit area is located in the hills adjacent to the Altamont Pass, between the cities of Livermore (to the west, in Alameda County) and Tracy (to the east, in San Joaquin County). As such, the historic cultural setting of the project is associated with the development of those two areas. Throughout the historic period, the development of infrastructure and evolution of the agrarian economy have been most influential in guiding settlement and land use in this area. The community of Altamont, where the project permit area is located, was founded in 1868, when the Southern Pacific Railroad was established; Altamont primarily functioned as a railroad turnaround for steam engines. Aside from a small number of buildings, which included the Summit School, Summit Hotel, Summit Garage, and Altamont Library, Altamont was and remains primarily an agrarian community (Nale 2003). Wooden windmills, used to provide reliable water supply for individual farms, were common features in the rural historic landscape throughout the late-nineteenth and early-twentieth centuries. It was not until the 1980s that wind began to serve power needs at a regional scale: the first modern wind turbine was erected in 1982 (Kyle et al. 2002:24). Although historic aerial photographs and topographic maps confirm the still largely undeveloped setting of the project permit area and its immediate vicinity, the increased presence of wind turbines and associated infrastructure presently accompanies cattle ranching and increasing suburban development along the I-580 corridor.

For an expanded discussion of the Prehistoric and Historical Context, please see Appendix E, Section E.3.

Regulatory Setting

Please refer to Appendix D for information on relevant federal, state, and local regulations. For cultural resources, these include federal (National Historic Preservation Act); state (California Office of Historic Preservation); and local (Alameda County General Plan) requirements.

3.1.4.2 Environmental Consequences

Approach and Methods

The effort to identify cultural resources in the project permit area included a records search of previous cultural resource investigations and recorded sites; background research and a review of literature relevant to the prehistory, ethnography, and history of the project vicinity; consultation with Native American representatives, historical societies, and other interested parties; and site visits and pedestrian surveys of the project permit area.

This analysis uses the results of the *Cultural Resources Survey Report for the Rooney Ranch Wind Repowering Project* (Cultural Resources Survey Report) (ICF 2018c) to evaluate the potential effects to cultural resources. An effect would be considered significantly adverse if the action could result in any of the following conditions: alter the significance of an archaeological resource; alter directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Area of Potential Effects

For the purposes of this analysis, the Area of Potential Effect (APE) is defined as the maximum possible area of direct effect resulting from the Proposed Action, including all areas of ground-disturbing activities. The cultural resources survey employed an expanded APE approach in that the APE encompasses not only the currently proposed project elements, but also much of the parcels to allow for the movement of current project elements or the addition of future project elements. The APE consists of both the horizontal and vertical maximum potential extent of direct effects resulting from the project. The vertical APE is the maximum extent of ground disturbance within the horizontal APE (i.e., ground surface to maximum depth of soil disturbance) and varies by project component, depending upon the nature of the proposed ground-disturbing activity.

Research, Coordination, and Consultation

On December 14, 2017, ICF staff conducted a cultural resources records search (Record 17-1640) at the Northwest Information Center at Sonoma State University, Rohnert Park. The records search covered the project permit area and all areas within 0.25 mile of it. The purpose was to identify any previously recorded cultural resources in the project permit area and vicinity. Also included in the search were previous cultural resources studies that have included portions of the project permit area or areas within 0.25 mile of it.

No previously recorded cultural resources were identified within the APE. Two previously recorded resources (P-01-010671 and P-01-011511) were located within the 0.25-mile study radius. Resource P-01-010671 is the Altamont Pass Road Underpass Bridge, located 0.25 mile northeast of the entrance to the project permit area at Altamont Pass Road, originally constructed in 1907 and rebuilt in 1915. Resource P-01-11511 was recorded as an isolated single yellow-glazed, white-improved earthenware ceramic sherd identified on a moderately sloping hillside, located approximately 0.23 mile northwest of the project permit area.

No cultural resource studies were identified within the APE during the records search. However, two studies (S-6128 and S-24986) were located within the 0.25-mile study radius. These studies were conducted in 1982 and 2000, respectively, and methods included archival research, literature review, and field reconnaissance. No

prehistoric or historic resources were identified in the immediate vicinity of the current project permit area as a result of these two studies.

The project permit area is on the eastern boundary of the Ohlone traditional land and the western edge of the Northern Valley Yokuts traditional area. ICF cultural resources staff contacted the Native American Heritage Commission three times in January and February 2018 and again in May 2019 to request a sacred lands file database search and solicit any information that was new since the initial cultural resources investigations were conducted. To date, no response has been received. Copies of this correspondence are located in the Cultural Resources Survey Report.

Tribal Coordination Letters for this project were sent out to 32 federally recognized tribal groups via U.S. mail on December 17, 2018. The USFWS received four letters that stated the project was not in their ancestral territory (Graton Rancheria, Greenville Rancheria, Table Mountain Rancheria, and the Yocha Dehe Wintun Nation). In February, additional correspondence was received from the Wilton Rancheria, and a meeting was subsequently held with Rancheria representatives. Information was exchanged, and the July 2018 draft HCP was forwarded to the tribe. As of this time, no comments have been received from Wilton Rancheria.

Cultural Resources Fieldwork

ICF archaeologists, qualified in identifying and documenting prehistoric and historic cultural resources, conducted intensive pedestrian surveys of the project permit area and expanded search area on 3 days in January 2018. Where applicable, transect spacing of no more than approximately 5 meters was used to ensure a high degree of ground coverage. In areas of steep terrain (e.g., greater than 65 percent slopes), a side slope survey method was adopted, meaning that pedestrian survey transects were oriented perpendicular to the hill slope. The ground was inspected for indications of human activity, such as midden soils, lithics, modified stone, or bone, and historic-era resources, such as ceramics and glass, construction debris, and foundations. Whenever possible, the locations of subsurface exposures caused by such factors as rodent activity, off-road vehicle ruts, cattle hoof scars and trails, road cuts, and vegetation disturbances were examined for artifacts or for indications of buried deposits.

The cultural resource field investigations of the project permit area identified three unrecorded potential resources within the APE and one just outside the APE; these four resources have not been evaluated for eligibility for inclusion in the NRHP or California Register of Historical Resources (CRHR). Under current project design, one of the resources (RR-1) is in an area that could be used as a temporary laydown area. The four resources identified in or near the APE are briefly characterized below.

- **RR-1** – The remains of a historic foundation and assorted debris were identified in the west-central portion of the APE. Preliminary inspection suggests that this resource could date to the late nineteenth or early twentieth century.
- **RR-2** – A collapsed barn was identified in the northern portion of the APE. Ranch features—part of a corral, a wooden fence, and a standing garage—were associated with it.
- **RR-3** – Two metal stakes and assorted metal refuse were identified in the southern portion of the APE.
- **RR-4** – Remains of the Summit School, originally constructed as a church in the late nineteenth century, were identified 30 feet outside the northernmost portion of the APE.

Effects

Proposed Action

Effect CUL-1: Change in significance of archaeological resources

No previously documented archaeological resources were identified in or directly adjacent to the Rooney Ranch APE, nor were previously undocumented archaeological resources identified during pedestrian surveys. However, based upon the area's general sensitivity for archaeological resources, the potential exists for encountering as-yet undiscovered buried archaeological resources in the project permit area during project implementation. Although the APE and its vicinity were used by prehistoric peoples, the nature of this use would have been primarily resource collection. Consequently, the expected range of prehistoric artifact and feature types in the APE would include projectile points and lithic tools, lithic debitage, bedrock mortars, and grinding stones. Although the area could have been used for upland resource collection activities, the APE is located far from permanent water sources and is, therefore, expected to have moderate to low potential to contain prehistoric archaeological resources.

In the event that archaeological resources are inadvertently uncovered within the APE during the Proposed Action's covered activities, implementation of PEIR Mitigation Measures CUL-2b, *Develop a treatment plan for any identified significant cultural resources,* CUL-2c, *Conduct worker awareness training for archaeological resources prior to construction*, and CUL-2d, *Stop work if cultural resources are encountered during ground-disturbing activities,* would minimize the effects on potential buried archaeological sites. Because these precautions would avoid or minimize damage to (and thus a change of the significance of) resources during project construction, there would be no significant adverse effects on potential buried archaeological resources.

Effect CUL-2: Change in significance of a historical resource

The PEIR identified 19 historic architectural cultural resources in the APWRA and concluded that repowering projects could result in an adverse effect on such resources.

Four potential historic resources were identified in or immediately adjacent to the Rooney Ranch APE, of which one (RR-1) could potentially be affected by a temporary laydown area. This resource was not formally evaluated for eligibility in either the NRHP or the CRHP, and, based upon initial survey results, it does not appear to be eligible for inclusion.

Implementation of two PEIR Mitigation Measures would minimize adverse effects on this resource: CUL-1a, *Avoid historic resources*, and CUL-1b, *Appropriate recordation of historic resources*. Because these precautions would avoid damage to (and thus change in significance of) resources during project construction, there would be no significant adverse effects on historical resources.

No Action

No new effects on cultural resources in the Rooney Ranch project permit area would occur under the No-Action Alternative, and the project permit area would remain in existing use (grazing).

3.1.5 Geology, Seismicity, Soils, and Paleontological Resources

This section describes the affected environment pertaining to geology, seismicity, soils, and paleontological resources and the potential environmental consequences that could result from implementation of the Proposed Action.

3.1.5.1 Affected Environment

Environmental Setting

Geology

The project permit area is approximately 3.5 miles west of the eastern flank of the Coast Ranges, in the east-central portion of California's Coast Ranges geomorphic province (Norris and Webb 1990; California Geological Survey 2002). The Coast Ranges province is characterized by an echelon (i.e., parallel to subparallel) of northwest-trending mountain ranges formed by active uplift related to complex tectonics of the San Andreas fault/plate boundary system (Norris and Webb 1990). The project permit area is located in the Altamont Pass, a mountain pass in the Diablo Range of the Coast Ranges. The pass lies between the eastern edge of the Livermore Valley and the western edge of the San Joaquin Valley. Elevation within the project permit area ranges from under 800 feet in the west to approximately 1,100 feet in the east. Topography in the project permit area varies, but slopes are generally steepest in the east and less steep to the west.

Seismicity

The project permit area, known for the frequent occurrence of earthquakes and potential ground shaking, contains no active faults zoned under the Alquist-Priolo Act. The nearest earthquake fault zone is located approximately 2 miles southwest of the project permit area. The project permit area is in relatively steep, hilly terrain known to be susceptible to earthquake-induced land sliding, especially in the northern and southern quadrants (California Natural Resources Agency, Department of Conservation 2009). Although the potential for liquefaction is likely low because of the depth to groundwater and the age of the geologic units in the project permit area, the risk of lateral spread and differential settlement is not known.

Soils

Soils across the entire project permit area are from the Fontana-Diablo-Altamont soil association, which includes expansive soils (high shrink-swell potential) due to the high clay content (Natural Resources Conservation Service 2006).

Paleontological Resources

Most of the APWRA is characterized by geologic units considered to be sensitive for paleontological resources, based primarily on rock type, which are mostly sedimentary, such as sandstone and shale (Alameda County Community Development Agency 2014). These rock types generally have a high potential to contain paleontological resources, and some of these units are known to contain fossils. The University of California Museum of Paleontology database contains 1,241 records of vertebrate fossils in Alameda County; however, most of these records are from geologic units not found in the APWRA (University of California Museum of Paleontology 2013).

The Rooney Ranch project permit area is underlain by Cretaceous and Miocene sedimentary units with potential to contain sensitive paleontological resources. The geologic units in the project permit area are primarily Panoche Formation, San Pablo Group, a fanglomerate, and a very small area of Quaternary alluvium, all of which are considered sensitive. However, the Rooney Ranch project permit area is not located within the Neroly Formation, a geologic unit particularly sensitive for fossil material.

Regulatory Setting

Please refer to Appendix D for information on relevant federal, state, and local regulations. For geology, soils, seismicity and paleontological resources, these include: federal (Uniform Building Code, U.S. Geological Survey Landslide Hazard Program, Clean Water Act Section 401 (National Pollutant Discharge Elimination System

Program); state (Alquist-Priolo Earthquake Fault Zoning Act, Seismic Hazards Mapping Act, Construction Activities Storm Water Construction General Permit (2010-0014-DWQ Permit), 2010 California Building Standards Code, California Surface Mining and Reclamation Act of 1975, California Public Resources Codes); and local (Alameda County General Plan, Alameda County Code of Ordinances, Alameda County East County Area Plan) requirements.

3.1.5.2 Environmental Consequences

Approach and Methods

An effect would be considered significantly adverse if the action could result in any of the following conditions: expose people or structures to high risk of loss, injury or death related to rupture of a known earthquake fault; expose people or structures to high risk of loss, injury or death related to strong seismic ground shaking; expose people or structures to high risk of landslides or other slope failure; cause substantial soil erosion or the loss of topsoil; create substantial risk to life and property by being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (International Conference of Building Officials 1994); or cause substantial damage to, or destruction of, significant paleontological resources.

Effects

Proposed Action

Effect GEO-1: Expose people or structures to high risk of loss, injury, or death, as a result of rupture of a known earthquake fault or as a result of strong seismic ground shaking

If a turbine were constructed on or near a fault, rupture of that fault or seismic ground shaking could damage the turbine or cause it to collapse, possibly harming personnel or property in the immediate area.

Three active faults are known to occur in the vicinity of the project permit area; however, none of the three active or potentially active faults identified within the APWRA intersect the Rooney Ranch project permit area (Alameda County Community Development Agency 2014). The closest of these to the project permit area is the Green Fault Zone, approximately 2 miles west of the Rooney Ranch project permit area.

Implementation of PEIR Mitigation Measure GEO-1, *Conduct site-specific geotechnical investigation and implement design recommendations in subsequent geotechnical report,* would minimize the risk of exposure of people or structures to potential harm as a result of rupture of a known earthquake fault and/or resulting from strong seismic ground shaking. Because the risk of damage to persons or property would be low with appropriate project design and construction techniques, the effect would not be significantly adverse.

Effect GEO-2 Expose people or structures to high risk of loss, injury, or death, as a result of seismic-related ground failure, including land sliding and liquefaction

Turbine foundations or power collection systems that are not properly designed and sited for the earthquake-induced ground failure conditions present in the project permit area could fail and cause damage to or collapse of the turbine towers or collection system. This damage or collapse could cause harm to personnel or property in the immediate area. The potential for liquefaction is likely low because the depth to groundwater is generally greater than 60 feet throughout the program area (shallow groundwater creates the risk of liquefaction at the surface) and the geologic units in the project permit area are older (Tertiary and Cretaceous periods) than most units with a risk for liquefaction (Alameda County Community Development Agency 2014). The risk of lateral spread and differential settlement in the project permit area is unknown and, therefore, some damage to on-site facilities and risk of harm to workers on-site would exist. With implementation of PEIR Mitigation Measure GEO-1, as described under Effect GEO-1 above, the exposure of people or structures to the risk of loss, injury, or death

resulting from seismic-related ground failure, including land sliding, lateral spread, differential settlement, and liquefaction would be low, and the effect would not be significantly adverse.

Effect GEO-3 Result in substantial soil erosion or the loss of topsoil

Project construction could cause surface disturbance and vegetation removal resulting in soil erosion or loss of topsoil. The Applicant must comply with federal and local erosion-related regulations (e.g., the SWPPP developed for the project, and requirements of the County's Stormwater Quality Management Plan). Compliance would include development and implementation of erosion-control measures designed to limit displacement of soil material and creation of gullying. Proper implementation of these measures would minimize the potential that ground-disturbing activities would result in substantial erosion or loss of topsoil, such as gullying of soil surfaces and movement of large amounts of soil material downslope and off of the project site. A project-specific reclamation plan would be implemented with specific measures for regrading and seeding to re-establish pre-project conditions. Because these requirements include BMPs that would minimize the likelihood of substantial soil erosion and loss of topsoil during project construction, and the implemented reclamation plan would restore the site to pre-project conditions, the effect would not be significantly adverse. Also see Effects BIO-1, WQ-1 and WQ-3 for additional discussion of erosion and soil movement.

Effect GEO-4: Substantial risks to life or property created by location on expansive soil

Expansive soils occur in much of the APWRA program area, particularly in the Fontana-Diablo-Altamont soil association, which characterizes the project permit area. Turbine foundations built on expansive soils would be subject to the shrink and swell of these soils, which could damage structures if the subsoil, drainage, and foundation are not properly engineered. However, soil sampling and treatment procedures are addressed by state and local building codes. Compliance with these codes and implementation of PEIR Mitigation Measure GEO-1 (described under Effect GEO-1 above), which requires site-specific geotechnical investigation and resultant use of appropriate construction design, would result in a low risk to life or property from erecting turbines on expansive soils. As a result, life and property would be protected and the effect would not be significantly adverse.

Effect GEO-5: Potential damage or destruction of significant paleontological resources

If fossils are present in the project permit area, they could be damaged by earth-disturbing activities during construction, such as excavation for foundations, placement of fills, trenching for power collection systems, and grading for roads and staging areas. The more extensive and deeper the earth-disturbing activity, the greater the potential for damage to paleontological resources. Maximum depths of excavation and other forms of ground disturbance associated with the project would be expected to be 20–30 feet below the ground surface. Because most geologic units in the APWRA could contain paleontological resources, excavation in the project permit area has the potential to damage paleontological resources. Implementation of PEIR Mitigation Measures GEO-7a, *Retain a qualified professional paleontologist to monitor significant ground-disturbing activities,* GEO-7b, *Educate construction personnel in recognizing fossil material,* and GEO-7c, *Stop work if substantial fossil remains are encountered during construction,* would minimize the effects of ground disturbance on paleontological resources. Accordingly, the project would have a low likelihood of substantial damage to undiscovered paleontological resources in the project permit area. Because any paleontological material uncovered in the construction process could be assessed and recovered prior to major damage, the effect of the project on significant paleontological resources would not be significantly adverse.

No Action

No new effects on geological, soil, or paleontological resources in the Rooney Ranch project permit area would occur from the No-Action Alternative. The project permit area would remain in its present livestock grazing use and no ground disturbing activities would take place.

3.1.6 Hazardous Materials and Public Safety Hazards

This section describes the affected environment pertaining to public safety hazards and hazardous materials, including fire hazard, hazards associated with operation of wind turbines, worker safety, exposure to toxic or hazardous products or waste, and shadow flicker. It also describes the potential environmental consequences that could result from implementation of the Proposed Action.

3.1.6.1 Affected Environment

Best Management Practices

As discussed in PEIR Chapter 3.6, *Geology and Soils*, any future project that would disturb one or more acres of soil or would disturb less than one acre, but is part of a larger common plan of development, must obtain coverage under General Permit Order 2010-0014-DWQ. Coverage under the General Permit requires development and implementation of a SWPPP, which must include plans for erosion and sediment control and would adhere to the County's grading ordinance and BMPs. Please see Appendix E, Section E.4 for a list of typical erosion control BMPs.

Environmental Setting

Fire Hazards and Fire Protection

The APWRA is classified as a high grassfire risk area, due to the ignition potential of dry grassland environment and periodic strong winds. The California Department of Forestry and Fire Protection classifies most of the APWRA program area as a *moderate* wildland fire hazard area.

There are five general categories of fire origin associated with wind generators: hardware and conductor failures of power collection lines; dropping of collection lines; turbine malfunction or mechanical failure; construction-related accidents; and avian-related incidents (Alameda County Community Development Agency 2014). Fire prevention under the Proposed Action includes the maintenance of 30-foot-wide firebreaks around buildings and structures, wind generators, riser poles, and substations. In addition, a 20-foot-wide firebreak is proposed for all electrical lines within the project permit area.

Fire protection and incident response within the project permit area is provided by the California Department of Forestry and Fire Protection and the Alameda County Fire Department. In the event of a wildland fire incident occurring within the project permit area or vicinity, multiple crews and equipment based within or near the APRWA would respond accordingly to provide fire suppression, hazardous materials mitigation, paramedic services, and search and rescue. The actions of these agencies would be guided by direction provided in the *Alameda County Emergency Operations Plan* (Alameda County Sheriffs Office of Homeland Security and Emergency Services 2012). This emergency response plan provides for coordinated action between county agencies and other local and state jurisdictions for a wide range of emergencies and hazards, including wildland fire, hazardous materials, flooding, earthquake, civil disturbance, aircraft incidents, and others. The Alameda County plan is an extension of the California State Emergency Plan. The Alameda County Fire Department is a principal participant in this plan.

Wind Turbine Failure

Public safety issues related to wind farms are usually associated with rotor failure or tower integrity. Wind turbines have the potential for blade throw, blade fragment throw, and tower failure. Although unlikely, all three failures have the potential to effect project personnel or public safety. Facilities that experience cold weather can also pose a risk to public safety by throwing collected ice (ice throw); however, the climate in the project permit area makes ice throw unlikely.

Worker Safety

Construction and operations staff working within the project permit area are at risk of electrical shock while working on energized facilities. There is also the potential for direct effects on the public resulting from contact with energized equipment. However, effects on non-project-related individuals associated with electrical transmission lines and electrical disconnect mechanisms would be reduced by limiting access to the project permit area through the use of appropriate fencing and warning signs.

Regulatory Setting

Please refer to Appendix D for information on relevant federal and state regulations. For hazardous materials and public safety hazards, these include federal (Resource Conservation and Recovery Act, Transportation of Hazardous Materials and Oversized Loads, Aviation Hazards, Comprehensive Environmental Response, Compensation and Liability Act, Federal Aviation Administration) and state (Worker Safety, Fire Protection) requirements.

3.1.6.2 Environmental Consequences

Approach and Methods

This assessment involves review of the PEIR and provides a qualitative evaluation of the potential to expose people or properties to public safety hazards as a result of implementation of the Proposed Action.

An effect would be considered significantly adverse if the action could lead to any of the following conditions: creation of a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or hazardous equipment; creation of a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school; location on a site included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 that would create a hazard to the public or the environment; location within two miles of a public airport or private airstrip, that would result in a safety hazard for people residing or working in the project area; impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; expose people or structures to a significant risk of loss, injury, or death involving wildland fires; or, expose people or property to the risk of contact with blades.

Effects

Proposed Action

Effect HAZ-1: Potential hazardous materials spills

Implementation of the Proposed Action would not introduce substantial amounts of hazardous materials to the Rooney Ranch project permit area. Construction and operation of Rooney Ranch would not require treatment,

disposal, or transport of large quantities of hazardous materials. During construction, hazardous materials would be stored at the staging areas. Hazardous materials used during O&M activities would be stored within existing offsite O&M buildings located approximately 3.5 miles east of the project permit area entrance, along Altamont Pass Road. Hazardous materials would be stored in aboveground containers with appropriate spill containment features, as prescribed by the local fire code or the Spill Prevention Control and Countermeasures Plans for the offsite O&M buildings. This is stipulated by Alameda County Department of Environmental Health which is the Certified Unified Program Agency under California state law Health and Safety Code Chapter 6.11 of Division 20 (beginning with Section 25404). Such materials would be similar in type and amount to those currently stored and used for O&M for wind turbines and likely include new oil, waste oil, solvents, lubricants, gasoline, and other potentially hazardous or flammable materials and waste. O&M vehicles would be properly maintained to minimize leaks of motor oil, hydraulic fluid, and fuel. During operation, O&M vehicles would be serviced and fueled at the existing offsite O&M buildings (using mobile fuel tanks) or at other offsite maintenance facilities. No storage tanks are located at the existing project site, and none are proposed. Project implementation of standard construction BMPs, as required by the SWPPPs, would reduce pollutant emissions during construction. Project O&M activities and storage and use of hazardous materials at the offsite O&M facility and within the project permit area would continue to be performed in compliance with applicable regulations. Compliance with regulatory requirements limits the amounts and the locations of hazardous materials associated with the project and, therefore, limits the potential for workers or the public to be exposed to hazardous materials. Because the potential for public or worker exposure is low, the effect is not significantly adverse.

Effect HAZ-2: Encountering hazardous materials during construction

Construction of the Rooney Ranch wind turbines would involve soil disturbance. As outlined in the PEIR, for all projects requiring a conditional use permit, Alameda County requires that a Phase I Environmental Site Assessment (ESA) and remediation, if necessary, be conducted prior to construction activities as a standard condition of approval for the conditional use permit. The project permit area was the subject of a Phase I ESA in August 2016 (Terracon, Inc. 2016) which concluded there were no Recognized Environmental Conditions (REC; evidence of possible hazardous materials or hazardous waste contamination) present on the site. At the time of the investigation, the project permit area was improved with the Santa Clara Substation, a mobile office and storage area, dumpster and waste oil storage, and a water supply well in the northwestern portion; 23 concrete pad-mounted transformers; and approximately 200 wind turbines. Site reconnaissance for the ESA documented staining on the concrete pad and adjacent soil of one transformer centrally located within the project permit area. However, the extent appeared *de minimus* in nature. No evidence of a potential release was found at any other site structure. A review of adjacent properties determined that the boundary of operations for the Altamont Landfill to the north was at least 4,000 feet from the boundary of the project permit area, and thus the landfill did not constitute a REC to the site. Accordingly, the risk is minimal of the Proposed Action and its covered activities occurring on a site included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. Because of the low risk of encountering hazardous materials or waste, the effect of construction would not be significantly adverse.

Effect HAZ-3: Increased risk of loss, injury, or death from wildland fires

Fires can start from human activities and lightning strikes. Implementation of the Proposed Action could result in the increased risk of wildfires during construction activities in vegetated areas. The project would implement the requirements of the Altamont Pass Windfarms Fire Requirements (2005) which limit activities when flammable vegetation exists. For example, welding and other spark-creating activities are prohibited during high and very high fire danger. Requirements also include, for example, setbacks from flammable vegetation, the availability of firefighting equipment such as shovels and backpack water pumps, and equipping exhausts of internal combustion engines with spark arresters. Access roads throughout the Rooney Ranch project permit

area would reduce fire hazards because they act as firebreaks that could impede the spread of any fire, and would enable firefighting equipment to access to the property. The PEIR concluded that while wind turbines can cause fire ignitions, sufficient fire response providers are already in place and site-specific firebreak requirements limit the risk of a large wildfire. Moreover, the improved safety of newer turbine models would reduce the potential for fire ignitions. The Proposed Action has minimal potential to expose people or structures to loss, injury, or death from wildland fires; therefore, the effect would not be significantly adverse.

Effect HAZ-4: Blade or blade fragment throw

Implementation of the Proposed Action could result in turbine failure through such conditions as excess rotor speed or electrical system failure. Such failure could cause hazard or injury to project personnel or the general public due to blade or blade-fragment throw. Blade throw effects, as assessed in the PEIR, rely largely on the *Updated Alameda County Turbine Setback Requirements* (Alameda County 2013), which are calculated based upon rotor (blade) length, total turbine height, or a percentage of the general setback, with some setbacks also adjusted for elevation. The proposed turbines would be within the PEIR specifications for rotor type, tower type, tower (hub) height, and total turbine height. However, blade lengths would be up to 15 feet longer than the blades contemplated in the PEIR. The general and alternative minimum setbacks that use rotor length to apply a setback standard would only apply to adjacent parcels. Because the blade lengths differ by 15 feet, this change would add an additional setback distance of 16.5 feet (1.1 times blade length) from adjacent parcels, a more protective setback than addressed in the PEIR. Prior to final project design, Alameda County would ensure that all setback requirements are met, whether general or alternative minimum. The Rooney Ranch project would be required to meet either Alameda County's general setbacks or the conditions required to implement alternative minimum setbacks. Adherence to Alameda County requirements would minimize the risk of contact of thrown blades with people and structures and, therefore, risk to the public or the environment from thrown turbine blades would be low and effects would not be significantly adverse.

Effect HAZ-5: Accidents involving the general public (other than turbine failure)

Accidental or intentional entry by the public into the Rooney Ranch project permit area could create risks to human safety. However, the Proposed Action would take place entirely on properties with restricted public access. Only authorized access to the project permit area would be allowed. The project permit area is fenced, and the collector substation would be fenced with additional 12-foot-high chain-link fences to prevent public and wildlife access to high-voltage equipment. Safety signs would be posted around all turbines, in conformance with applicable state and federal regulations, transformers, and other high-voltage facilities and along access roads. Because of these access restrictions and safety signage, effects of the Proposed Action would not create a high risk of hazard to the public through use of hazardous equipment and would not be significantly adverse.

Effect HAZ-6: Air traffic safety

The potential for the Proposed Action to affect aviation patterns and/or result in a hazard to air navigation is primarily dependent upon the height of the proposed structures. Livermore Municipal Airport is approximately 8.7 miles west-southwest of Rooney Ranch, and Tracy Municipal Airport is approximately 11 miles east-southeast of Rooney Ranch. The closest private airport is Meadowlark Airfield, 5 miles south-southwest of the Rooney Ranch project permit area. A review of airport influence area zones indicates that the project permit area is outside all influence area zones, including those of Byron Airport in Contra Costa County, 6 miles to the northeast of the project permit area. Because the project permit area is not within 2 miles of any public or private airport, the Proposed Action would not result in an air traffic safety hazard for people residing or working in the project permit area and the effect on public safety would not be significantly adverse.

Effect HAZ-7: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

During construction of the Proposed Action, there would be a temporary increase in vehicular traffic of up to 2 percent associated with transporting workers, equipment, and materials to the project permit area. This temporary increase in traffic is discussed in detail in Section 3.1.9, Traffic and Transportation (see Effect TRA-1 and Effect TRA-2). The Applicant would implement PEIR Mitigation Measure TRA-1*, Develop and implement a construction traffic control plan,* prior to undertaking project construction. Implementing the traffic control plan would maintain traffic flow on local roads (including Altamont Pass Road) and highways. Informational signs, traffic cones, and use of flaggers would control the flow of traffic when construction vehicles are in the vicinity of the project permit area. In addition, during the building permit process, the Alameda County Fire Department would review the project to ensure that the construction process would not interfere with or conflict with the county's Emergency Operations Plan. With implementation of the traffic control plan and permit review by the Alameda County Fire Department, the Proposed Action is not expected to impair emergency vehicles access to the project site for fire suppression or response to other emergencies. Because the Proposed Action would not impair implementation of or physically interfere with the adopted emergency response plan, the effect would not be significantly adverse.

No Action

No new effects on hazardous materials and public safety in the Rooney Ranch project permit area would occur from the No-Action Alternative, and hazardous materials and/or equipment would not be introduced into the project permit area.

3.1.7 Hydrology and Water Quality

This section describes the affected environment pertaining to hydrology and water quality in the project permit area, including surface hydrology, surface and groundwater quality, and flood hazard. The potential environmental consequences of the Proposed Action on these resources are also described.

3.1.7.1 Affected Environment

Environmental Setting

Hydrology

The project permit area is located southwest of the San Joaquin–Sacramento Delta, in the Clifton Court Forebay, Mountain House Creek, and Upper Arroyo Las Positas watersheds, and is within the Tracy groundwater subbasin. The Clifton Court Forebay and Mountain House Creek watersheds, which contain the majority of the project permit area, flow northeast to the Central Valley region, while the Upper Arroyo Las Positas watershed flows west to the San Francisco Bay region.

Aquatic Features

Aquatic features within the project permit area are limited to one stock pond, two ephemeral ponds, and three ephemeral drainages. These are described above in Section 3.1.3.1, *Biological Resources, Affected Environment.* Figure 5 (Appendix C) presents landcover types within the project permit area, including aquatic features.

Surface Water Quality

The APWRA program area is southwest of the San Joaquin–Sacramento Delta, in unincorporated northern Alameda County. According to the most recent Clean Water Act Section 303(d) List (State Water Resources

Control Board 2017), Mountain House Creek is impaired for chloride and salinity due to the chemical makeup of the soils in this drainage, and Old River is impaired for chlorpyrifos, electrical conductivity, total dissolved solids, and low dissolved oxygen. Mountain House Creek flows into Old River, which is impaired by runoff from large acreages of agricultural land within its watershed, on the western edge of the Central Valley floor. The project permit area is upslope, in the higher elevations of these drainages, and therefore runoff from the project permit area contributes to the general water quality of these 303(d)-listed surface waters.

Groundwater Quality

The APWRA program area is in the Tracy Subbasin (Basin Number 5-22.15), according to the California Department of Water Resources Groundwater Bulletin 118 (California Department of Water Resources 2006). Groundwater quality in the subbasin is characterized by a sodium water type, and the southern part of the subbasin is characterized by calcium-sodium water type. The northern part of the subbasin is also characterized by a wide range of anionic water types, including bicarbonate, chloride, and mixed bicarbonate-chloride types. Total dissolved solids concentrations in well-water samples range from 50 to 3,520 milligrams per liter, with an average of 463 milligrams per liter. Areas of poor water quality exist throughout the subbasin. Elevated levels of chloride occur in several areas along the western side of the subbasin along with areas of elevated boron concentrations (California Department of Water Resources 2006). No site-specific water quality investigations have been undertaken for the project permit area, so groundwater quality at this site can only be characterized in the general terms described for the entire APWRA in the APWRA PEIR.

Flood Hazards and Levees

The Federal Emergency Management Agency (FEMA) predicts and prepares for hazards and, in this role, designates 100-year flood zones nationwide under the National Flood Insurance Program. The proposed project permit area is not located within a 100-year flood hazard area designated by FEMA and does not rely upon flood protection from major levees or other flood control structures. Therefore, flood hazard areas and levees will not be further addressed in this EA.

Reservoir and Aqueduct

The PEIR defines *reservoirs* as open water bodies larger than 20 acres in surface area. Bethany Reservoir is located approximately 2.5 miles to the northeast of the project permit area and serves as a forebay for the South Bay Aqueduct Pumping Plant (Alameda County Community Development Agency 2014). The South Bay Aqueduct passes to the west of and is located approximately 0.5 mile from the project permit area.

Regulatory Setting

Please refer to Appendix D for information on relevant federal and state regulations. For hydrology and water quality, these include federal (Clean Water Act) and state (Porter-Cologne Water Quality Control Act of 1969, California Regional Water Quality Control Board, San Francisco Bay Region and Central Valley Region—Basin Plans) requirements.

3.1.7.2 Environmental Consequences

Approach and Methods

Potential environmental effects were evaluated through consideration of existing conditions, project design features, and environmental commitments incorporated into the Proposed Action. This analysis adapted criteria set forth in CEQA Guidelines to determine if adverse effects would result from implementation of the Proposed Action, including activities covered under the HCP. Adverse effects would be any negative change to surface water volume or quality, or groundwater volume or quality. An adverse effect would be considered significant if

the Proposed Action could lead to any of the following conditions: a violation of any surface water quality standard or groundwater quality standard established by federal or state regulatory agencies; alter the existing drainage pattern of a site or area, including through alteration of a course of a stream, in a manner that would result in substantial erosion or loss of topsoil, such as gullying of soil surfaces and movement of large amounts of soil material downslope and off of the project site; or substantially increase the rate of surface runoff in a manner that would result in flooding on- or offsite.

Effects

Proposed Action

Effect WQ-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality

Construction-related earth-disturbing activities associated with the proposed project would introduce the potential for increased erosion and sedimentation, with subsequent effects on drainage and water quality. Trenching and site preparation (e.g., vegetation removal, grading, etc.) create areas of bare soil that can increase sediment discharge to receiving waters. Implementation of PEIR Mitigation Measure WQ-1, which requires compliance with NPDES requirements (e.g., erosion control BMPs, implementation of a SWPPP), would minimize the covered activities' effects on drainage and water quality through the reduction of sedimentation and the avoidance of unintentional release of soils or substances into local drainages or waterways. BMPs related to controlling erosion and sedimentation that could be implemented as part of the SWPPP include employing temporary erosion control measures (such as silt fences, staked straw bales/wattles); using a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater) designed to decrease runoff during storm events; and applying nontoxic soil stabilizers, such as hydromulch.

Through implementation of BMPs outlined in the project SWPPP, it is anticipated that there would be no noticeable change in the volume or intensity of surface water runoff within the project permit area as a result of construction or O&M activity. Any actual adverse effects upon drainage or water quality from construction and operation of the Proposed Action is anticipated to be minor and a violation of any federal or state water quality standards is unlikely to occur. Furthermore, once construction activity is completed, temporarily disturbed areas that are currently unvegetated due to the removal of the previous turbine array would be revegetated, resulting in a beneficial effect through the reduction of erosion potential within the project permit area. Because, as disclosed in the PEIR, the program area does not currently have any substantial water quality issues or drainages that could carry a substantial amount of polluted runoff to receiving waters, construction is not anticipated to substantially degrade water quality. Implementation of PEIR Mitigation Measure WQ-1 would minimize the potential effects of construction-related or O&M-related discharges, minimize sedimentation, and avoid unintentional release of soils or substances into local drainages or waterways. Therefore, there would be no violation of any federal or state water quality standards and effects to water quality would not be significantly adverse.

Effect WQ-2: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite

Alterations to existing drainage patterns can result in altered erosion and siltation that could adversely affect water quality in nearby drainages or ponds. However, no turbines would be constructed within existing drainages, and project facilities, including new roads and road upgrades, would be designed to avoid any downstream erosion during the rainy season; see Appendix G for more detail. Alterations of existing drainage patterns that could potentially affect drainages and ponds would be mostly avoided by HCP Conservation Measure ADD-10, which would require the design of project components within 250 feet of an aquatic feature to

be developed in coordination with a professional hydrologist to ensure that project components do not obstruct natural drainage patterns, potentially redirecting flows away from the aquatic features, or concentrate flows that could cause erosion and sediment delivery to the features. In addition, temporary ground disturbances from new or upgraded access roads would be restored; construction is anticipated to be completed during the dry season (April 15 to October 31); PEIR Mitigation Measure WQ-1 would be implemented; most drainages and ponds are greater than 250 feet from the nearest construction activity (see Table 3-5); and SWPPP BMPs listed in Effect WQ-1 could be implemented; which would further reduce changes to existing drainage patterns and potential for erosion or siltation reaching drainages or ponds. Implementing these measures would minimize changes to drainage patterns that could affect surface water quality from construction and O&M activities. Therefore, there should be no violation of any federal or state water quality standards because changes to drainage patterns would be minor; accordingly, there would be no significant adverse effects to water quality.

Effect WQ-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would affect water volumes or quantities in onsite or offsite drainages and ponds

Alterations to existing drainage patterns can change the direction and volume of overland flows that could adversely affect water quantity and volumes in nearby drainages or ponds. Effects on drainage patterns or surface runoff upon the three ephemeral drainages located within the project permit area are not anticipated due to the distance between drainages and proposed surface disturbance areas (1,600, 960, and 225 feet, respectively), existing soil types, and existing and anticipated post-constructed flow patterns that would continue to carry intermittent storm event surface flows perpendicular to existing roads (Appendix G). Neither of the ephemeral pond features (P-1 and P-3), nor the more perennial stock pond (P-2) are anticipated to be directly affected by construction or O&M activities, due to the distances between each feature and proposed project components (225, 1,200, and 430 feet, respectively) (Appendix G) and thus drainage patterns in these features should not be altered. The implementation of ADD-10, as discussed above would prevent any alteration of drainage patterns from construction activities or facilities/roads. Project facilities, including new roads and road upgrades, would be designed to avoid or minimize changes in existing drainage patterns. The measures described under Effect WQ-2 would also minimize changes to drainage patterns that could affect surface water volumes and quantities in drainages and ponds from construction and O&M activities. In addition, roads would not entail introduction of new impervious surfaces, the area of turbine impervious surface would be small (0.6 acres) and spread out over a large area (>2,000 acres), and the NPDES stormwater Construction General Permit would require that post-construction runoff management measures be implemented. Implementation of these mitigation measures would minimize the potential for water volumes or quantities in nearby drainages or ponds to be affected; and accordingly, any increase in the rate or amount of surface runoff at the project site resulting from installation of permanent impervious surfaces, including the proposed 0.6 acre of turbines and turbine foundations, are expected to be minor resulting in no significant adverse effects to onsite or offsite drainages or ponds.

No Action

Under the No-Action Alternative, the project permit area would remain in livestock grazing uses. No new effects on seasonal drainages, wetland features, or waters of the U.S. would occur, and there would be no new effects on groundwater resources, water quality, or flood risk.

3.1.8 Noise

This section describes the affected environment pertaining to noise and potential environmental consequences that could result from implementation of the Proposed Action. This discussion is based primarily on information

in the *Sound Technical Report for the Rooney Ranch Wind Repowering Project, Alameda County, California* (ICF 2018d). Because of the specialized technical character of noise-related analyses, please refer to Appendix E, Section E.5 for a brief discussion of relevant terminology.

3.1.8.1 Affected Environment

Environmental Setting

The vicinity of the Proposed Action is primarily agricultural with some scattered rural residences. Sound sources in the Rooney Ranch project permit area are primarily traffic on local roads and nearby I-580. Natural sources, such as birds and wind blowing through tall grass, also generate noise on the site. The older wind turbines previously operational in the project permit area have been removed. New turbines installed on adjacent properties (Gold Hills and Diablo Wind) are a source of sound, but are not dominant in the sound environment of the project permit area. A noise study conducted for the Proposed Action (ICF 2018d) indicated that the project would not significantly affect noise levels at nearby sensitive receptors, so pre-project site monitoring was not required by Alameda County.

Regulatory Setting

Please refer to Appendix D for information on relevant state and local regulations. For noise, these include state (Part 2, Title 24 of the California Code of Regulations, *California Noise Insulation Standards*); and local (Alameda County's noise ordinance (County General Code, Chapter 6.60), Conditional Use Permits) requirements. The federal government generally sets noise standards for transportation-related noise sources, such as aircraft, locomotives, and trucks, closely linked to interstate commerce.

3.1.8.2 Environmental Consequences

Approach and Methods

Construction noise has been evaluated using standard reference noise levels from various types of construction equipment and activity (USEPA 1971). Rooney Ranch is expected to consist of two GE 2.3-116 and 5 GE 3.6-137 or GE 3.8-130 wind turbines, although other turbines of similar capacity and characteristics are being considered. The results of the noise analysis conducted in 2018 for the Rooney Ranch project permit area is presented in *Sound Technical Report for the Rooney Ranch Wind Repowering Project, Alameda County, California* (ICF 2018d). The analysis of noise effects in this document is based upon a review of the PEIR noise analysis and the ICF (2018d) report.

An effect would be considered significantly adverse if the action could lead to exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies.

Effects

Proposed Action

Effect NOI-1: Exposure of residences to short-term noise from construction activity in excess of local standards

Site preparation and construction activities would temporarily increase noise levels in and around the project permit area. Noise would result mainly from heavy-duty construction equipment (e.g., graders, bulldozers, backhoes, drill rigs). A study conducted for USEPA estimated noise levels of multiple pieces of construction equipment associated with various stages of construction of a typical nonresidential project (USEPA 1971).

The PEIR concluded that some residences in the APWRA program area would be within distances of construction activities that could expose them to noise levels in exceedance of Alameda County noise ordinance standards. The receptors (residences R69 and R68 in the Rooney Ranch Sound Technical Report) are within approximately 400 and 1,000 feet of Rooney Ranch access road construction, respectively. Although most project components are at much greater distances, the noise levels to which these receptors could be exposed during construction of project facilities and infrastructure could reach the County's 55 A-weighted decibel threshold. Implementation of PEIR Mitigation Measure NOI-2, *Employ noise-reducing practices during decommissioning and new turbine construction,* would minimize construction noise effects below the County's 55 A-weighted decibel threshold. Accordingly, construction noise associated with the Proposed Action would not expose persons to noise levels in excess of local noise ordinances, and the effect would not be significantly adverse.

Effect NOI-2: Exposure of residences to long-term noise from operation of wind turbines in excess of local standards

Two sensitive receptors (single-family residences) are located within 2,000 feet of the nearest proposed turbine location, but are not within the Rooney Ranch project permit area. According to the tables in the PEIR, and as confirmed by the Rooney Ranch Sound Technical Report, such a distance would preclude noise from turbines reaching the County's 55 A-weighted decibel threshold. The Rooney Ranch Sound Technical Report calculated that the highest noise levels generated by the new wind turbines would be in the range of 47.7 to 48.3 decibels at the two nearest receptors (ICF 2018d). These levels would be reached during strong wind periods when all turbines might be operating, and would not be a constant condition. Consequently, the Proposed Action's long-term operation would not expose persons to a substantial permanent increase in ambient noise levels or exceed County noise ordinance standards and the effect would not be significantly adverse.

No Action

No new effects on noise near the Rooney Ranch project permit area would occur from the No-Action Alternative. The No-Action Alternative assumes that currently planned and approved wind production facilities in the APWRA would continue through their associated project life expectancy (Appendix C, Figure 3).

3.1.9 Traffic and Transportation

This section describes the affected environment pertaining to traffic and transportations systems, including auto, train, rail, and bicycle activities, and describes the potential environmental consequences that could result from implementation of the Proposed Action.

3.1.9.1 Affected Environment

Environmental Setting

Circulation System

Regional roadway access to the APWRA is provided by I-580, a major east-west truck travel route and main throughway in eastern Alameda County that connects I-680 and I-238/I-880 on the west and SR 205 on the east. I-580 would be the primary highway used for access to the Rooney Ranch project permit area. Secondary roads in the vicinity include Altamont Pass, Midway, Mountain House, Carroll, Dyer, West Grant Line, and Flynn roads (Appendix C, Figure 1). There are existing unpaved private access roads within the wind farm parcels. The Rooney Ranch project permit area would be accessed from I-580, a major east-west interstate highway between the San Joaquin Valley and the East Bay communities, and Altamont Pass Road, a minor rural road connecting to, and then paralleling, I-580 on the north. Both of these roadways are described in greater detail in the PEIR.

Air Transportation

There are four airports in the vicinity of the project permit area: the Byron Airport, approximately 6 miles north-northeast of Rooney Ranch; Livermore Municipal Airport, 8.7 miles west-southwest of Rooney Ranch; Tracy Municipal Airport, about 11 miles east-southeast of Rooney Ranch; and Meadowlark Airfield, 5 miles south-southwest of Rooney Ranch. The project permit area is outside of the airport protection areas for these airports.

Rail Traffic

Rail transportation does not directly serve the rural project permit area. However, public commuter rail service between Stockton and San Jose is provided by Altamont Corridor Express and managed by the San Joaquin Regional Rail Commission. The nearest station locations to the project permit area are in the cities of Tracy and Livermore. Altamont Corridor Express uses the Union Pacific Railroad tracks through the region. The tracks run immediately adjacent to the project permit area's northern boundary, and then cross Altamont Pass Road near the northwest corner of the area. From that point, the tracks parallel the north side of Altamont Pass Road for about 3.5 miles before crossing again and heading south toward the Livermore station on Vasco Road.

Bicycle Traffic

The only existing designated bikeway near the project permit area is the recreational path along the California Aqueduct, located approximately 6.5 miles to the northeast. In addition, Alameda County's 2012 Bicycle Master Plan recommends bikeway route additions to the existing bikeway network by designation of new Class IIIC (on-road bike route with wide shoulders) rural bike routes on Altamont Pass, Patterson Pass, North Flynn, and South Flynn roads (Appendix C, Figure 1)(Alameda County Public Works Agency 2012).

Regulatory Setting

Please refer to Appendix D for information on relevant federal and state regulations. For traffic and transportation, these include: federal (Federal Aviation Administration) and state (California Vehicle Code Division 15 gives Caltrans discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles, California State Aeronautics Act/Caltrans Division of Aeronautics) requirements.

3.1.9.2 Environmental Consequences

Approach and Methods

The analysis of traffic and transportation effects of the Proposed Action included a review of impact discussions contained in the PEIR. The criteria used to judge the significance of effects have been adapted, in part, from criteria set forth in the State CEQA Guidelines.

An effect would be considered significantly adverse if the Proposed Action could lead to any of the following conditions: an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., a substantial increase in the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections); exceedance, either individually or cumulatively, of level of service standards established by Alameda County for designated roads or highways; substantial safety hazards for motorists, bicyclists, pedestrians, or rail operations; significant disruption of access to or from adjacent land uses for more than 14 days; inadequate emergency access; a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk; noticeable and substantial deterioration of roadway surfaces by restoration of a road surface in a manner inconsistent with local requirements; conflicts with planned transportation projects or adopted public transportation policies; or, substantial increase in hazards due to a design feature (e.g., sharp curves, dangerous intersections) or incompatible uses.

Effects

Proposed Action

Effect TRA-1: Temporary increase in traffic during construction

Implementation of the Proposed Action could result in temporary and short-term increases in local traffic due to construction-related workforce (i.e., employee travel to and from the site), heavy equipment delivery (e.g., cranes and bulldozers), and material deliveries (e.g., turbines, gravel, and concrete). These construction activities could cause a noticeable traffic increase on local county roads that provide direct access to the project construction site, including Altamont Pass, Mountain House, North Midway, Carroll, and West Grant Line roads, because these roads generally have low to moderate traffic volumes. Altamont Pass Road, the local road that provides primary access to the project permit area, had average daily traffic (both directions) of 5,850 vehicles in 2011. This road also supports occasional recreational bicycle traffic, although it is not a designated bicycle route (Alameda County Community Development Agency 2014). The PEIR predicted that repowering of the Patterson Pass wind farm, 2.5 miles southeast of the Rooney Ranch site, would generate 115 average daily construction trips on the adjacent access road (Patterson Pass Road). The Patterson Pass repowering project is similar in size to the Proposed Action. The 115 trips would represent a less than two percent increase in average daily traffic (5,850) on Altamont Pass Road near Rooney Ranch during project construction. Although they could degrade traffic operations, increases of this size would be of temporary duration. Temporary construction traffic would represent a minor, temporary increase in traffic in relation to existing traffic loads on the major access road to the project site and, therefore, the effect would not be significantly adverse.

Effect TRA-2: Temporary disruptions of traffic flow during construction

Project-related traffic would not substantially disrupt traffic or degrade the level of service on a congestion management program-designated roadway (i.e., I-580) because, as stated under Effect TRA-1, it would contribute a small percentage of total traffic. Delivery of turbine components could impede traffic flow, e.g., slow traffic down because delivery vehicles move slowly or require detours. Implementation of PEIR Mitigation Measure TRA-1, which requires development and implementation of a construction traffic control plan, would minimize the effects of temporary construction-related traffic near the project permit area on automobile and bicycle traffic. Accordingly, the Proposed Action would result in a minor, temporary effect on traffic flow and the effect would not be significantly adverse.

Effect TRA-3: Deterioration of existing roads as a result of improper road reconstruction

Existing roads used to access the project permit area could be damaged during construction by increased use and heavy equipment. There also exists the potential for tracking dust, soils, and other materials from graded construction sites onto public roads. Implementation of PEIR Mitigation Measure TRA-1, which requires development of a construction traffic control plan (including warnings of hazardous road conditions and control on vehicle weights and speeds) would reduce the effects of construction traffic on existing roads. In addition, any road repair that would be necessary following project construction would have to be completed in accordance with Alameda County road repair requirements under an encroachment permit. The County's road repair requirements include restoration of road surfaces to at least the condition that existed prior to any damage. These requirements are contained in the County Municipal Code, Title 12, Chapter 12.08. With proper implementation of County road repair specifications, the Proposed Action would not result in substantial deterioration of a roadway surface. Accordingly, no significant adverse effect would result.

Effect TRA-4: Operations-related traffic effects

The PEIR indicated that this roadway accommodated 5,850 average daily vehicle trips in 2011. The anticipated traffic associated with Rooney Ranch O&M is expected to be four to six vehicle trips to the site per day. This small number of trips would not create a substantial increase in traffic volumes on area roads compared to existing traffic loads, including the primary access road, Altamont Pass Road. Because the anticipated traffic is such a small percentage increase, no significant adverse effect on local roads or highways from operations-related traffic is expected.

Effect TRA-5: Potential to affect aviation patterns

The potential for the Proposed Action to affect aviation patterns and/or result in a hazard to air navigation primarily depends on the height of the proposed structures and their proximity to an airport, compatibility zone, or other protected surface. All seven turbines are expected to have a maximum height of 502 feet above the ground surface. The nearest airport, Meadowlark Field, is approximately 5 miles south-southwest of the Rooney Ranch project permit area; other airports are at a greater distance from the project permit area (Livermore Airport, 8.7 miles to the west; Tracy Airport, 11 miles to the east; Byron Airport, 6 miles to the northeast). The project permit area is not within an airport compatibility zone or protected area—which, to avoid public safety hazards associated with aviation activities, place restrictions on certain types of land use and structure heights in the vicinity of airports—associated with any of these airports. Other aspects of aircraft flight safety are addressed in Section 3.1.7, *Hazardous Materials and Public Safety Hazards*. The Proposed Action would not result in a change in air traffic patterns that could create a public safety risk because it is not within an airport compatibility zone or protected area. As a result, there would be no significant adverse effects on aviation patterns.

No Action

No new effects on traffic patterns or transportation systems near the Rooney Ranch project permit area would occur from the No-Action Alternative, and existing uses would continue.

3.1.10 Cumulative Effects

The Council on Environmental Quality's NEPA regulations (40 CFR 1580.25) requires a reasonable analysis of the significant cumulative effects of a proposed action. *Cumulative effects* refer to "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions."

There are two approaches to identifying cumulative projects and the associated effects. The list approach identifies individual projects in order to identify potential cumulative effects. The projection approach uses a summary of projections in an adopted general plan or related planning document to identify potential cumulative effects. This EA uses the list approach as presented in a number of environmental impact reports for wind development projects in the project permit area vicinity.

As described at the beginning of Chapter 3, *Affected Environment and Environmental Consequences*, the Proposed Action would have no adverse effect on agricultural lands, mineral resources, land use, recreation, and utilities. Because the Proposed Action would have no adverse effect on these resources, they would not contribute to cumulative adverse effects and therefore they are not discussed further in this section.

3.1.10.1 Cumulative Development Projects Considered

Cumulative development in the general vicinity of the project permit area consists of existing and proposed wind development projects in the APWRA. Existing projects include the Buena Vista Wind Farm, Diablo Winds,

Golden Hills Phase I and Phase II, and Vasco Winds developments. Tres Vaqueros, Summit Wind, and Patterson Pass are wind development projects that have been approved but have not yet been constructed. Currently proposed and reasonably foreseeable future wind projects are the Sand Hill and Mulqueeney Ranch wind development projects.

Table E.6-1 in Section E.6 of Appendix E provides a summary of past, present, and reasonably foreseeable projects within the vicinity of the APWRA. Figure 3 in Appendix C maps the locations of these projects in relation to Rooney Ranch. The table presents the status of the project, potential cumulative effect areas, the estimated construction schedule associated with each project, the distance of the cumulative project to the Rooney Ranch project permit area, and potential conflicts between the Proposed Action and cumulative projects. The column titled *Potential Cumulative Effect Areas* generally summarizes the anticipated cumulative effect areas known at this time. Project information listed in Table E.6-1 in Section E.6 in Appendix E is based upon information supplied by the cities surrounding the project permit area and available environmental documentation and information posted on agency websites.

3.1.10.2 Cumulative Effects Analysis

Aesthetics

Implementation of the Proposed Action, combined with other developments in and around the APWRA, would result in changes to visual resources in the APWRA. The addition of seven turbines in the project permit area would be visible from surrounding rural roads, including Altamont Pass Road, north of the project permit area, and I-580, south of the project permit area. Distant views of the Altamont Pass also would change due to the construction of turbines at the project permit area and APWRA.

Previous environmental documents for wind projects in the APWRA have concluded that the addition of wind turbines in the APWRA would be less than significant with mitigation under CEQA. For this analysis, NEPA requires that the context and intensity of the effect be considered in determining whether an adverse effect would result from the Proposed Action combined with other cumulative projects.

The context of this cumulative visual effect is an established APWRA. There are currently more than 1,000 wind turbines in the APWRA. The current established visual context is of small and large wind turbine structures surrounded by open grazing and agricultural lands. A number of rural residences in and near the APWRA have current views of a substantial number of wind turbine structures. The addition of up to seven wind turbines to the project permit area would constitute less than 1 percent of the structures in the area. Implementation of mitigation measures set forth in the PEIR and incorporated into the HCP are described in Section 3.1.1, *Aesthetics.* These measures would be incorporated into the Proposed Action and other wind development projects and would minimize effects on visual resources. Because the Proposed Action contributes a minor number of turbines and will implement mitigation measures, there will be no significant adverse cumulative effects to visual resources in the area.

Air Quality and Climate Change

Many of the wind power projects considered for the cumulative analysis are already constructed or would not be constructed at the same time as the Proposed Action. For this reason, and because air quality effects associated with wind turbine development are relatively minor and temporary, cumulative effects associated with construction of wind projects in the APWRA are not expected to result in adverse effects on regional air quality or climate change. Because the Proposed Action will implement mitigation measures during construction and O&M emissions are minimal, its cumulative contribution to air quality effects does not represent a significant adverse effect. Implementation of the Proposed Action would support the state's long-term GHG reduction goals, which would be a beneficial effect.

Biological Resources

This analysis of cumulative effects on biological resources in the APWRA is based upon the evaluation of the PEIR and multiple conditional-use permits prepared for existing and proposed wind projects in the APWRA. The potential for cumulative effects on avian species was assessed using data and conclusions presented in *Altamont Pass Wind Resource Area Bird Fatality Study, Monitoring Years 2005–2013* (ICF 2016), Appendix H, *Avian and Bat Mortality Technical Memorandum,* as well as the *Biological Resources Evaluation for the Rooney Ranch Wind Repowering Project* (ICF 2018a).

Cumulative effects on vegetation, wetlands, and waters of the United States would not be adverse because permanent vegetation loss from cumulative wind turbine development in the wind resource area is expected to amount to a small percentage of the 43,358-acre PEIR program area, and adjacent areas. The Proposed Action's 1.8-acre contribution to this potential cumulative effect would be minimal compared to the overall acreage of the APWRA (approximately 0.001 percent of the APWRA). Cumulative effects on special-status plants in the APWRA are expected to be minor because individual projects, including the Proposed Action, would incorporate mitigation measures outlined in the PEIR and described in Section 3.1.3.3, *Biological Resources Effects*, or measures of equivalent action, designed to avoid or minimize effects on plant populations. Potential effects on special aquatic sites in the APWRA would not be adverse because all the existing and proposed wind power projects, including the Proposed Action, are required to provide for avoidance of water features. Avoidance and minimization is provided by siting wind turbines on hilltops, providing measures to minimize drainage alteration from constructed roads and constructed features, delineating and avoiding aquatic sites, and installing utility collection lines across perennial creeks by boring under the creeks, among many other actions and BMPs.

Cumulative effects related to temporary displacement of wildlife could result from concurrent construction of proposed wind power projects; however, these potential effects are not likely to occur because the proposed and planned projects are not likely to occur simultaneously. However, even if more than one project were to be constructed at the same time, the disturbance effects would be widely dispersed over the 43,358-acre APWRA and would occur at only one or a few turbine sites at any one time. Cumulative effects on California tiger salamander, San Joaquin kit fox, and California red-legged frog are addressed in the PEIR. Potential cumulative effects on these terrestrial species include continuing and future loss of suitable breeding, foraging, sheltering, and dispersal habitat resulting from construction and operation of the wind development projects. The Proposed Action's contribution to these terrestrial species effects is not expected to impede the survival or recovery of these species, when considered with other cumulative projects, because the mitigation measures outlined in the PEIR and HCP would adequately minimize and compensate for any effects occurring in the project permit area and measures outlined in the PEIR would adequately minimize and compensate for any effects occurring throughout the APWRA. In addition, the installation of wind turbines in the area effectively excludes other types of adverse effects, like urban development, that are potentially more harmful to these terrestrial species. The presence of wind farms also allows and supports continued ranching operations in the APWRA program area. Many of these ranches maintain high quality upland habitats and aquatic features, such as stock ponds which maintains suitable habitat for these listed species.

Birds and bats in the immediate vicinity and migrating through the APWRA could be subject to the cumulative effects of multiple wind projects. To date, multiple post-construction monitoring efforts on surrounding projects in the region have detected multiple avian and bat species fatalities in the APWRA since 2005 (ICF 2016). The geographic origin of these individuals is not known, making an assessment of cumulative effects difficult. The APWRA is still developing and has high potential to add more turbines in the future. The addition of seven Rooney Ranch turbines could result in a small cumulative contribution to the existing and anticipated risks to avian and bat species in the entire APWRA.

These cumulative effects are not considered significantly adverse based on the relatively small footprint of the proposed project (seven turbines, up to a total project capacity of 25.1 MW), the small contribution of the

project to known statewide population levels and overall APWRA mortality estimates, and incorporation of PEIR mitigation requirements (including micrositing review which is currently underway and is intended to reduce effects on bird and bat populations) and future eagle incidental take permit mitigation measures to reduce collision related mortality. Analysis of estimated cumulative fatality rates for selected avian species, avian species groups, and bats within the proposed project permit area are presented in Appendix H, *Avian and Bat Mortality Technical Memorandum*. Fatalities were estimated for avian species (American kestrel, barn owl, burrowing owl, golden eagle, loggerhead shrike, prairie falcon, Swainson's hawk, peregrine falcon, tricolored blackbird, and red-tailed hawk) and species groups (raptors, native non-raptors, BCC, and bats) and are presented in Table H3, Appendix H. The analysis concludes that the addition of seven wind turbines would be a small contribution to estimated annual avian and bat mortalities in the entire APWRA at the 417 to 450 MW buildout (no more than an 6 percent average for any species or species group) and would affect less than 1 percent of all estimated populations of a specific species analyzed (except for golden eagle). For species that are exhibiting a statewide population decline (e.g. American kestrel and burrowing owl), the proposed project would not appreciably contribute to these declines. With the issuance of the eagle incidental take permit, and its assurances of sustainable take levels, the fatality rates of golden eagles from the proposed project should not cause local, regional, or statewide populations to be unsustainable. Eagle take permit mitigation measures will ensure that any impact from the project does not result in a significant effect on the LAP or regional population that would cause a decline and will provide for a stable and increasing golden eagle population within the project LAP. Consequently, the proposed project would not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of migratory birds or bats in the APWRA.

Based on the technical memorandum review of the best available information (Appendix H), implementation of the PEIR mitigation measures by this Proposed Action, conclusions of the *Altamont Pass Wind Resource Area Bird Fatality Study, Monitoring Years 2005–2013* (ICF 2016), and the analysis above, there should be no significant adverse effects to species populations and no significant adverse cumulative effects on raptors, other avian species, or bats, in the APWRA.

Cultural Resources

Implementation of the Proposed Action together with other projects would not result in adverse cumulative effects on cultural resources because mitigation measures have been incorporated into all the wind power development projects in the APWRA. Additionally, the Proposed Action is not anticipated to result in significant adverse effects on cultural resources.

Geology, Seismicity, Soils, and Paleontological Resources

Implementation of the Proposed Action, together with other projects, would not result in significant adverse cumulative effects related to geology, seismicity, soils, or paleontological resources. All potential hazards associated with the Proposed Action and other cumulative projects would be reduced by incorporating standard design measures and mitigation measures identified in the PEIR and incorporated into the HCP. Additionally, the Proposed Action is not anticipated to result in significant adverse effects on geologic, soils, mineral resources, and paleontological resources.

Hazardous Materials and Public Safety Hazards

Implementation of the Proposed Action and other wind development projects would not result in significant adverse cumulative effects associated with accidental hazardous materials spills or discovery of hazardous materials sites because cumulative wind power development in the APWRA requires standard spill prevention and hazardous materials discovery mitigation measures that would reduce these potential effects. In addition, the Proposed Action and other cumulative projects would be required to incorporate the Altamont Pass Windfarms Fire Requirements (2005) and other BMPs to reduce risk of wildfire, turbine and meteorological

tower failure, and electrical shock and address access-related safety issues; therefore, they would not result in adverse cumulative effects on public health and safety. Furthermore, the Proposed Action is not anticipated to result in significant adverse effects on public safety hazards and hazardous materials.

Hydrology and Water Quality

Past and present actions in the project permit area watersheds have resulted in effects to hydrology and water quality. The Clifton Court Forebay and Mountain House Creek watersheds, which drain the northern and eastern portions of the project permit area, have been affected by landfill and wind energy development projects in the past. The Upper Arroyo Las Positas watershed, which drains the western and southern portions of the project permit area, have been modified by residential and transportation infrastructure development. Ground disturbance and clearing, placement of fill material and structures, and vegetation alterations and maintenance associated with construction and operations activities in these watersheds in or near surface waters and groundwater have affected these resources throughout the watersheds. Similar activities from foreseeable future actions at the Summit Wind and Sand Hill wind energy development projects (see Table E.6-1 in Section E.6 of Appendix E) may similarly affect surface water and groundwater hydrology and water quality in these watersheds. The impact types and mechanisms described for the project construction and operation in Section 3.7.1, *Hydrology and Water Quality*, would be similar to the impact types and mechanisms that could also occur from foreseeable actions in the watershed; however, similar to the proposed project, potential effects from foreseeable actions are expected to be avoided or minimized through compliance with local requirements (e.g., Alameda County hydrology and water quality protections), state regulations and requirements (e.g., water quality standards), and federal regulations (e.g., Section 401, 402 [NPDES], and 404 of the Clean Water Act). In addition, as described in Section 3.7.1, *Hydrology and Water Quality*, the project construction and operations would result in little hydrological (surface water or groundwater) or water quality changes, and are not anticipated to have significant adverse effects on hydrology and water quality because no violations of any federal or state water quality standards would occur and water volumes or quantities in groundwater or nearby drainages are unlikely to be affected. Therefore, there would be no significantly adverse cumulative effects on hydrology or water quality from the Proposed Action.

Noise

Implementation of the Proposed Action with other wind development projects in the APWRA would not result in significant adverse cumulative noise effects on sensitive receptors. The Proposed Action and other cumulative development projects would not exceed Alameda County noise criteria, and in circumstances where the potential exists for noise levels to exceed noise criteria, effects would be reduced by implementing mitigation measures identified in the PEIR. Additionally, the Proposed Action is not anticipated to result in significant adverse noise effects on sensitive users as a result of construction and operation of the Proposed Action.

Traffic and Transportation

Implementation of the Proposed Action, together with other wind development projects in the APWRA, would not result in adverse cumulative effects on transportation or traffic. The potential effects of project construction on local traffic and transportation conditions would be temporary and staggered, as projects are developed sequentially, and would be reduced by implementing construction traffic control plans that would adhere to Alameda County and California Department of Transportation requirements. These traffic control requirements are outlined in mitigation measure TRA-1 in the PEIR and incorporated into Section 3.1.9.2, *Environmental Consequences*. Operations of the Proposed Action and other wind development projects would not create a cumulative effect on traffic conditions on area highways and roads since O&M at these wind power facilities requires very few workers and would generate very few daily trips on local roadways. Furthermore, the Proposed Action is not anticipated to result in significant adverse effects on transportation and traffic. Because

the Proposed Action will implement measures to reduce effects and its effects on traffic and transportation would not be significantly adverse, its cumulative contribution to effects on these resources would not be significantly adverse.

3.2 Mitigation Permit Area

As discussed in Section 2.1.3.2, *Conservation Approach*, the HCP proposes compensatory mitigation to offset the permanent and temporary effects of the project on covered species that would be provided by the Applicant through purchase of sufficient credits at a suitable mitigation or conservation bank or development of its own mitigation by protecting and managing conservation lands in perpetuity for the covered species. If the Applicant chooses to develop its own mitigation, management actions in the mitigation permit area would be covered. If this action is taken, the applicant would provide mitigation acreages equal to a 3:1 ratio for permanent effects and a 1:1 ratio for temporary upland effects consistent with the site selection criteria outlined in Section 5.2.2.1 of the HCP and discussed below; final acreages would depend upon the location of the mitigation site and according to mitigation ratios for each listed species in the EACCS.

3.2.1 Affected Environment

3.2.1.1 Site Selection Criteria

The Applicant is considering options for developing compensatory mitigation through the development of a conservation easement to offset permanent and temporary effects to California red-legged frog, California tiger salamander, and San Joaquin kit fox. If the Applicant chooses to purchase land for mitigation (mitigation permit area), the mitigation permit area would be required to be consistent with multiple criteria to ensure the effects of conservation are adequate to offset permanent and temporary effects from construction and O&M at the project permit area. Site selection criteria include the following:

- It will be located within the mitigation permit area (Alameda County).
- The mitigation site must have known occurrences of breeding California tiger salamander or California red-legged frog onsite or it must be within 1 mile of a protected and occupied breeding pond that is being managed for California tiger salamander or California red-legged frog in perpetuity, with no barriers to dispersal to the mitigation site, so that individuals can access the upland habitat on the mitigation site.
- The mitigation site must be within the current range for San Joaquin kit fox. To use the proposed 3:1 ratio for listed amphibian species, the mitigation site must be north of I-580 and in the California tiger salamander North Mitigation Area, inside California red-legged frog critical habitat, in the California red-legged frog North Mitigation Area, and in the San Joaquin kit fox East Mitigation Area.
- The mitigation site will be connected to open space that is not planned for intensive land use, residential or commercial development, or non-rangeland agriculture, or to a preserve that is conserved in perpetuity and has habitat for California red-legged frog, California tiger salamander, or San Joaquin kit fox dispersal. The mitigation site will abut this open space such that an ecological connection is present (i.e., a connection that would allow the movement of individuals of covered species from one area to another).
- The lands to be conserved and managed will be within a large, contiguous habitat block with habitat for the covered species, which would likely include annual and native grassland with or without aquatic features such as creeks and ponds.
- The site cannot be adjacent to agricultural lands for a substantial portion of its perimeter to reduce the threat of pesticide effects.

3.2.1.2 Environmental Setting

Although the mitigation permit area has yet to be identified by the Applicant, aspects of the potential mitigation permit area would likely be similar to the existing biological communities and conditions found within the project permit area. Land cover types would likely include annual grasslands, ephemeral drainages, and surface water features necessary to provide suitable habitat for the three species covered in the HCP. It is also likely that the mitigation permit area would be located in eastern Alameda County, due to the extent of urbanization and lack of open space currently available in the western portion of Alameda County. Areas of eastern Alameda County currently remain undeveloped and exhibit potential suitable habitat for the three species covered by the HCP. Chapter 2 and Section 2.4, *Biological Resources,* of the 2010 EACCS presents detailed information on the environmental setting and existing conditions within eastern Alameda County (ICF 2010).

3.2.2 Environmental Consequences

3.2.2.1 Management Actions

If a mitigation permit site is selected by the Applicant, management of the site would include management actions outlined in the HCP and detailed in the mitigation permit site Long-Term Management Plan (LTMP) (included as part of the HCP in Appendix A). Management actions detailed in the long-term management plan and potentially implemented within the mitigation permit area include fencing, stock pond repair, cleanout and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control, and other uses to be approved in the final long-term management plan. In addition, the conservation approach would be guided by resource-specific mitigation measures included in this EA and in the PEIR (Alameda County Community Development Agency 2014).

Implementation of compensatory mitigation through the execution of a conservation easement described in the HCP and LTMP to preserve and enhance habitat for covered species could affect the same resources as the project permit area depending upon the resources present within the selected mitigation permit area. The majority of effects resulting from implementation of the management actions in the mitigation permit site are anticipated to be beneficial in nature.

The significance criteria for the resources addressed in the mitigation permit area are the same as described for the project permit area (see sections 3.1 through 3.9, as appropriate).

Aesthetics

Management actions in the mitigation permit area that could affect aesthetics would include constructing fences and small signage, and temporary use of construction equipment and vehicles to carry out stock pond repairs, cleanout, and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, and invasive species management and control. The permanent fence and signs, and temporary use of equipment and vehicles, would have minimal effects to the visual character and scenic vista of the site and the natural character of rangelands would be generally maintained. There would also be no changes to light and glare in the mitigation permit area's visual character as the site will maintain the natural character of the surrounding area and no structures other than fencing and signage would be constructed. Management actions in the mitigation permit area would have no significant adverse effects to aesthetics because there would be no major alterations to the site and no introduction of new sources of glare and light.

Air Quality and Climate Change

Management actions in the mitigation permit area that could affect air quality and climate change would include ground disturbance, use of construction equipment and vehicles, and application of pesticides and herbicides.

Ground disturbing activities from site and habitat maintenance activities such as pond repair, road repair, and erosion repair would result in increased dust and suspended particulate matter. These effects would be more severe if treatments occurred on dry soil during windy conditions. Construction equipment and vehicle use from surveys and site visits would occur no more than five to six times a year and contribute to air quality effects, resulting in increased dust and emissions from vehicle exhaust. Application of pesticides or herbicides would result in short-term effects to air quality, but would be minimized through proper use and adherence to pesticide labels and through a USFWS-approved herbicide application plan, as required by the LTMP. BMPs and mitigation measures described in Section 3.1.2 for the project permit area would be expected to decrease the likelihood of blowing soil and dust and would improve overall air quality in the long term. BMPs and mitigation measures applicable to the project permit site would also be implemented at the mitigation permit site to avoid and minimize the effects of habitat enhancement and site maintenance activities.

Effects to air quality are not anticipated to be significantly adverse because they will meet local, state, and federal regulations. Emissions from site management would result from the normal use of construction equipment and vehicles for short periods of time, which would not violate any local, state, or federal air quality regulations; conflict with implementation of an air quality plan; or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. There would be no pollutants other than herbicides released as part of management of the mitigation site. With the requirement of a USFWS-approved herbicide management plan and associated restricted and targeted applications there should be no exposure of sensitive receptors to substantial pollutant concentrations, and there should be no effect on sensitive receptors. Therefore, management actions in the mitigation permit area would have no significant adverse effects on air quality.

Biological Resources

Management actions in the mitigation permit area would enhance annual/native grassland vegetation and aquatic features (i.e., creeks and ponds); temporarily displace wildlife due to noise, vibration, and human presence; and increase habitat fragmentation until native vegetation or aquatic resources are reestablished. In some instances, less-mobile wildlife species that use burrows could be crushed or injured by equipment. The degree of direct effects on wildlife species would depend upon factors such as the sensitivity of the species, seasonal use patterns, type and timing of project activity, and physical parameters (e.g., topography, cover, forage, and climate) and would be similar to that described above for construction. The mitigation treatments would result in the maintenance or reestablishment of annual and native grasslands and aquatic feature hydrology. Proposed treatments also would protect intact habitat areas from wildland fires. Overall effects of habitat enhancement at the mitigation permit area to wildlife are anticipated to be beneficial. Potential effects to special-status species would be the same as described above for wildlife resources. Because any adverse effects would be short-term and temporary and because there would be no adverse population level effects on plants and wildlife, management actions would ultimately benefit biological resources and special status species.

Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act (NHPA), as amended, the appropriate level of cultural resource inventory would be conducted for the mitigation permit area. In the event that surveys identify historic properties or other sensitive resources, habitat and site maintenance activities would avoid these areas. The surveying and avoidance actions would avoid or minimize damage to, and thus avoid or minimize the risk of a change of the significance of, resources during project construction. Therefore, the management actions would not have significant adverse effects on potential buried archaeological and historical resources.

Geology, Seismicity, Soils, and Paleontological Resources

Management actions in the mitigation permit area would temporarily affect soil due to mechanical ground disturbance activities (fence construction, road, and erosion repair). Surface treatments would disturb soil from 1 to 6 inches in depth, depending upon the method used and existing soil conditions. Severity of effects would depend upon soil properties, such as hazard of erosion by wind and water, T-Value (tolerable soil loss value), presence/absence of biological soil crusts, and antecedent conditions, such as existing soil quality and moisture. Treatments would indirectly improve soil quality in the long-term by establishing more extensive vegetation cover. Vigorous vegetation canopies and root systems would provide numerous benefits for soil quality by improving aggregate stability, compaction, infiltration, organic matter, and soil biota and reducing erosion by wind and water. There would be no effect on geologic or paleontological resources from management actions in the mitigation permit area. Because any adverse effects would be short-term and not cause substantial soil erosion, loss of topsoil, or create risk to life, there would be no significant adverse effects on soil resources. Long term, the effects on soil conditions would be beneficial as a result of improved vegetation cover.

Hazardous Materials and Public Safety Hazards

Management actions in the mitigation permit area would not require large amounts of hazardous materials and potential releases of such materials would be limited to small spills of petrochemicals (e.g., fuel, hydraulic oil) associated with construction equipment and vehicles. If a SWPPP is required, implementation of standard construction SWPPP BMPs would reduce pollutant releases during management activities. Prior to implementation of management activities, an environmental site assessment would be conducted. Management actions would involve some soil disturbance so there is potential for encountering hazardous materials. However, the amount of soils disturbance would likely be limited, and encountering hazardous materials would be unlikely. If hazardous materials are encountered, all federal, state, and county requirements for assessment and cleanup would be implemented. Because of the low risk for large hazardous materials spills and of encountering hazardous materials, management actions would not have significant adverse effects on workers or public safety.

Hydrology and Water Quality

Management actions in the mitigation permit area could directly affect surface water quality through pond cleanout and enhancements, or any surface disturbance from erosion repair, cattle damage, road repair, etc. that would lead to erosion and mobilization of sediment during heavy rainfall or high intensity precipitation events. However, these disturbances would be temporary, minimized, and avoided by BMPs and SWPPP, and offset by reestablishment and management of vegetation (e.g., grassland). Overall, effects of management actions at the mitigation permit site to water resources are anticipated to be beneficial.

Noise

Management actions in the mitigation permit area would increase noise during use of construction equipment, vehicles, and mowers; specifically, fencing installation, stock pond work, mowing, erosion repair, and other mitigation efforts would temporarily increase noise levels in and around the mitigation permit area. Noise would result mostly from use of light-duty construction equipment, but heavy-duty construction equipment (e.g., backhoes) could be used. However, this noise would be temporary and construction equipment and vehicle use from site visits is anticipated to occur no more than five to six times a year. Because the location of the mitigation permit area would be identified at a later time (if needed), it is unknown whether or not noise receptors would be within the vicinity of the mitigation permit area and, if so, whether they would be affected by noise. However, PEIR Mitigation Measure NOI-2 would be implemented if necessary, which would require employing noise-reducing practices to minimize construction noise effects below the County's 55 A-weighted

decibel threshold. Accordingly, noise generated in the mitigation permit area would not expose persons to noise levels in excess of local noise ordinances and any effects would not be significantly adverse.

Traffic and Transportation

Management actions in the mitigation permit area would result in temporary and short-term increases in local traffic due to management action-related workforce (i.e., employee travel to and from the site for the various management actions). However, site visits are anticipated to occur no more than 5-6 times a year. In addition, this amount of traffic would not substantially disrupt traffic or degrade the level of service on a congestion management program-designated roadway. Therefore, this traffic increase would not be substantial in relation to the existing traffic load and capacity of the street system regardless of where the mitigation permit area may be located. As such, management actions in the mitigation permit area would have no significant adverse effects on traffic and transportation.

Cumulative Effects

The management actions that are detailed in the long-term management plan of the HCP include a variety of activities that require minimal disturbance of the landscape and are designed primarily to improve the habitat value of the land for wildlife. As described above, none of these management activities (fencing, stock pond repair, cleanout and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control) are expected to have a significant adverse effect on the environment. The addition of fencing and signage to the mitigation permit area would be consistent with surrounding lands in east Alameda County and would not result in major modification to the visual character of the area or to scenic vistas. The minor amount of ground disturbance and use of construction equipment and vehicles to enhance ponds, control erosion, install fencing and repair roads would temporarily increase dust and vehicle emissions, but would be short-term and not violate local, state or federal air quality standards. Short-term disturbances to vegetation and aquatic features as habitat conditions are improved for protected species would result in beneficial effects on biological resources. A cultural resource inventory and subsequent application of protective mitigation measures as minor land disturbance occurs would minimize the risk of adversely affecting cultural resources on the mitigation permit area. No structures would be constructed, and human activity would be infrequent, thereby having no effect on the potential for harm to humans or structures from seismic activity. Soil disturbance would be minimal, and revegetation of some areas would improve soil health in the long-term. With the limited amount of soil disturbance needed to undertake management actions, the likelihood of encountering hazardous materials and causing human exposure to hazardous materials would be small. The management activities on the mitigation permit site would have beneficial effects on hydrology and water quality on and adjacent to the site, as erosion and road repair would reduce the potential for sediment to move into ponds and waterways. The use of construction and maintenance equipment on the site five or six times per year would temporarily raise noise levels, but mitigation measures would be required to ensure that noise would not exceed local noise ordinance standards in the vicinity of sensitive receptors. And, finally, the infrequent site visits to undertake management activities would not raise local traffic levels to the point that traffic would be disrupted or levels of service would be reduced. None of these effects of mitigation permit area management actions would contribute to a significant adverse effect on the environment, either directly or cumulatively.

Chapter 4
Other Required Analysis

4.1 Unavoidable Adverse Effects

Implementation of the Proposed Action would not result in any unavoidable adverse impacts on the human environment.

4.2 Short-Term Uses versus Long-Term Productivity

Implementation of the Proposed Action would result in use of the project permit area as renewable energy sources. Development would require approximately 48 acres of grassland habitat to be removed from grazing uses (1.8 acres permanently lost, and 45.9 acres temporarily lost) during the 36-year conditional use permit period for Rooney Ranch. This short-term loss of grazing productivity would constitute less than one percent of the current grazing acreage available within the APWRA.

Appendix A
Rooney Ranch Habitat Conservation Plan

Rooney Ranch Wind Repowering Project Final Habitat Conservation Plan

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ICF. 2020. *Rooney Ranch Wind Repowering Project Final Habitat Conservation Plan*. September. (ICF 00066.17.) Sacramento, CA. Prepared for Rooney Ranch, LLC, Salt Lake City, UT.

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Acronyms and Abbreviations

AMM	avoidance and minimization measure
Applicant or Rooney	Rooney Ranch, LLC
APWRA	Altamont Pass Wind Resource Area
BMP	best management practice
BO	biological opinion
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
DPS	distinct population segment
EA	environmental assessment
EACCS	East Alameda County Conservation Strategy
EACCS PBO	East Alameda County Conservation Strategy programmatic biological opinion
EIS	environmental impact statement
ESA	Endangered Species Act
FR	Federal Register
HCP	habitat conservation plan
HCP Handbook	Habitat Conservation Planning and Incidental Take Permit Processing Handbook
I-	Interstate
kV	kilovolts
MW	megawatt
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
O&M	operation and maintenance
PCE	primary constituent element
PG&E	Pacific Gas and Electric Company
PEIR	Altamont Pass Wind Resource Area Repowering Program Environmental Impact Report
Permittee	permit holder
project	Rooney Ranch Wind Repowering Project
SWPPP	Storm Water Pollution Prevention Plan
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

Chapter 1
Introduction

1.1 Overview of the Habitat Conservation Plan

The purpose of this habitat conservation plan (HCP) is to support an application by Rooney Ranch, LLC (applicant or Rooney), to the U.S. Fish and Wildlife Service (USFWS) for a 37-year incidental take permit (ITP) pursuant to Section 10 of the federal Endangered Species Act (ESA) (16 United States Code [USC] 1531 et seq.) for activities associated with the Rooney Ranch Wind Repowering Project (project) in the Altamont Pass Wind Resource Area (APWRA) in eastern Alameda County, California (Figure 1). The project is located within the range of three federally listed species that have the potential to be affected by proposed activities: California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*) (central California Distinct Population Segment [DPS]), and San Joaquin kit fox (*Vulpes macrotis mutica*). Rooney proposes to avoid, minimize, and mitigate potential impacts on these species through implementation of this HCP's conservation strategy. This strategy uses many of the recommendations outlined in the East Alameda County Conservation Strategy [EACCS] and associated programmatic biological opinion (EACCS PBO) (U.S. Fish and Wildlife Service 2012), modified as appropriate for the specific needs of this HCP. Overall, the project is expected to result in approximately 1.8 acres of permanent impacts and 45.9 acres of temporary impacts from construction and ongoing maintenance that together will be mitigated by providing 51.3 acres of conservation lands. This figure is based on a 3:1 mitigation ratio for permanent impacts and a 1:1 mitigation ratio for temporary impacts. Total final mitigation acreage may vary based on discussion with USFWS and the proposed location of the mitigation site.

Additionally, Rooney is subject to the local land use approval of the City of Santa Clara, which approved the project on June 25, 2019, as a tiered project under the *Altamont Pass Wind Resource Area Repowering Program Environmental Impact Report* (PEIR; Alameda County Community Development Agency 2014). Under the terms of this approval, Rooney is required to implement all mitigation measures in the PEIR, many of which address species covered in this HCP. Additionally, numerous other non-listed special-status species (e.g., burrowing owl *[Athene cunicularia]*) are addressed in the PEIR, and Rooney is required to implement all applicable measures for these species as well.

1.2 Project Overview

Rooney is planning to repower the project, consisting of two parcels of land owned by the City of Santa Clara (City) in the Alameda County (County) portion of the APWRA. The parcels are north of Interstate (I-) 580, with access from Altamont Pass Road. The project would consist of the installation of large-scale modern wind turbines with generating capacities between 2.3 and 4.0 megawatts (MW), all generally similar in size and appearance, to develop up to 25.1 MW. The proposed layout would include seven new-generation wind turbines (Figure 2). The final layout could vary slightly based on resource constraints. Generally, existing roads would be used where possible, with temporary widening of approximately 2.7 miles of roads and construction of approximately 0.3 mile of new roads. An existing onsite substation, consisting of an approximately

0.2-acre graveled footprint area, may be expanded by 0.1 acre to accommodate installation of new, upgraded equipment. Rooney's proposed project schedule is shown in Table 1. Covered activities are described in Chapter 2, *Proposed Covered Activities*.

Table 1. Anticipated Project Schedule and Habitat Conservation Plan Duration

Activity	Timeframe	Duration (years)
Obtain USFWS incidental take permit	October 2020[a]	–
Construction	October 2020–December 2021[b]	1
Project operation	December 2021–December 2056	35
HCP expiration	December 2056	–
	Total	36

[a] Expected permit issuance date. Actual permit issuance date may be different. The permit will dictate the exact permit term and ultimate expiration date.

[b] Ground-disturbing activities are anticipated to start in April 2021.

1.3 Plan Area/Permit Areas

The plan area is the geographic area where the incidental take authorization will apply, where all covered activities would take place, and where all existing project components (i.e., wind turbines, foundations, electrical facilities, roads, and other supporting infrastructure) are located. The plan area comprises two separate permit areas: the project permit area and the mitigation permit area. The project permit area encompasses approximately 580 acres within the APWRA in eastern Alameda County, California, consisting of two City-owned parcels between I-580 to the south and Altamont Pass Road to the north. The repowering project would be constructed entirely within the project permit area, which includes an entrance and access road crossing the Alameda County right-of-way and privately owned parcels between Altamont Pass Road and the properties. The mitigation permit area comprises potential mitigation lands, still to be identified, that Rooney, in coordination with USFWS, is evaluating in Alameda County.

1.4 Duration of Permits

The proposed duration of the HCP, encompassing construction, operation and maintenance, and compensatory mitigation activities, is 36 years (Table 1). In accordance with the guidance provided in the *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* (HCP Handbook) (U.S. Fish and Wildlife Service and National Marine Fisheries Service 2016), Rooney has proposed this permit term in consideration of the following factors.

- The duration of the planned covered activities.
- Whether available information is sufficient to develop a conservation program and determine effects on covered species over the proposed permit duration.
- How much certainty there is that the conservation plan will offset impacts on covered species.
- How well the monitoring and adaptive management program addresses risk and uncertainty.
- Whether the funding strategy for the conservation program is sufficient for the proposed permit duration.

1.5 Permit Holder

Rooney would be the proposed permit holder (Permittee) under the HCP. ESA Section 10(a)(2)(A) requires that each applicant for an ITP submit a *conservation plan* that specifies, among other things, the impacts that are likely to result from the taking; the measures the permit applicant will undertake to minimize and mitigate impacts, including funding to implement these measures; and alternative actions considered and reasons why such alternatives were not selected. Rooney has prepared this HCP pursuant to the requirements of ESA Section 10(a)(1)(B) as well as the permit issuance criteria described in 50 Code of Federal Regulations (CFR) Sections 13.21,17.22(b), and 17.32(b). The Permittee's future responsibilities and commitments as an ESA Section 10(a)(2)(B) ITP holder are discussed in Chapter 6, *Plan Implementation*, and Chapter 7, *Funding and Assurances*, of this HCP.

1.6 Covered Species

Rooney is requesting incidental take coverage for three federally listed species that have the potential to occur in the plan area: California tiger salamander, California red-legged frog, and San Joaquin kit fox. All other federally listed plant and wildlife species either do not have the potential to occur in the project permit area (e.g., giant garter snake) or are unlikely to be affected by covered activities because key habitat elements are not present or would be avoided (e.g., Alameda whipsnake, longhorn fairy shrimp). Table 2 summarizes federally listed species occurring or with potential to occur in the region surrounding the project and the rationale for coverage or exclusion from coverage under this HCP.

1.7 Regulatory Framework

USFWS's issuance of an ITP under the ESA is subject to all applicable federal regulatory requirements associated with any federal action.

1.7.1 Federal Endangered Species Act

The ESA provides for the conservation of listed endangered or threatened species or candidates for listing and the ecosystems on which they depend. USFWS has jurisdiction over federally listed plants, invertebrates, land mammals, birds, and resident fish, while National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish, marine fish, and marine mammals.

Endangered species, subspecies, or DPSs are in danger of extinction through all or a significant portion of their range. *Threatened* species, subspecies, or DPSs are likely to become endangered in the near future. The ESA prohibits the take of endangered or threatened wildlife species, except under specifically permitted circumstances. *Take* is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (16 USC 1532; 50 CFR 17.3). *Harm* includes significant habitat modification or degradation where it kills or injures wildlife by significantly impairing essential behavioral patterns (50 CFR 17.3). Actions that cause take can result in civil or criminal penalties.

Table 2. Evaluation of Federally Listed Species in the Project Permit Area

Species Name	Status[a]		Criteria[b]			Proposed for Coverage[c]	Notes
	State	Federal	Occur	Impact	Data		
Invertebrates							
Longhorn fairy shrimp *Branchinecta longiantenna*	–	E	M	N	Y	N	Numerous rock outcrops are present in the western portion of the project permit area; nine contain various-sized rock pools that provide habitat for longhorn fairy shrimp and vernal pool fairy shrimp. However, rock outcrops will be avoided because they are elevated above proposed road improvement and staging areas. Exclusion fencing will be placed between rock outcrops and staging areas to keep workers out of this habitat. Further, visual monitoring of airborne dust and additional watering on windy days to control dust will avoid direct and indirect impacts.
Vernal pool fairy shrimp *Branchinecta lynchi*	–	T	M	N	Y	N	Two small ephemeral ponds and one stock pond are located onsite. Work on an upslope access road will be approximately 240 feet from one ephemeral pond (P1). The pond hydrology (i.e., surface and subsurface flow) is unlikely to be affected because work will be conducted in the dry season, because of the distance from the work site to the pond, because of the presence of a non-project road between the work site and the pond, and because stormwater measures will be implemented to prevent erosion (Hydrologist Memo 2019). Work would be more than 250 feet from the other two ponds and would consequently not affect their hydrology.
Vernal pool tadpole shrimp *Lepidurus packardi*	–	E	M	N	Y	N	See discussion for vernal pool fairy shrimp.
Amphibians							
California tiger salamander *Ambystoma californiense*	T	T	Y	Y	Y	Y	California tiger salamanders have not been documented in the project permit area but are known to occur immediately outside it (California Department of Fish and Wildlife 2017).

Species Name	Status[a] State	Status[a] Federal	Criteria[b] Occur	Criteria[b] Impact	Criteria[b] Data	Proposed for Coverage[c]	Notes
California red-legged frog *Rana draytonii*	–	T	Y	Y	Y	Y	The project permit area is entirely within designated critical habitat for California red-legged frog (Unit ALA-2). California red-legged frogs have not been documented in the project permit area but are known to occur within dispersal distance of it (California Department of Fish and Wildlife 2017).
Reptiles							
Alameda whipsnake *Masticophis lateralis euryxanthus*	T	T	N	N	Y	N	Alameda whipsnake typically occurs in chaparral and scrub communities that provide a large prey base of lizards and adequate cover and foraging opportunities. The closest scrub habitats are approximately 2.5 miles northwest of the project permit area. Based on the lack of suitable habitat within the project permit area and the distance from suitable core habitat, Alameda whipsnake is not likely to be adversely affected by covered activities.
Giant garter snake *Thamnophis gigas*	T	T	N	N	Y	N	Suitable foraging and habitat is not present in the project permit area and there are no nearby records. Habitat for giant garter snake consists of perennial water and freshwater marsh habitat, neither of which are present in the project permit area.
Birds							
California condor *Gymnogyps californianus*	E	E	N	N	N	N	California condors are not currently known to occur in the project permit area. Recent GPS data from condors with GPS tags indicate that condors have flown within 8 miles of the project permit area. While the use of the project permit area by condors is possible in the future, current range and use of the area by condors does not indicate that take is reasonably certain to occur at this time, and the criteria used in this HCP for proposing species for coverage are not met.
Mammals							

Species Name	Status[a] State	Status[a] Federal	Criteria[b] Occur	Criteria[b] Impact	Criteria[b] Data	Proposed for Coverage[c]	Notes
San Joaquin kit fox *Vulpes macrotis mutica*	T	E	Y	N	Y	Y	Suitable habitat is present throughout the project permit area. However, this area is considered a dispersal area with the potential for a satellite population from the main Central Valley populations; it is known to have low density of kit foxes. USFWS's most recent 5-year review indicated that San Joaquin kit fox populations in Alameda County have declined and no known breeding is occurring (U.S. Fish and Wildlife Service 2010). The high presence of coyotes, a predator of the kit fox, also decreases the likelihood of abundance.
Plants							
Large-flowered fiddleneck *Amsinckia grandiflora*	E	E	N	N	Y	N	This species is found in native perennial bunch grass communities, none of which were identified onsite during reconnaissance surveys and plant list development during the wetland delineation. The species is only known from three localities in California, though designated critical habitat for the species is approximately 2 miles southeast of the project permit area. Preconstruction surveys will verify that the bunchgrass community and this species is not present. If it is determined to be present, full avoidance of the population will occur.
Palmate-bracted bird's-beak *Chloropyron palmatus*	E	E	N	N	Y	N	There is no suitable alkali grassland habitat within the project permit area.
Contra Costa goldfields *Lasthenia conjugens*	–	E	N	N	Y	N	There are no suitable alkali soils and swales within the project permit area.

[a] **Status**
E = Endangered; T = Threatened.

[b] **Criteria**
Occur: The species is known to occur or likely to occur based on the extent, quality, and distribution of suitable habitats in project vicinity.
Y = Yes; N = No; M = Maybe.
Impact: The species would or could be adversely affected by covered activities.
Data: Sufficient data exist on the species' life history and habitat requirements to adequately evaluate impacts on the species and develop conservation measures to mitigate impacts.

[c] **Proposed Coverage**
Y = coverage recommended; N = no coverage recommended.

1.7.1.1 ESA Section 10—Incidental Take Permit Regulations and Policies

Section 10(a) of the ESA establishes a process for permitting incidental take. Such a permit allows permittees to take federally listed wildlife or fish subject to certain conditions as defined in Section 10(a)(2)(B). Incidental take of a listed fish or wildlife species is defined as take incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Submission of a conservation plan, generally referred to as an HCP, is required for all Section 10 permit applications.

A permit applicant's process for obtaining an ITP often has three phases: (1) the HCP development phase, (2) the permit processing phase, and (3) the post-issuance/implementation phase. During the HCP development phase, the applicant prepares an HCP that describes minimization and mitigation of the adverse effects of the applicant's project activities on listed species. HCPs submitted in support of an ITP application must include the following information.

- Determination of the type and potential amount of covered species take, and specification of the impact likely to result from such taking.
- Steps and measures that the applicant will implement to avoid, minimize, and mitigate such impacts, to the maximum extent possible.
- Assurances that adequate funding will be made available to implement such avoidance, minimization, and mitigation measures.
- Procedures and funding to deal with changed circumstances.
- Alternative actions to such taking that were considered, and the reasons why such alternatives are not being utilized.
- Biological goals and objectives.
- A monitoring plan.
- An adaptive management plan (if applicable).
- An implementing agreement (if applicable).
- Additional measures USFWS may require as necessary or appropriate for purposes of the HCP.

An applicant's HCP development phase concludes and USFWS's permit processing phase begins when a complete application package is submitted by the applicant to the appropriate USFWS office. Adaptive management is discussed in this HCP, though most adaptive management related to species conservation will be completed at the mitigation site where Rooney would purchase compensatory mitigation. Implementing agreements are not required and are typically only used for complex or multi-party habitat conservation plans. Furthermore, because all the measures are provided in the conservation strategy of this HCP, an implementation agreement is not required.

A complete application package consists of (1) the draft HCP, (2) an ITP permit application form 3-200, and (3) a $100 application fee from the applicant. A copy of the applicant's draft HCP will be an appendix attached to USFWS's draft National Environmental Policy Act (NEPA) document.

During the public review period for the NEPA document, USFWS will also begin to prepare an internal Section 7 biological opinion (BO) (see Section 1.7.1.2, *ESA Section 7 Consultation and Biological Opinion*). When the BO is completed, USFWS will prepare required ESA findings, which

will analyze and justify each component of the HCP relative to each covered species and each permit issuance criterion. The statutory and regulatory permit issuance criteria are listed below.

- The taking will be incidental.
- The applicant has minimized and mitigated the impacts of such take to the maximum extent practicable.
- The economic analysis and other content of the HCP indicate that the applicant can ensure adequate funding for the HCP conservation strategy and has developed procedures and adequate funding to address any changed or unforeseen circumstances.
- The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild.
- The applicant will provide additional measures that USFWS requires as being necessary or appropriate.
- USFWS has received assurances that the applicant will implement the HCP.

During the post-issuance phase, the applicant (now a permittee) will implement the HCP as described in the HCP and the permit. The applicant will prepare regular monitoring reports and will contact and meet with USFWS as specified in the HCP. USFWS will monitor and review the permittee's compliance with the HCP permit, including the progress and success of the HCP biological goals and objectives, over the entire permit term.

1.7.1.2 ESA Section 7 Consultation and Biological Opinion

ESA Section 7 requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under ESA or to result in the destruction or adverse modification of its habitat. The issuance of an ITP is a federal agency discretionary decision, which triggers intra-Service consultation under ESA Section 7. Consequently, in conjunction with issuing a permit, USFWS must conduct an internal Section 7 consultation on the proposed HCP and prepare a BO as described above. The internal consultation results in a BO prepared by USFWS regarding whether implementation of the HCP and the effects of such taking would result in jeopardy to any listed species or would result in adverse modification of designated critical habitat.

1.7.2 National Environmental Policy Act

NEPA requires that federal agencies analyze the environmental impacts of their discretionary decisions (in this instance, USFWS issuance of an ITP) and ensure that environmental information is available to agency officials before decisions are made and before actions are taken. NEPA also ensures public scrutiny during project planning and decisionmaking. The NEPA process usually requires the federal agency to prepare one of three environmental documents: (1) a categorical exclusion , (2) an environmental assessment (EA), or (3) an environmental impact statement (EIS) (see HCP Handbook). The NEPA process helps federal agencies make informed decisions with respect to the environmental consequences of their actions and ensures that measures to protect, restore, and enhance the environment are included, as necessary, as a component of their actions. An EA is most likely appropriate for this project and its covered activities because effects are expected to be mitigated consistent with other repowering projects in the region.

USFWS published a Notice of Availability (NOA) in the Federal Register on May 28, 2020, for the draft NEPA document, initiating the required public comment period. The public comment period on the EA was 30 days, ending on June 29, 2020. USFWS will consider all comments and suggestions received and prepare a final NEPA document. USFWS will publish an NOA for the final NEPA document in the Federal Register, if necessary.

Chapter 2
Proposed Covered Activities

2.1 Overview

Covered activities are divided into three categories: construction activities, operations and maintenance (O&M) activities, and conservation actions (including restoration activities).

2.2 Construction Activities

The actual layout may differ from the proposed layout illustrated in Figure 2 because the exact turbine locations are subject to micrositing (i.e., small moves to accommodate setback constraints, avian siting requirements, and other local considerations), but differences would be very minor. The final layout is expected to have the same or smaller acreage of impact as that presented in this document. Temporarily disturbed areas would be restored within 1 year. The repowering project would entail the construction activities listed below by disturbance category (overlapping impacts have been factored into to acreage calculations).

Features with permanent impacts are listed below.

- Access roads (1 acre)
- Turbine foundations (0.5 acre)
- Meteorological tower (0.1 acre)
- Substation expansion (0.1 acre)
- Power poles (0.06 acre)

Features with temporary impacts are listed below.

- Access roads (2.7 miles) (7.0 acres total).
- Staging area (six staging areas; 15.0 acres total).
- Turbine foundation installation (seven sites—approximately 2.9 acres each; 17.6 acres total because of overlap with staging areas and roads).
- Power collection system (3.0 acres)
- Meteorological tower installation (1 tower—0.2 acre).
- Substation expansion (0.1 acre)
- O&M (0.5 acre every 5 years; total 3.0 acres)

Construction activities are expected to take approximately 6 months, including restoration after construction.

2.2.1 Site Preparation and Access Roads

Fourth-generation turbine towers and blades are significantly longer than older turbine components and require larger and longer trucks and cranes for transport and installation. These vehicles require wider roads with shallower turns and gradients than are currently present in the project area. Consequently, the existing road infrastructure must be upgraded to accommodate construction of the turbines. Road infrastructure upgrades would include grading, widening, and re-graveling of approximately 2.7 miles of existing roads. Existing road widths vary from 8 to 20 feet; future roads are expected to be approximately 20 feet wide. New roads totaling approximately 0.3 mile may be needed in areas where existing roads do not provide access to proposed turbine locations.

Most roads in the portion of the project permit area where new turbines would be installed would be temporarily widened to approximately 40 feet to accommodate larger towers as well as the larger equipment necessary to install them. It is likely that the locations where roads curve as they climb hills to the ridgetops would require more roadwork and would be widened to more than 40 feet in some spots to safely accommodate larger equipment. In addition, the access road entrance would need to be widened to provide sufficient space for the minimum turning radius of construction cranes and other flatbed delivery trucks. Lands subject to temporary road widening beyond a 20-foot permanent width would be reclaimed after construction.

2.2.2 Staging Areas

Six staging areas of various sizes, totaling up to 15 acres in total, would be established in the project permit area. These areas would be used for the storage of turbine components, construction equipment, water tanks, office trailers, and other supplies needed for project construction. The trailers would be used to support workforce needs and site security and would also house a first aid station, emergency shelter, and hand tool storage area. Parking areas would be located near the trailers. Vegetation would be cleared and the staging areas would be graded level. These areas would use native material, supplemented with gravel, if needed, and appropriate erosion control devices (e.g., earth berm, silt fences, straw bales) would be installed to manage water runoff. Diversion ditches would be installed, as necessary, to prevent stormwater from running onto the staging areas from surrounding areas. Following completion of construction activities, the contractor would restore the temporary staging areas. The gravel surface would be removed, and the areas would be contour graded (if necessary and if environmentally beneficial) to conform with the natural topography. Stockpiled topsoil would be replaced, and the area would be stabilized and reseeded with an appropriate seed mixture.

2.2.3 Construction and Installation of Turbines

2.2.3.1 Grading for Tower Foundations

At each turbine site, a level turbine work area would be graded to support the construction of tower foundations (discussed below) and to support the use of large cranes to lift the turbine components into place. The extent and shape of grading at each turbine site would depend on local topography; however, each site would require approximately 2.9 acres of graded area to support the construction of foundations and installation of turbines. A crane pad would be leveled and graded within the turbine work area at each turbine site. The crane pad—a flat, level, and compacted area—would provide the base from which the crane would work to place the turbine. Most wind turbine

construction activities would occur within the turbine work area. Following construction, the turbine work area would be reclaimed.

2.2.3.2 Construction of Tower Foundations

The type of turbine foundation used depends on terrain, wind speeds, and wind turbine type, as well as other site-specific engineering considerations. Two foundation types may be used in repowering APWRA wind projects: an inverted "T" slab foundation or a concrete cylinder foundation. The two foundations types entail the same amount of temporary disturbance to construct as well as the same amount of permanent disturbance. Seven tower foundations would be constructed.

An inverted T slab foundation is a type of spread footing foundation. A single concrete pad is placed at ground level, although part of the pad may be placed below ground level depending on the slope. At the center of the pad is a cylindrical concrete pedestal to which the wind turbine tower is bolted—hence the name, inverted T.

A concrete cylinder foundation is a large concrete cylinder with a concrete pedestal that is slightly larger than the tower base diameter. The size of the concrete cylinder and pad is determined by wind turbine size and site-specific conditions (e.g., expected maximum wind speeds, soil characteristics). Its weight must be sufficient to hold the wind turbine in place.

The foundation would be installed immediately within the turbine work area adjacent to the crane pad. While the foundation type is determined by terrain, wind speeds, and turbine type, in general, the foundation is formed by placing concrete in an excavated footing with reinforced steel. A small graveled area would encircle each foundation to facilitate maintenance access. The total diameter of the final footprint for each turbine, including the graveled area, would be approximately 60 feet (0.065 acre).

2.2.3.3 Installation of Turbines

Turbine construction entails placement of a new tower, rotor, nacelle, and transformer on the foundation. Construction and installation of turbines in this area is regulated by the City's conditions of approval, building permit requirements, and grading permit requirements. The turbine towers, nacelles, and blades are delivered to each turbine location in the order of assembly, once the concrete of the foundation has been poured and has cured sufficiently. Large cranes are brought to each site to lift and assemble the turbine components. First, the base section of the tower is secured to the foundation using large bolts. The remaining tower sections are then lifted with the crane and connected to the base section. After the nacelle and rotor are delivered to the turbine site, the turbine blades are bolted to the rotor hub, and the nacelle and rotor are lifted by a crane and connected to the main shaft.

Excess rock generated by foundation construction would be spread on existing roads and maintenance areas surrounding the turbines. Old foundations from the decommissioned wind turbines may be removed if they are within proposed construction areas; doing so would involve workers demolishing the foundations using jackhammers or similar tools. The material from old turbine foundations may be reused for road base or hauled offsite to the Altamont Landfill.

2.2.4 Meteorological Tower

A permanent meteorological tower would be installed in a strategic location onsite to monitor wind speeds and to calibrate turbines. The permanent meteorological tower would be a freestanding tower without guy wires, approximately 80 meters tall. The permanent meteorological tower would require a small concrete foundation and graveled area around the tower, as well as an access road to facilitate maintenance activities. The small foundation and graveled area would be approximately 30 feet in diameter (0.016 acre).

2.2.5 Power Collection System

Each new wind turbine must be connected to the medium-voltage electrical collection system via a pad-mounted transformer. The collection system carries electricity generated by the turbines to a substation, where the voltage level of the collection system is stepped up to that of the power grid. From the substation, electricity is carried through an interconnection point to the transmission lines that distribute electricity to the power grid. Transmission lines in the project vicinity are maintained by the Pacific Gas and Electric Company (PG&E). Each of the collection system components is discussed below.

2.2.5.1 Collection Lines

Medium-voltage collection lines would collect power from each turbine for conveyance to the substation. Medium-voltage lines are normally up to 35 kilovolts (kV). The new medium-voltage collection lines would be installed underground as close to project roads as possible to minimize ground disturbance as well as to facilitate access for any necessary O&M activities on the lines.

Installation of underground medium-voltage lines is accomplished using a cut-and-cover construction method. A disturbance width of 20 feet is generally standard to allow for the trench excavation and equipment, but this width may vary depending on the topography and soil type. Typically, the topsoil is separated from the subsurface soil for later replacement. A 3-foot-wide trench is then plowed using a special bulldozer attachment that buries the line in the same pass in which it digs the trench. Once the collection lines are in place, the trench is partially backfilled with subsurface soil. Typically, communication lines are then placed in the trench, following which the trench is backfilled with the remaining subsurface soil, compacted, and covered with the reserved topsoil. Installation of collection lines is expected to result in approximately 3 acres of disturbance during construction.

2.2.5.2 Transformers and Power Poles

Transformers boost the voltage of the electricity produced by the turbines to the voltage of the collection system. Each turbine would have its own transformer adjacent to or within the turbine, either mounted on a small pad adjacent to the turbine or within the tower. Ground disturbance from transformer construction is included in the existing disturbance estimates associated with turbine pads.

The installation of overhead power lines and poles would be limited to locations where underground lines are infeasible and locations immediately outside the substation where underground medium-voltage lines come aboveground to connect to the substation.

To install power poles, a staging area is required. To mount the medium-voltage lines on a power pole, a pull site and a tension site are required. Pole sites, pull sites, tension sites, access roads, and staging areas are cleared (i.e., mowed) if necessary. Pole holes and any necessary anchor holes are excavated. Where possible, a machine auger is used to install poles. The width and depth of the setting hole depends on the size of the pole, soil type, span, and wind loading.

Power poles are framed, devices installed, and any anchors and guy wires installed before the pole is set. Anchors and guy wires installed during construction are left in place. After setting the pole, conductors are strung. The installed pole number is unknown at this time but will likely be fewer than 50, each with a 60-square-foot disturbance area. This work would result in a maximum of approximately 0.06 acre of ground disturbance.

2.2.6 Substation

The main functions of a collector substation are to step up the voltage from the turbine collection lines to the transmission level and to provide fault protection. The basic elements of the substation facilities are a control house, a bank of one or two main transformers, outdoor breakers, capacitor banks, relaying equipment, high-voltage bus work, steel support structures, an underground grounding grid, and overhead lightning-suppression conductors. The main outdoor electrical equipment and control house are installed on a concrete foundation.

The existing onsite substation served as the collector substation for the previous wind project. The substation consists of a graveled footprint area of approximately 0.2 acre, a 12-foot chain-link perimeter fence, and an outdoor lighting system. This substation may be expanded to a 0.3-acre footprint to accommodate the installation of new, upgraded equipment. Any new lights would be directed downward to reduce glare and a motion sensor installed to minimize lighting when not needed, consistent with applicable electrical infrastructure regulations. The upgraded substation would be fenced in keeping with the fencing around the existing substation (i.e., 12-foot chain link perimeter fencing).

2.3 Restoration Activities

Prior to construction, topsoil would be removed and stockpiled for later use. Following construction activities, areas temporarily disturbed would be restored to preconstruction conditions through implementation of a grassland restoration plan (Appendix A). This work would consist of contouring disturbed areas, spreading topsoil, and hydroseeding the area to promote restoration of the site. Monitoring of restored areas and remedial actions consisting of supplemental seeding, invasive species control, and erosion repair, if necessary, would be completed over a 3-year period following construction. The restoration plan in Appendix A outlines the performance criteria and monitoring requirements to ensure the site is restored.

2.4 Operations and Maintenance Activities

O&M activities would consist of equipment replacement, collection system repair, and gravel application and repair to access roads as necessary. Maintenance-related ground disturbance would take place within the footprint of the initial construction-related disturbance areas. Road gravelling

and road repair activities would occur within the footprint of the 20-foot-wide corridor of existing and new roads. Turbines may need to be repaired or replaced. No new permanent effects are anticipated during maintenance activities, but 0.5 acre of temporary impact is assumed every 5 years (the estimated area needed to repair turbines based on expected maintenance and longevity schedules), and temporarily affected areas would be restored within 1 year of disturbance. These estimates are based on annual disturbance of approximately 4,500 square feet (i.e., approximately a 50- by 90-foot area); actual disturbances could be larger or smaller depending on the maintenance work needed.

2.5 Conservation Actions

The applicant will implement the Conservation Strategy as outlined in Chapter 5, which includes avoidance and minimization measures and compensatory mitigation. To meet the compensatory mitigation, the applicant will either purchase mitigation credits from a conservation bank or will develop its own mitigation by protecting and managing conservation lands in perpetuity for the covered species. If a bank or banker is used, the conservation actions may not need to be covered under this HCP as the bank or banker will likely have take authorization for their actions. If the applicant develops its own mitigation, management actions in the mitigation permit area would be covered. These management actions are detailed in the long-term management plan and could include fencing, stock pond repair, clean-out and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control, and other actions approved in the final long-term management plan.

Chapter 3
Physical and Biological Resources

3.1 Physical Setting

The project permit area is within the APWRA, an approximately 50,000-acre area that extends across the northeastern hills of Alameda County and a smaller portion of Contra Costa County to the north. The region is generally characterized by mostly treeless rolling foothills of annual grassland (Figure 3). The dominant land uses in and surrounding the project permit area are wind energy generation (Golden Hills Wind Project and Golden Hills North Wind Project) and agriculture (cattle grazing). Major anthropogenic features of the region are the wind turbines and ancillary facilities, an extensive grid of high-voltage power transmission lines, substations, microwave towers, a landfill site, I-580, railroad lines, ranch houses, clusters of rural residential homes on Dyer and Midway roads, Bethany Reservoir, and the South Bay Pumping Plant.

In 2017–2018, Rooney previously decommissioned and removed 199 Vestas 95 kW wind turbines that occupied the project permit area. The turbine foundations remain in the project permit area. The old turbines were removed because they had reached the end of their serviceable life and were no longer economical to operate and maintain. Old turbine foundations that are co-located with the repowering project components would be removed, but all other foundations would be left in place permanently to minimize additional disturbance. In addition, the project permit area contains two meteorological towers and several abandoned buildings associated with previous cattle ranching practices on the site.

Ongoing farming practices or other uses carried out by the underlying landowners or other lessees in the project permit area (e.g., rural residential uses) are not under the applicant's control.

3.1.1 Surrounding Land Use

The land surrounding the boundaries of the project permit area consists primarily of agricultural (cattle grazing) lands. Lands east of the project permit area are also agricultural. Lands south and east of the project permit area contain the Golden Hills Phase 1 and Phase 2 wind energy projects.

3.1.2 County Zoning

Land in and around the project permit area is designated as Large Parcel Agriculture (LPA) according to the East County Area Plan (Alameda County Community Development Agency 1994), adopted in 1994 and amended in 1996, 1998, 2000, and 2002. Wind farms are allowed as conditional uses within this designation. The project permit area is also within Alameda County's designated Wind Resource Area identified in the East County Area Plan. The property is owned by the City of Santa Clara and though the City is not subject to the zoning of the County, it would similarly only allow a compatible use. Rooney Ranch, LLC is a privately owned company created by sPower for this project and has a lease with the City of Santa Clara to develop, construct, and operate the Rooney Ranch Wind Repowering Project. Rooney's lease specifies that the City reserves the right to use or lease the land for farmland grazing, provided that it won't interfere with the wind facility. As such, there is currently a grazing lease on the land and it is expected to continue on the land.

3.1.2.1 Topography

The project permit area is characterized by steep to rolling hills with elevations between 750 and 1,150 feet above mean sea level. The project permit area is on the eastern slopes of the Altamont Pass area, in the transition to the flat San Joaquin Valley. The topographic and meteorological conditions within the region produce strong, steady winds.

3.1.2.2 Soil Conditions

The project permit area is underlain primarily by Altamont series soils with the Altamont Rocky Clay unit as the majority of the soils. Linne clay, Pescadero loam, Rincon clay, and San Ysidro loam, are the remaining soil types. In general, most soil units have a heavy proportion of clay with a high shrink-swell rate, resulting in cracks on the surface that extend into the substratum. Depth to weathered bedrock is generally 2–4 feet.

3.1.2.3 Hydrology

The project permit area is located in the San Joaquin Delta Watershed hydrologic unit (hydrologic unit code 1804003). The primary streams in the area are Mountain House Creek, Patterson Run, and several unnamed tributaries. Mountain House Creek flows to Old River in the Sacramento–San Joaquin Delta. The primary sources of hydrology in the project permit area are precipitation and surface runoff. One impoundment (i.e., stock pond) in the project permit area has been constructed to provide water for grazing livestock.

3.2 Biological Resources

This section presents an overview of the biological setting of the project permit area. It describes the baseline biological conditions upon which the effects analysis (Chapter 4, *Impact Assessment*) and conservation strategy (Chapter 5, *Conservation Strategy*) are based.

3.2.1 Land Cover Types

A *land cover type* is defined as the dominant character of the land surface discernible from aerial photographs as determined by vegetation, water, or human uses. Land cover types are the most widely used units in analyzing ecosystem function, habitat diversity, natural communities, wetlands and streams, and covered species habitat.

Land cover types in the project permit area are summarized in Table 3 and shown in Figure 3. ICF biologists collected and mapped geospatial land cover data during preparation of the EACCS (ICF International 2010) and used those data in the PEIR (Alameda County Community Development Agency 2014). Additional site-specific surveys were conducted to confirm the locations of wetlands in the project permit area. Each land cover type is described below.

Table 3. Approximate Acreage of Land Cover Types in the Project permit area

Land Cover Type	Acres
Annual grassland	575.3
Developed/roads/other infrastructure	3.3
Ephemeral drainage	0.2
Rock outcrops	2.3
Pond	0.6
Total	581.7

3.2.1.1 Nonnative Annual Grassland

Annual grassland, the most common land cover type in the project permit area, corresponds to the California annual grassland land cover type identified in the EACCS. It is an herbaceous community dominated by naturalized annual grasses with intermixed perennial and annual forbs. Dominant species observed include soft chess brome (*Bromus hordeaceus*), big heronbill (*Erodium botrys*), redstem filaree (*E. cicutarium*), Italian ryegrass (*Festuca perennis* [*Lolium multiflorum*]), and Mediterranean barley (*Hordeum marinu*m var. *gussoneanum*). The annual grasslands were grazed to a relatively short height in most areas, and ground squirrel and gopher burrows were observed throughout the nonnative annual grasslands in the project permit area. Burrows are abundant and density is fairly uniform throughout the site.

Invasive species are generally present in the project area, but they do not form dense stands with high cover. A complete inventory has not been completed, but species known to occur include Italian thistle (*Carduus pycnocephalus*), mustard (*Hirschfeldia incana*), black mustard (*Brassica nigra*), yellow star-thistle (*Centaurea solstitialis*), and various nonnative grasses.

3.2.1.2 Ephemeral Drainage

Ephemeral drainages are seasonally wet features. Three ephemeral drainages are present in the project permit area (Table 4). This community occupies approximately 0.2 acre in the southwestern and southeastern portions of the project permit area (Figure 3). The drainages are located in low-lying areas, draining water from surrounding hillsides and likely conveying water only following storm events. Two of the drainages (ED-2 and ED-3) are more than 250 feet from any project activities. One ephemeral drainage (ED-1) is approximately 240 feet from project activities. Vegetation consists of hydrophytic plant species adapted to wetland conditions. Vegetation typically associated with this feature includes generalists such as hyssop loosestrife (*Lithium hyssopifolia*), cocklebur (*Xanthium strumarium*), Mediterranean barley, and Italian ryegrass. Upland species such as black mustard, redstem filaree, common tarweed (*Holocarpha virgata*), and soft chess brome can also occur.

Table 4. Aquatic Resources in the Project Permit Area

Feature Type	Feature ID	Drainage Average Width (feet)	Acreage
Pond (ephemeral)	P-1	–	0.01
Pond (permanent)	P-2	–	0.58
Pond (ephemeral)	P-3	–	0.03
Ephemeral drainage	ED-1	3	0.02
Ephemeral drainage	ED-2	1	0.06
Ephemeral drainage	ED-3	2	0.09
Total			0.80

3.2.1.3 Rock Outcrops

Numerous rock outcrops are present in the western portion of the project permit area, nine of which contain variously sized rock pools. These areas are surrounded by annual grassland.

3.2.1.4 Pond

One stock pond (P-2) in the southeastern portion of the project permit area (Figure 3) appears to be a small permanent feature constructed to retain runoff water for livestock use (Table 4). There are two, small ephemeral ponds (P-1 and P-3) in the south and southwest portions of the project permit area. The surface area of the ponds varies with the time of year. Because of the ponds' shallow profile and the characteristically hot, dry summers and well-draining soil, the ponds only hold water for a short portion of the year, estimated to be up to 1 month after larger rain events. The ponds are unvegetated but may sometimes support a narrow fringe of cattail or scattered cattail plants (*Typha* spp.).

3.2.1.5 Developed/Roads/Infrastructure

Areas in the project permit area were previously used in ranching operations (e.g., corrals), wind project operation (e.g., relic turbine pads), and site access (i.e., roads). A small 0.2-acre substation and a 0.2-acre ranching facility are in these areas. Roads and other infrastructure occupy approximately 2.9 acres of the site.

3.2.2 Covered Species

3.2.2.1 California Red-Legged Frog

USFWS designated California red-legged frog (*Rana aurora draytonii*) as a threatened subspecies on June 24, 1996 (61 FR 25813). Following genetic research published in 2004, California red-legged frog was assigned specific status (CaliforniaHerps 2018).

Geographic Distribution

California red-legged frog (*Rana draytonii*) is endemic to California. Its current range comprises the San Francisco Bay Area and along the central coast, where it is relatively common, as well as isolated locations in the Sierra Nevada, on the north coast, and in the northern Transverse Ranges. California

red-legged frog is believed to be extirpated from the floor of the Central Valley (U.S. Fish and Wildlife Service 2002).

Life History and Habitat Requirements

California red-legged frogs use aquatic habitat (ponds or drainages) in grassland and woodland habitats year-round, though they can persist for short periods out of water. If water is present they prefer to be in or adjacent to it, rather than moving into the uplands. They typically breed from November through April, using still or slow-moving aquatic habitats generally at least 3 feet deep, with vegetation consisting of willows, tules, or cattails. Juvenile frogs seem to favor open, shallow aquatic habitats with dense submergent vegetation. Although California red-legged frogs can inhabit both ephemeral and permanent streams and ponds, populations probably cannot persist in ephemeral streams in which all surface water disappears (Jennings and Hayes 1994). As ephemeral streams and ponds dry up in the late summer and fall, California red-legged frogs move to other nearby water sources or temporarily into the uplands.

Adults may take refuge during dry periods in rodent holes or leaf litter in annual grassland, oak woodland, chaparral, and riparian habitats and may move through these habitats during overland migration to and from aquatic habitat. Although California red-legged frogs typically remain near streams or ponds, marked and radio-tagged frogs have moved up to 1.7 miles through upland habitat (Bulger et al. 2003). These movements typically occur during wet weather and at night (U.S. Fish and Wildlife Service 2002). California red-legged frogs use long-distance movements to travel between ephemeral breeding pools and permanent water sources where they remain following the breeding period and during the driest months (August through October).

Threats

The species' decline is attributable to a variety of factors. Large-scale commercial harvesting of red-legged frogs led to severe depletions of populations at the turn of the century (Jennings and Hayes 1985). Subsequently, exotic aquatic predators such as bullfrogs, crayfish, and various species of predatory fish became established and contributed to the continued decline of the species (Hayes and Jennings 1986). Habitat alterations such as conversion of land to agricultural and commercial uses, reservoir construction that affects downstream riparian environments, and in some places unauthorized off-highway vehicle use threaten remaining populations (Zeiner et al. 1990; Jennings and Hayes 1994).

Under the 2012 EACCS Programmatic Biological Opinion, 16 projects have resulted in the cumulative disturbance of approximately 681 acres of California red-legged frog habitat: 173 acres of permanent disturbance and 508 acres of temporary disturbance. These acreages include the Golden Hills and Golden Hills North wind facility projects. As of December 2018, one individual has been relocated unharmed and one has been found dead from project activities covered in East Alameda County.

Information regarding exotic aquatic predators in the project permit area is not known. Habitat alterations from previous wind energy projects may have occurred; however, the extent of changes is unknown. Invasive plant species are generally present, but they are not known to occur in dense patches or with high cover that would preclude or hinder the movement of individuals during dispersal. Information on contaminants, livestock grazing practices, ranch maintenance, and other potential threats is not known for the project permit area.

Status in Project Permit Area

California red-legged frog habitat in the project permit area includes the stock pond (P-2) and nearby ephemeral drainages (ED-2 and ED-3) (Figure 3), plus two other small ephemeral ponds (P-1 and P-3). Pond P-2 could support breeding, and suitable upland dispersal habitat for this species is present throughout the project permit area. The ephemeral drainages (ED-2 and ED-3) and the two ephemeral ponds (P-1 and P-3) would support nonbreeding aquatic habitat, but they would not support breeding because they only contain water for a short time (generally estimated at 1 month or less, primarily following larger rain events).

Species-specific surveys have not been conducted in the project permit area, but there are many known occurrences of the species within 2 miles of the project permit area (the species' known dispersal distance) (Figure 4).

Critical Habitat

USFWS promulgated the final revised ruling designating critical habitat for California red-legged frog on March 17, 2010 (75 FR 12816–12959). The entire project permit area is within critical habitat unit ALA-2 (75 FR 12816, 12907). Primary constituent elements (PCEs)[1] of designated critical habitat for this species include (1) aquatic breeding habitat (ponds, streams, wetlands); (2) aquatic nonbreeding (e.g., freshwater features not suitable for breeding) and riparian habitat; (3) upland habitats associated with riparian and aquatic habitat that provide food and shelter; and (4) dispersal habitat (i.e., accessible upland or riparian habitat within and between occupied or previously occupied sites within 1 mile of each other and that do not contain barriers—e.g., heavily traveled roads without bridges or culverts—to dispersal). All four PCEs are present in the project permit area, though aquatic breeding (pond) and aquatic nonbreeding habitat (ephemeral drainage) are limited; upland and dispersal habitats are more abundant. Within the project permit area there is approximately 0.62 acre of PCE-1, approximately 0.16 acre of PCE-2, approximately 32 acres of PCE-3, and approximately 539 acres of PCE-4.

Critical habitat unit ALA-2 encompasses 153,624 acres. The unit contains aquatic habitat for breeding and nonbreeding activities and upland habitat for foraging and dispersal activities, and was known to be occupied at the time of the critical habitat listing.

Consistency with Recovery Plan

USFWS published the *Recovery Plan for the California Red-Legged Frog* in 2002 (USFWS 2002). The project permit area is located within the South and East San Francisco Bay recovery unit and within the East San Francisco Bay core area. The core areas were selected on the basis of several criteria. The East San Francisco Bay core area was selected because it is currently occupied, provides a source population, and has connectivity between known populations. The HCP would not appreciably change the land use or disturbance within the project permit area from existing conditions. Furthermore, the HCP would conserve California red-legged habitat in perpetuity either

[1] On February 11, 2016, the USFWS and the NFMS deleted the term primary constituent elements (PCEs) and replaced it with the term physical and biological features (PBFs)(81 Fed. Reg. 7413). All critical habitat publications referenced in this document occurred prior to February 5, 2016, and therefore use the term primary constituent element (PCE), consistent with the critical habitat designations as they were published.

inside or outside the project permit area and within the recovery unit or core area. The HCP may contribute to meeting the goals of the recovery plan and would not preclude meeting any of the goals in the recovery plan.

3.2.2.2 California Tiger Salamander

The Central California DPS of California tiger salamander is federally listed as threatened (69 FR 47212; August 4, 2004). The Sonoma and Santa Barbara County DPSs were listed separately as endangered (65 FR 57242; 68 FR 13498).

Geographic Distribution

California tiger salamander is endemic to the San Joaquin–Sacramento River valleys, bordering foothills, and coastal valleys of central California (Barry and Shaffer 1994). Based on genetic analysis, there are six populations of California tiger salamanders, distributed as follows: (1) Santa Rosa area of Sonoma County; (2) Bay Area (central and southern Alameda, Santa Clara, western Stanislaus, western Merced, and most of San Benito Counties); (3) Central Valley (Yolo, Sacramento, Solano, eastern Contra Costa, northeast Alameda, San Joaquin, Stanislaus, Merced, and northwestern Madera Counties); (4) southern San Joaquin Valley (portions of Madera, central Fresno, and northern Tulare and Kings Counties); (5) Central Coast range (southern Santa Cruz, Monterey, northern San Luis Obispo, and portions of western San Benito, Fresno, and Kern Counties); and (6) Santa Barbara County (Shaffer and Trenham 2005). The species' range along the coast includes the Santa Rosa area of Sonoma County, from southern San Mateo County south to San Luis Obispo County, and the vicinity of northwestern Santa Barbara County. In the Central Valley and adjacent Sierra Nevada foothills and Coast Ranges, the species occurs from the vicinity of Dunnigan in Yolo County south to northwestern Kern County and northern Tulare and Kings Counties. California tiger salamanders occur at elevations from sea level to approximately 3,900 feet in the Coast Ranges and to approximately 1,600 feet in the Sierra Nevada foothills (69 FR 47212).

Life History and Habitat Requirements

California tiger salamander requires freshwater habitat during the most critical stage of its life cycle—the breeding season—which is dependent on the wet season but typically lasts from November through April. Tiger salamanders congregate in aquatic breeding habitat (primarily vernal pools and stock ponds) prior to breeding and laying eggs. Following breeding, they disperse from the breeding habitat into nearby upland habitat for foraging and aestivation. In upland habitat, California tiger salamanders use burrows created by small mammals such as ground squirrels and pocket gophers for shelter and aestivation. California tiger salamanders remain in the upland habitat until emerging the following year to return to the breeding habitat, typically at night and during rain events. Research on the species indicates that the majority of individuals of a population do not disperse far from the breeding habitat. According to Trenham and Shaffer (2005), 90% of individuals of a population did not disperse more than 1,607 feet from the breeding habitat, and only 5% of individuals dispersed beyond 2,067 feet. In addition, research conducted by Searcy and Shaffer (2008) indicates that the density of adult and juvenile California tiger salamanders decreases exponentially as a function of distance from the breeding site. Although Orloff (2007) found that the majority of California tiger salamanders dispersed within 2,600 feet of a breeding pond, some dispersed as far as 1.37 miles from the pond.

Threats

California tiger salamander populations have declined as a result of two primary factors: widespread habitat loss and habitat fragmentation. Residential development and land use changes in the species' range have removed or fragmented vernal pool complexes, eliminated refuge sites adjacent to breeding areas, and reduced habitat suitability for the species over much of the Central Valley (Barry and Shaffer 1994; Jennings and Hayes 1994). Grading activities have probably also eliminated large numbers of salamanders directly (Barry and Shaffer 1994). Nonnative species (bullfrogs, Louisiana red swamp crayfish, and nonnative fishes like mosquitofish, bass, and sunfish) prey on tiger salamander larvae and may eliminate larval populations from breeding sites (Jennings and Hayes 1994; U.S. Fish and Wildlife Service 2000). Rodent control through destruction of burrows and release of toxic chemicals into burrows can cause direct mortality of individual salamanders and may result in a decrease of available habitat (U.S. Fish and Wildlife Service 2000). Rodent control is not part of project-related O&M activities, but ongoing farming practices or other uses carried out by the underlying landowners or other lessees are not under the applicant's control. It is unknown if rodent control has occurred onsite, but no bait stations were observed during site reconnaissance surveys. Vehicular mortality is an important threat to California tiger salamander populations (Barry and Shaffer 1994; Jennings and Hayes 1994). California tiger salamanders readily attempt to cross roads during migration, and roads that sustain heavy vehicle traffic or barriers that impede seasonal migrations may have affected tiger salamander populations in some areas (Shaffer and Fisher 1991; Shaffer and Stanley 1992; Barry and Shaffer 1994). Hybridization between California tiger salamander and an introduced congener, *A. tigrinum*, has been documented and may be extensive (Riley et al. 2003).

As described above for California red-legged frogs, threats to Central California tiger salamanders in the project permit area include habitat modification, degradation, and fragmentation from development, roads, and agriculture; competition and predation by introduced species and feral animals; and mortality due to vehicle strikes. A nearby project, the Golden Hills Wind Energy Facility Repowering Project, removed 775 existing turbines and replaced them with 48 new, larger turbines. As a part of this project, silt fencing was installed around Central California tiger salamander breeding ponds to prevent salamanders from crossing the construction roads on the site. During construction of this project, more than 60 Central California tiger salamanders that were migrating out of a nearby breeding pond were found desiccated along the drift fence. In addition, more than 1,000 salamanders were found along the fence area and were successfully moved out of harm's way. Additional fencing and pit traps resulted in a much-reduced number of salamander mortalities. For the proposed project, the applicant will implement several conservation measures to reduce these types of potential effects including PBO General Protection Measure 2, which requires biological monitoring during construction activities, AMPH-1, which requires the establishment of exclusion zones and exclusionary fencing at a minimum of 500 feet from an aquatic feature wet or dry., and AMPH-2, which requires fencing to exclude salamanders from entering the work area. Lastly, PBO California tiger salamander Measure 1 requires surveys for salamanders prior to construction and moving California tiger salamanders, if appropriate, and through coordination with the USFWS. Minimizing exclusionary fencing throughout the project by placing exclusionary fencing only near aquatic features should prevent desiccation of animals by limited barriers to movement and allowing biologist to target those areas where relocation of animals will be most likely.

In summer of 2017, the Golden Hills North Energy Facility Repowering Project entailed removing existing turbines and replacing them with 26 new, larger turbines. Salamanders on this project were also captured and relocated. As part of this project, many Central California tiger salamanders were

captured and relocated outside the construction zone. In total, 48 individuals were relocated unharmed and three individuals were found dead at the project (two crushed along roads and one found desiccated). Under the 2012 EACCS Programmatic Biological Opinion, 16 projects up to December 2018 have resulted in the cumulative disturbance of approximately 722 acres of California tiger salamander habitat: 172 acres of permanent disturbance and 550 acres of temporary disturbance. In total, about 63 individuals have been found dead as a result of recent project fencing in the Altamont Hills and more than 1,000 have been relocated as of December 2018.

Information regarding exotic aquatic predators in the project permit area is not known. Habitat alterations from previous wind energy projects may have occurred; however, the extent of changes is unknown. Invasive plant species are generally present, but they are not known to occur in dense patches or with high cover that would preclude or hinder the movement of individuals during dispersal. Information on contaminants, livestock grazing practices, ranch maintenance, and other potential threats is not known for the project permit area.

Status in Project Permit Area

Potential California tiger salamander aquatic breeding habitat in the plan area includes the stock pond (P-2), which is not near any project work areas (Figure 3). The ephemeral ponds are not considered potential breeding habitat because they only contain water for a short time (generally estimated at 1 month or less, primarily following larger rain events).

Suitable upland habitat for the species is present in the adjacent annual grasslands and within the species' dispersal range. The project permit area is known to support a robust population of ground squirrels, which produce extensive burrow systems. Many areas in the Altamont region have stock ponds and other suitable habitat for the species, and a known breeding site is located within 1.24 miles of the project permit area. In addition, numerous occurrences have been documented immediately outside the project permit area (Figure 4).

Critical Habitat

USFWS designated critical habitat for the Central California DPS of California tiger salamander on August 23, 2005 (70 FR 49379). The project permit area is not within designated critical habitat for California tiger salamander.

3.2.2.3 San Joaquin Kit Fox

USFWS designated San Joaquin kit fox as an endangered species on March 11, 1967 (32 FR 4001).

Geographic Distribution

San Joaquin kit foxes occur in some areas of suitable habitat on the floor of the San Joaquin Valley and in the surrounding foothills of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains from Kern County north to Contra Costa, Alameda, and San Joaquin Counties (U.S. Fish and Wildlife Service 1998). Since 1998, the population structure has become more fragmented, with some resident satellite populations having been locally extirpated; these areas are visited by dispersing kit foxes rather than occupied by resident animals (U.S. Fish and Wildlife Service 2010:15). The largest extant populations are in Kern County (Elk Hills and Buena Vista Valley) and San Luis Obispo County in the Carrizo Plain Natural Area (U.S. Fish and Wildlife Service 1998).

Life History and Habitat Requirements

The breeding season begins during September and October when adult females begin to clean and enlarge natal or pupping dens. Mating and conception occur between late December and March, and litters of two to six pups are born between late February and late March (U.S. Fish and Wildlife Service 1998:126). San Joaquin kit foxes may range up to 20 miles at night during the breeding season and somewhat less (6 miles) during the pup-rearing season (Girard 2001). Kit foxes can readily navigate a matrix of land use types. Home ranges vary from less than 1 square mile up to approximately 12 square miles (White and Ralls 1993). The home ranges of pairs or family groups of kit foxes generally do not overlap (White and Ralls 1993). San Joaquin kit foxes prey upon a variety of small mammals, ground-nesting birds, and insects. They are in turn subject to predation by such species as coyote, nonnative red foxes, domestic dog, eagles, and large hawks (U.S. Fish and Wildlife Service 1998).

San Joaquin kit foxes occur in a variety of habitats, including grasslands, scrublands, vernal pool areas, alkali meadows and playas, and an agricultural matrix of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands (U.S. Fish and Wildlife Service 1998). They prefer habitats with loose-textured soils that are suitable for digging, but they occur on virtually every soil type. Dens are generally located in open areas with grass or grass and scattered brush, seldom occurring in areas with thick brush. Preferred sites are relatively flat, well-drained terrain (U.S. Fish and Wildlife Service 1998). They are seldom found in areas with shallow soils because of high water tables or impenetrable bedrock or hardpan layers (U.S. Fish and Wildlife Service 1998). However, kit foxes may occupy soils with a high clay content where they can modify burrows dug by other animals, such as California ground squirrels (Orloff et al. 1986). Structures such as culverts, abandoned pipelines, and well casings may also be used as den sites (U.S. Fish and Wildlife Service 1998:127).

In the northern part of the species' range (including Alameda County) where most habitat on the valley floor has been eliminated, kit foxes occur primarily in foothill grasslands and valley oak savanna. Retaining a linkage between San Joaquin kit fox populations in western Merced County north into Alameda and Contra Costa Counties is an important recovery goal for this species (U.S. Fish and Wildlife Service 1998).

Threats

Continued fragmentation of habitat is a serious threat to this species. Increasing isolation of populations through habitat degradation and barriers to movement, such as aqueducts and busy highways, can limit dispersal to and occupancy of currently and previously occupied lands. The threat of being struck by vehicles is high, particularly for dispersing individuals crossing roadways with median barriers. Livestock grazing is not thought to be necessarily detrimental to the kit fox (Morrell 1975; Orloff et al. 1986), but it may affect the number of prey species available, depending on the intensity of grazing (U.S. Fish and Wildlife Service 1998). Moderate grazing is thought to benefit the species because it can potentially enhance the prey base and reduce vegetation to allow kit foxes to more easily detect and avoid predators. The use of pesticides to control rodents and other pests threatens kit foxes in some areas, either directly through poisoning or indirectly through reduction of prey abundance.

Status in Project Permit Area

Numerous historic California Natural Diversity Database records for San Joaquin kit fox have been recorded within 2 miles of the project permit area (California Department of Fish and Wildlife 2017) (Figure 4). These observations date from between 1972 and 1998. As noted above, while the range remains the same, the population structure of San Joaquin kit fox since 1998 has become more fragmented; the project permit area is considered part of a satellite population and is likely occupied mainly by dispersers rather than residents or breeders (U.S. Fish and Wildlife Service 2010:15,16).

Suitable habitat for San Joaquin kit fox is present in annual grassland in the project permit area. Several large coyote-sized dens (more than 8 inches in diameter) were observed in the western half of the project permit area during the April 4, 2017, field survey, and abundant coyote scat was present throughout the rock outcrops. Coyotes prey on and compete with kit foxes, and often kit foxes do not occur in areas with dense coyote populations. Although suitable habitat is present in the project permit area, there have been very few recent sightings of kit foxes in the region, and the high coyote presence in the project permit area reduces the likelihood that San Joaquin kit foxes would be present.

Under the 2012 EACCS Programmatic Biological Opinion, 16 projects have resulted in the cumulative disturbance of approximately 663 acres of San Joaquin kit fox habitat: 147 acres of permanent disturbance and 516 acres of temporary disturbance. No injury or morality of individuals has been reported from projects covered by the EACCS Programmatic Biological Opinion**.**

Critical Habitat

No critical habitat has been designated for San Joaquin kit fox.

Consistency with Recovery Plan

USFWS published the *Recovery Plan for Upland Species of the San Joaquin Valley, California* in 1998 (U.S. Fish and Wildlife Service 1998). In general, the recovery plan for San Joaquin kit fox focuses on the establishment of a viable complex of kit fox populations throughout its geographic range. In general, the recovery plan focuses on the protection of three core populations in San Luis Obispo County, Kern County, and western Fresno and San Benito Counties (i.e., the three core populations), and connecting larger blocks of isolated natural land to core and other populations. The project permit area is outside the three core areas, but would be considered a larger block of kit fox habitat on the edges of the species' range. The HCP would not appreciably change the land use or disturbance within the project permit area from existing conditions and would not preclude meeting any goals of the recovery plan.

Chapter 4
Impact Assessment

4.1 Overview

Covered activities have the potential to affect California red-legged frogs and their designated critical habitat, California tiger salamanders, and San Joaquin kit foxes. Potential direct effects include temporary habitat loss, habitat degradation, and fragmentation of upland habitat; and direct mortality, injury, or displacement of individuals. Take of San Joaquin kit fox is not expected since this species is not expected to occur regularly in the area, but the project may still result in minor habitat effects or displacement. Potential effects on all three covered species and on critical habitat for California red-legged frog are described in this chapter. Overall, a small portion of the project permit area—approximately 7% of the total area—would experience ground disturbance during project construction. Less than 1% of the total area would be disturbed permanently, or temporarily during O&M activities over the term of the HCP. Permanent and temporary impacts would affect annual grassland. Impacts are not anticipated on other land cover types: ephemeral drainage, rock outcrops, and ponds. Construction activities would primarily take place during the dry season, but could extend into the wet season (i.e., November and December) if not completed earlier. However, the project area would be stabilized by mid-October, before the wet season, and remaining work would use light-duty trucks.

4.2 Impact Methodology

Overall permanent and temporary ground disturbance was calculated with geographic information system software using the assumptions listed below. Figures depicting the disturbance areas in relation to aquatic features are also provided in Appendix B.

4.2.1 Permanent Construction Disturbance

- **Access Roads**. Existing roads vary from 10 to 12 feet wide and would be widened to 20 feet. New access roads would be 20 feet wide.
- **Wind turbine foundations**. A 60-foot-diameter permanent impact area would result from the concrete foundation and additional graveled area surrounding each turbine.
- **Meteorological tower.** A 30-foot-diameter (0.1 acre) permanent impact area would result from the concrete foundation and additional graveled surrounding the meteorological tower.
- **Substation.** The existing substation would be used with minor expansion (i.e., the existing substation footprint is approximately 0.1 acre and it would be expanded another 0.1 acre so that the final size is 0.2 acre) of the existing graveled and fenced footprint. Work would involve replacing and installing new components within the substation area.

4.2.2 Temporary Construction Disturbance

- **Access Roads**. Roads would be temporarily widened (10 feet on each side of existing roads and 10 feet on each side of permanent new roads) and would be restored back to a permanent 20-foot width.
- **Staging areas.** Temporary disturbance of up to 15 acres would result from six designated areas used for storage of supplies and other activities needed for project construction.
- **Wind turbine sites**. Temporary disturbance to a distance of 175 feet beyond the permanent impact area would result from turbine installation.
- **Collection lines**. Installation of collection lines would result in a temporary disturbance corridor 20 feet wide for up to two collection lines, up to 30 feet wide for up to three collection lines, up to 40 feet wide for up to four collection lines, and up to 50 feet wide for up to five collection lines. HDD may be used to install some collection lines, if feasible, but direct trenching and burial was assumed for impact calculations.
- **Meteorological tower**. Temporary disturbance to a distance of 120 feet beyond the permanent impact area would result from meteorological tower installation.
- **Substation.** Temporary disturbance beyond the final substation footprint totaling 0.1 acre would be required to expand the substation.

4.2.3 No Construction Disturbance

The following covered activities were not considered to disturb habitat for covered species.

- **Existing roads.** The areas covered by existing roads were assumed to entail no disturbance of habitat for covered species.
- **O&M facility.** Work within the existing O&M facility fenced area was assumed to entail no disturbance of habitat for covered species.

4.2.4 Operations and Maintenance Disturbance

Additional temporary impacts would result from wind turbine repair or replacement, electrical line repair or maintenance, and road maintenance. Such activities would be undertaken only on an as-needed basis. Disturbance estimates are based on annual disturbance of approximately 4,500 square feet (i.e., approximately a 50- by 90-foot area); actual disturbances could be larger or smaller in any particular year depending on the maintenance work needed but would not exceed 3.0 acres over the permit term.

4.2.5 Mitigation Area Disturbance

If the applicant develops its own mitigation, management actions on the conservation lands, also known as the mitigation permit area, would be covered. These management actions will be detailed in the long-term management plan and could include fencing, stock pond repair, clean-out and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control, and other actions approved in the final long-term management plan. Such actions are intended to maintain and improve habitat for covered species, though resultant incidental take of covered species would be covered under this HCP.

4.3 Impact Summary

As shown in Table 5, repowering would remove 1.8 acres of nonnative annual grassland, considered a permanent impact. Repowering and project maintenance would temporarily cause ground disturbance to 45.9 acres of nonnative annual grassland.

Table 5. Upland Habitat Impact Summary for Construction and Maintenance (acres)

Activity	Permanent Ground Disturbance	Temporary Ground Disturbance
Construction		
Access road expansion[1]	1.0	7.0
Staging area installation	0.0	15.0
Turbine foundation installation	0.5	17.6
Power collection system installation	0.0	3.0
Meteorological tower installation	0.1	0.2
Substation expansion	0.1	0.1
Power poles	0.1	0.0
Subtotal	1.8	42.9
Maintenance		
O&M work (0.5 acre every 5 years for 30 years)[2]	0.0	3.0
Subtotal	0.0	3.0
Total	1.8	45.9

Note: Upland habitat consists of nonnative annual grassland.

[1] Existing access roads would be reused to the extent possible; however, some small sections of new access road would be required.

[2] Although the operational period of the project is expected to be up to 35 years, ground-disturbing O&M activities would only occur in operational years 5–35 (30 years).

4.4 California Red-Legged Frog

Based on the presence of suitable habitat for California red-legged frog within the project permit area and known populations adjacent to the project permit area, there is a potential for California red-legged frogs to be affected by covered activities: construction and maintenance activities.

4.4.1 Project-Specific Impacts

4.4.1.1 Habitat Loss

No seasonal wetlands or ponds suitable for California red-legged frog breeding would be directly affected by covered activities because ground disturbance would not occur within or near any breeding aquatic habitats. All ground disturbance effects would be limited to upland habitat (grassland) used by California red-legged frogs. Project impacts are summarized in Table 5.

Construction activities are not expected to indirectly affect a pond (P-1) and ephemeral drainage (ED-1) that are 240 feet from a temporarily widened existing road (Appendix B). ICF hydrologist Brendan Belby made this conclusion based on multiple variables: the distance from disturbance, the temporary road widening and restoration activities being conducted during the dry season, implementation of SWPPP measures, the absence of new impermeable surfaces, the presence of another existing road between the two aquatic features and project activities, and the incorporation of a measure to carefully consider road design to minimize the potential for effects (conservation measure ADD-10). Moreover, construction activities are not expected to indirectly affect pond P-2, more than 1,000 feet from work areas; pond P-3, approximately 400 feet from work areas; or ephemeral drainages ED-2 and ED-3, approximately 1,000 feet or more from work areas. Moreover, no permanent or temporary project features are located in an area that would result in a hydrological discharge to these features, and proposed activities would not alter the hydrology either within or supporting these features (Belby pers. comm.).

To minimize adverse effects of loss of upland habitat, conservation measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after ground-disturbing activities associated with project construction and maintenance. Measures expected to be most effective at minimizing the loss of upland habitat are AMPH-1, which requires the establishment of exclusion zones to limit work areas; PBO General Protection Measure 17, which requires finalization and implementation of a grassland restoration plan; and PBO General Protection Measure 12, which requires the use of best management practices (BMPs) such as installation of sediment fences to minimize erosion. Together, these measures will help to minimize upland habitat loss by constraining the extent of work areas and by ensuring successful restoration of temporarily disturbed areas.

4.4.1.2 Habitat Degradation

Effects on California red-legged frog could result from ground-disturbing activities associated with construction that degrades upland habitat or introduces nonnative invasive species into the area. Exposed soil surfaces left unvegetated by ground disturbance have the potential to lead to discharge of sediment into adjacent upland areas, filling suitable burrows with sediment, thereby degrading dispersal habitat and eliminating refugia. As stated above, because the two aquatic features downslope of the roads would be protected with sediment fencing and are separated from construction activities by an existing road, construction activities are not anticipated to degrade the pond and ephemeral drainage.

Construction activities also have the potential to result in runoff of petroleum-based products associated with equipment and vehicles used during construction. To avoid potential effects from these petroleum projects on nearby upland habitat, conservation measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after ground-disturbing activities associated with project construction and maintenance. The measures expected to be most effective at minimizing potential effects are GEN-08, which requires vehicle fueling away from aquatic areas; GEN-12, which requires the use of erosion control measures; and PBO General Protection Measure 12, which requires the use of BMPs to minimize erosion and water quality effects. Because the project would permanently affect less than 0.5% of the land cover in the project permit area (1.8 acres of 580 acres) and no aquatic habitat would be degraded, the project is not expected to significantly degrade suitable habitat.

4.4.1.3 Construction Impacts on Individuals

Construction activities such as excavation, grading, and stockpiling of soil could result in injury or mortality of California red-legged frogs. Potential direct effects include mortality or injury by equipment, entrapment in open trenches or other project facilities, and entombment of animals in occupied burrows that are covered or filled in. Construction may require the use of exclusion fencing; exclusion fencing itself can pose an entrapment risk to frogs that are moving across the site. Construction into the wet season (i.e., November and December) would likely lead to an elevated risk of killing frogs as burrows are more likely to be crushed or collapsed during wet conditions; further, frogs are more likely to be above ground and moving during wet conditions. Hydroseeding during restoration, should it result in complete burrow closure, could interfere with California red-legged frogs' ability to exit burrows. Conservation Measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after construction to minimize potential adverse effects on California red-legged frog. Other direct effects may include disturbance caused by vibration from heavy equipment, prompting individuals to avoid or disperse from areas. The introduction of invasive species through transport on construction equipment could degrade dispersal habitat by obstructing free movement of individuals. Invasive species will be monitored as part of the restoration plan to minimize these impacts.

4.4.1.4 Operations and Maintenance Impacts

O&M activities, such as turbine equipment removal and repair, collection system repair, and road maintenance, could result in injury or mortality of this individual red-legged frogs. Maintenance-related ground disturbance would primarily occur within the footprint of the initial construction-related disturbance areas. Road repair would be undertaken within the footprint of the 20-foot wide corridor for existing and new roads. Because most O&M activities would take place in previously disturbed areas, injury or mortality of individual frogs would be minimized. Potential direct effects include mortality or injury by equipment and entombment of animals if occupied burrows are covered or filled. Indirect effects could result from facility lighting and from the introduction of nonnative invasive species. O&M work is not expected to be substantial, but the applicant may need to perform ongoing maintenance actions to keep the wind farm operational. Conservation Measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after maintenance activities to minimize potential adverse effects. Maintenance activities are expected to result in 0.5 acre or less of temporary disturbance every 5 years.

4.4.1.5 Beneficial Impacts

As part of restoration efforts following project construction, Rooney would reclaim and reseed approximately 42.9 acres of staging areas, power collection system installation areas, temporary road expansions, and turbine installation areas. These restoration efforts would convert most of the project site back into nonnative grassland habitat that would be usable for red-legged frogs. The applicant would also monitor and control invasive species that could degrade dispersal habitat. Restoration work would be completed within 1 year of disturbance, consistent with the conservation measures described in Chapter 5, *Conservation Strategy*.

4.4.1.6 Mitigation Permit Area Impacts

Management actions in the mitigation permit area could affect California red-legged frogs. Fencing, stock pond repair, clean-out and enhancement of ponds, mowing, cattle management, erosion

repair, species monitoring, invasive species management and control, and other actions approved in the final long-term management plan could result in temporary adverse effects. However, these actions are intended to maintain and improve habitat for California red-legged frog and would only be conducted if long-term beneficial effects are expected.

4.4.1.7 Critical Habitat

Of the four PCEs of California red-legged frog critical habitat, dispersal habitat (PCE 4) would be temporarily and permanently affected by the project. A substantial long-term adverse effect on PCE 4 is not expected because the project would not create barriers for dispersal; frogs could continue using the upland habitat for movement, foraging, and shelter. Maintenance-related ground disturbance would take place within the footprint of the initial construction-related disturbance areas and would not adversely affect PCEs 1, 2, or 3. Because aquatic habitat would not be degraded or removed through construction or maintenance activities, and no activities would be undertaken within 200 feet of aquatic habitats, there would be no effect on PCE 1 (aquatic breeding habitat), PCE 2 (aquatic nonbreeding and riparian habitat), or PCE-3 (upland habitats within 200 feet of associated with riparian and aquatic habitat that provide food and shelter). Overall, the small amount of permanent and temporary impacts on PCE 4—1.8 acres and 45.9 acres, respectively—would not significantly alter available critical habitat nor affect the use of the habitat by California red-legged frog.

4.4.2 Cumulative Effects

Cumulative effects, as defined in 50 CFR Section 402.02, consider the effects of future state, local, or private activities (excluding federal actions) that are reasonably likely to occur within the project permit area.

Existing land uses under and around the wind turbines are unlikely to change given the agricultural zoning, and no other uses of the project permit area are proposed. These areas are likely to remain in grazing and open space, and existing wind leases encumber the property. Large-scale land cover conversions to other agricultural crops, such as vineyards or orchards, have not occurred in this area over the past 30 years and are consequently considered unlikely. Therefore, no substantial cumulative effects are expected to occur in the project permit area.

Regionally, however, the species will likely continue to suffer from cumulative effects associated with cattle grazing, urban growth, and conversion of grassland to cultivated agricultural use. Cattle grazing is a common land use practice in rural Alameda County. Overgrazing can result in degradation and loss of riparian vegetation, increased water temperatures, streambank and upland erosion, and decreased water quality in streams. Livestock operations also degrade water quality with pesticides and nutrient contamination. Agricultural development, impoundments, and irrigation can alter vernal pool hydrology, resulting in the loss of aquatic breeding habitat. Farming practices carried out by surrounding landowners or other lessees can also include rodent control through the destruction of burrows or through toxic release of chemicals into burrow, which can cause direct mortality and degrade and eliminate available habitat and refugia. Currently proposed development activities under Alameda County's jurisdiction include Livermore Community Solar Farm project, CalSun Solar Project, additional wind projects in the APWRA, and several residential developments in the county. Continued heavy grazing and increased urbanization in the region will contribute to the degradation of water quality in streams, altered flow regimes, increased contaminated road runoff, loss of habitat, and increased human presence in natural areas.

Cumulative effects on California red-legged frog would consist of continuing and future loss of suitable breeding, foraging, sheltering, and dispersal habitat resulting from conversion to urban development. Additional urbanization can stimulate road-widening projects and generate increased traffic on roads that bisect habitat, thereby increasing road-kill while reducing and further fragmenting remaining habitat. California red-legged frogs are likely exposed to a variety of pesticides and other chemicals throughout their range. Hydrocarbon and other contamination from oil production and road runoff, the application of chemicals for roadside maintenance, urban/suburban landscape maintenance, and rodent and vector control programs may all have adverse effects on California red-legged frog populations.

Regional conservation plans such as the East Contra Costa County HCP/NCCP and EACCS are intended to provide measures to help conserve remaining habitats. Collectively, adherence to conservation measures and project-specific mitigation are expected to offset direct, indirect, and cumulative effects.

4.4.3 Estimated Level of Take

HCPs are required to include a determination of the amount of incidental take that may occur as a result of covered activities and that will be authorized during the permit term (50 CFR Section 17.22[b]). The following estimate of take considers the avoidance and minimization measures described in Chapter 5, *Conservation Strategy*.

Incidental take of California red-legged frogs in the form of displacement, disturbance, injury, or death may result from construction or maintenance activities. Temporary and permanent habitat loss may also result in take. Take will be minimized by implementation of the avoidance and minimization measures described in Chapter 5, *Conservation Strategy*, particularly through limiting habitat disturbance to daytime during the dry season, because red-legged frogs typically remain near streams or ponds during the day, generally moving into upland areas during wet weather at night. Similarly, by limiting disturbance to the dry season, reseeding will be undertaken at the beginning of the wet season, encouraging quick regrowth of the annual grassland habitat that dominates the project site and allowing work areas to become suitable for dispersal. The applicant requests authorization of any take associated with the disturbance of 47.7 acres of upland habitat: 1.8 acres of permanent habitat loss and 45.9 acres of temporary habitat disturbance during construction and maintenance activities (Table 5) and actions associated with maintenance and enhancement in the mitigation permit area.

4.4.4 Impacts with Respect to Survival and Recovery

The *Recovery Plan for the California Red-Legged Frog* (USFWS 2002) focuses on management of the species within core areas. The project permit area is within the East San Francisco Bay core area. Goals of the recovery plan for this core area include maintenance of breeding and dispersal habitat. Both breeding and dispersal habitat in the project permit area would remain following project construction, and the HCP is not expected to have impacts with respect to survival and recovery of the species.

4.5 California Tiger Salamander

Based on the presence of suitable aquatic and upland habitat for California tiger salamander and known populations adjacent to the project permit area, there is potential for California tiger salamander to be affected by covered activities in the project permit area.

4.5.1 Project-Specific Impacts

4.5.1.1 Habitat Loss

Habitat impacts on California tiger salamander from implementation of covered activities would be similar to those described above for California red-legged frog for both upland and aquatic habitats. As described above, no seasonal wetlands or ponds suitable for California tiger salamander breeding would be directly affected by covered activities; thus, there would be no adverse effects on aquatic habitats. Adverse effects would be limited to upland habitat (grassland) used by tiger salamanders during dispersal and for underground retreats during the dry season. Approximately 47.7 acres of upland habitat would be disturbed by covered activities (i.e., construction and O&M): 1.8 acres permanently and 45.9 acres temporarily (Table 5).

To minimize adverse effects of loss of upland habitat, conservation measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after ground-disturbing activities associated with project construction and O&M. Measures expected to be most effective at minimizing the loss of upland habitat are AMPH-1, which requires the establishment of exclusion zones to limit work areas; PBO General Protection Measure 17, which requires finalization and implementation of a grassland restoration plan; and PBO General Protection Measure 12, which requires the use of BMPs to minimize erosion. Together, these measures will help to minimize upland habitat loss by constraining the extent of work areas and by ensuring successful restoration of temporarily disturbed areas.

4.5.1.2 Habitat Degradation

Effects on California tiger salamander could result from ground-disturbing activities associated with construction that degrades upland habitat or introduces nonnative invasive species into the area. As described above, no seasonal wetlands or ponds suitable for California tiger salamander breeding would be indirectly affected by covered activities; thus, there would be no adverse effects on aquatic habitat. Exposed soil surfaces left unvegetated by ground disturbance have the potential to lead to discharge of sediment into adjacent upland areas and filling suitable burrows with sediment, thereby degrading dispersal habitat and eliminating refugia. Construction activities also have the potential to result in runoff of petroleum-based products associated with equipment and vehicles used during construction.

To avoid potential effects on nearby upland habitat, conservation measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after ground-disturbing activities associated with project construction and maintenance. The measures expected to be most effective at minimizing potential effects are GEN-08, which requires vehicle fueling away from aquatic areas; GEN-12, which requires the use of erosion control measures; and PBO General Protection Measure 12, which requires the use of BMPs to minimize erosion and water quality effects. Because the project would permanently affect less than 1% of the land cover onsite, the project is not expected to significantly degrade onsite habitat.

4.5.1.3 Construction Impacts on Individuals

Construction impacts on California tiger salamander would be similar to those described for California red-legged frog. Mortality, injury, or displacement or disturbance of individual California tiger salamanders could result from project-related equipment or vehicles and traffic in the project permit area. Potential direct effects include mortality or injury by equipment and entombment of animals if occupied burrows are covered or filled. Disturbance and displacement associated with work activities may increase the potential for predation, desiccation, competition for food and shelter, and vehicle strike on access roads. Construction may require the use of exclusion fencing; exclusion fencing itself can pose an entrapment risk to salamanders that are moving across the site. Construction into the wet season (i.e., November and December) would likely result in elevated risk of killing salamanders as burrows are likelier to be crushed or collapsed during wet conditions; further, the species is more likely to be above ground and moving during wet conditions. Hydroseeding during restoration, should it result in complete burrow closure, could interfere with salamanders' ability to exit burrows. Other direct effects may include disturbance caused by vibration from heavy equipment, prompting individuals to avoid or disperse from areas. The introduction of invasive species through transport on construction equipment could degrade dispersal habitat by obstructing free movement of individuals. Invasive species will be monitored as part of the restoration plan to minimize these impacts.

Conservation Measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after construction to minimize potential adverse effects on California tiger salamander. Measures expected to be most effective at reducing the impacts of construction on individuals are AMPH-2 and PBO California Tiger Salamander Measure 1, which requires preconstruction surveys for individuals and relocation of individuals out of construction areas.

4.5.1.4 Operations and Maintenance Impacts

O&M activities, such as turbine equipment removal and repair, collection system repair, and road maintenance, could result in injury or mortality of individual salamanders. Potential direct effects include mortality or injury by equipment and entombment of animals if occupied burrows are covered or filled. Indirect effects could result from facility lighting and the potential introduction of nonnative invasive species. Conservation Measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after maintenance activities to minimize potential adverse effects. Measures expected to be most effective at minimizing operations and maintenance impacts are AMPH-2 and PBO California Tiger Salamander Measure 1, which require preconstruction surveys for individuals, and PBO General Measure 17, which requires restoration of temporarily disturbed areas. Maintenance activities are expected to result in 0.5 acre or less of temporary disturbance every 5 years.

4.5.1.5 Beneficial Impacts

As part of restoration efforts following project construction, Rooney would reclaim and reseed staging areas, power collection system installation areas, temporary road expansions, and turbine installation work areas. These restoration efforts would return most of the project site into habitat usable for the species. Restoration work would be completed within 1 year of disturbance, consistent with the conservation measures described in Chapter 5, *Conservation Strategy*.

4.5.1.6 Mitigation Permit Area Impacts

Management actions in the mitigation permit area could affect California tiger salamander. Fencing, stock pond repair, clean-out and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control, and other uses approved in the final long-term management plan could result in temporary adverse effects. However, these actions would be done with the intent of maintaining and improving habitat for California tiger salamander and would only be conducted if long-term beneficial effects are expected.

4.5.2 Cumulative Effects

Existing land uses under and around the wind turbines are unlikely to change given the agricultural zoning, and no other uses of the project permit area are proposed. These areas are likely to remain in grazing and open space, and existing wind leases encumber the property. Large-scale land cover conversions to other agricultural crops, such as vineyards or orchards, have not occurred in this area over the past 30 years and are consequently considered unlikely. Therefore, no substantial cumulative effects are expected to occur in the project permit area.

Regionally, the species will likely continue to suffer from cumulative effects associated with urban growth, conversion of grassland to cultivated agricultural use, application of herbicides/pesticides, and other activities. Cattle grazing is a common land use practice in rural Alameda County. Overgrazing can result in degradation and loss of riparian vegetation, increased water temperatures, streambank and upland erosion, and decreased water quality in streams. Livestock operations also degrade water quality with pesticides and nutrient contamination. However, light to moderate livestock grazing is generally thought to be compatible with continued successful use of rangelands by California tiger salamander, provided the grazed areas are not subject to intensive burrowing rodent control efforts (Shaffer et al. 1993; U.S. Fish and Wildlife Service 2017). The shorter vegetation associated with grazed areas may make the habitat more suitable for ground squirrels, whose burrows are utilized by California tiger salamanders for refugia (U.S. Fish and Wildlife Service 2017).

Agricultural development, impoundments, and irrigation can alter vernal pool hydrology, resulting in the loss of aquatic breeding habitat. Disking, a common practice on agricultural lands, can result in substantial losses of upland habitat for California tiger salamander.

Currently proposed development activities under Alameda County's jurisdiction include the Livermore Community Solar Farm project, a CalSun Solar Project, additional wind projects in the APWRA, and several residential developments in the county. Housing developments result in loss of suitable California tiger salamander habitat as they replace agricultural and ranch lands. Increased urbanization in the region will contribute to the degradation of water quality, altered flow regimes, increased contaminated road runoff, loss of upland habitat, and increased human presence in natural areas.

Cumulative effects on California tiger salamander include continuing and future loss of suitable breeding, foraging, sheltering, and dispersal habitat resulting from conversion to urban development. Additional urbanization can stimulate road-widening projects and generate increased traffic on roads that bisect habitat, thereby increasing road kill while reducing and further fragmenting remaining habitat. California tiger salamanders are likely exposed to a variety of pesticides and other chemicals throughout their range. Hydrocarbon and other contamination from oil production and road runoff, the application of chemicals for roadside maintenance,

urban/suburban landscape maintenance; and rodent and vector control programs may all have adverse effects on California tiger salamander populations.

Further habitat fragmentation, additional nonnative species introduction, and increased access to aquatic habitat could facilitate or increase the spread of amphibian diseases in the species' range. The global mass extinction of amphibians primarily attributable to chytrid fungus is of significant concern to USFWS (U.S. Fish and Wildlife Service 2017). Long-term population viability can only be maintained with large tracts of intact upland habitat surrounding breeding sites (Trenham et al. 2005). This is further described in *A Status Review of the California Tiger Salamander (*Ambystoma californiense*)* (California Department of Fish and Game 2010).

Ongoing climate change may threaten California tiger salamander and the resources necessary for the species' survival. Because climate change threatens to disrupt annual weather patterns, it may result in a loss of suitable habitats and prey and in increased numbers of the salamander's predators, parasites, and diseases (U.S. Fish and Wildlife Service 2017).

Regional conservation plans such as the East Contra Costa County HCP/NCCP and the EACCS are intended to provide measures to help conserve remaining habitats. Collectively, adherence to conservation measures and project-specific mitigation are expected to offset direct, indirect, and cumulative effects.

4.5.3 Estimated Level of Take

Incidental take of tiger salamanders in the form of injury or death may result from construction activities and O&M activities. In addition, temporary and permanent habitat loss may result in take (in the form of harm) of this species. Take will be minimized by implementation of the avoidance and minimization measures described in Chapter 5, *Conservation Strategy*, particularly through limiting habitat disturbance to daytime during the dry season and implementing exclusionary fencing near sensitive breeding habitat, because California tiger salamanders typically travel between upland and breeding habitat at night and during rain events. Similarly, by limiting disturbance to the dry season, reseeding will be undertaken at the beginning of the wet season, encouraging quick regrowth of the annual grassland habitat that dominates the project site.

The applicant requests authorization of any take associated with the disturbance of 47.7 acres of upland habitat: 1.8 acres of permanent habitat loss and 45.9 acres of temporary habitat disturbance, respectively, during construction and O&M activities (Table 5) and actions associated with maintenance and enhancement within the mitigation permit area.

4.5.4 Impacts with Respect to Survival and Recovery

The recovery plan for the California tiger salamander central California DPS focuses on the maintenance of genetic diversity and connectivity across the species' range. Both breeding and dispersal habitat within the project permit area would remain following construction of the project, and the HCP is not expected to have impacts with respect to survival and recovery of the species.

4.6 San Joaquin Kit Fox

Based on the presence of suitable dispersal habitat for San Joaquin kit fox, there is a small potential for San Joaquin kit foxes to be affected by covered activities in the plan area.

4.6.1 Project-Specific Impacts

4.6.1.1 Habitat Loss

Habitat impacts on San Joaquin kit fox from implementation of covered activities would include the temporary disturbance of dispersal habitat. To minimize adverse modification of upland habitat, conservation measures described in Chapter 5, *Conservation Strategy*, would be implemented prior to, during, and after ground-disturbing activities associated with project construction and O&M. Measures expected to be most effective at minimizing the loss of upland habitat are PBO General Protection Measure 17, which requires finalization and implementation of a grassland restoration plan, and PBO General Protection Measure 12, which requires the use of BMPs to minimize erosion. Together, these measures will help to minimize upland habitat loss by ensuring successful restoration of temporarily disturbed areas.

4.6.1.2 Habitat Degradation

Habitat degradation and potential effects on San Joaquin kit fox could occur. Grading and trenching could result in burrows being crushed, temporarily removing suitable habitat. Construction vehicle operation will be loud, possibly resulting in kit foxes avoiding the construction area. Following construction, the project permit area will continue to be suitable for kit fox use and dispersal. Conservation Measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after construction and O&M activities to minimize potential effects on habitat for San Joaquin kit fox. The measures expected to be most effective at minimizing potential effects from habitat degradation are PBO San Joaquin Kit Fox Measure 4, which requires minimizing grading of areas with high concentrations of burrows; GEN-12, which requires the use of erosion control measures; and PBO General Protection Measure 17, which requires the finalization and implementation of a grassland restoration plan.

4.6.1.3 Construction Impacts on Individuals

Construction impacts on San Joaquin kit fox from implementation of covered activities could include mortality, injury, or displacement or disturbance of individual kit foxes, if any are present. While there is a low probability of encountering individuals given the low density of individuals in this area, direct adverse impacts from grading and excavation are still possible. Disturbance and displacement associated with work activities could adversely affect kit foxes, if any are present. Conservation Measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after construction to minimize potential adverse effects on San Joaquin kit fox. Measures expected to be most effective at minimizing effects on individuals are measures PBO San Joaquin Kit Fox Measure 1 and MAMM-1, which require the identification and avoidance of dens.

4.6.1.4 Operations and Maintenance Impacts

O&M activities, such as turbine equipment removal and repair, collection system repair, and road maintenance, could result in injury or mortality of individual kit foxes. Potential direct effects

include mortality or injury by equipment and entombment of animals if occupied burrows are covered or filled. Indirect effects from the introduction of nonnative invasive species could discourage kit foxes from using otherwise suitable areas. Increased human presence and noise from wind turbines or maintenance equipment could affect kit fox use of the project permit area. However, human presence is expected to be infrequent because the turbines are typically monitored monthly. Further operational noise is expected to be similar to the prior onsite wind farm and similar to adjacent wind projects; maintenance equipment noise is not expected to have an impact because it would occur in different locations for short durations. Conservation measures described in Chapter 5, *Conservation Strategy*, will be implemented prior to, during, and after maintenance activities to minimize potential adverse effects. Measures expected to be most effective at minimizing O&M impacts are PBO San Joaquin Kit Fox Measure 1 and MAMM-1, which require the identification and avoidance of dens, and PBO General Measure 17, which requires restoration of temporarily disturbed areas. Maintenance activities are expected to result in 0.5 acre or less of temporary disturbance every 5 years.

4.6.1.5 Beneficial Impacts

As part of restoration efforts following project construction, Rooney would reclaim and reseed staging areas, power collection system installation areas, temporary road expansions, and turbine installation areas. These restoration efforts would return most of the project site into habitat usable for kit foxes. Restoration work would be completed within 1 year of disturbance, consistent with the conservation measures described in Chapter 5, *Conservation Strategy*.

4.6.1.6 Mitigation Area Impacts

Management actions in the mitigation permit area could affect San Joaquin kit fox habitat. Fencing, stock pond repair, clean-out and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control, and other actions approved in the final long-term management plan could result in temporary effects on habitat. However, these actions would be intended to maintain and improve habitat for San Joaquin kit fox and would only be conducted if beneficial effects are expected.

4.6.2 Cumulative Impacts

Existing land uses under and around the wind turbines are unlikely to change given the agricultural zoning, and no other uses of the project permit area are proposed. These areas are likely to remain in grazing and open space, and existing wind leases encumber the property. Large-scale land cover conversions to other agricultural crops, such as vineyards or orchards, have not occurred in this area over the past 30 years and are consequently considered unlikely. Therefore, no substantial cumulative effects are expected to occur in the project permit area.

Regionally, the species will likely continue to suffer from cumulative effects associated with urban growth, conversion of grassland to cultivated agricultural use, fencing that restricts movement, and other activities. Currently proposed major development activities under Alameda County's jurisdiction include the Livermore Community Solar Farm project, a CalSun Solar Project, additional wind projects in the APWRA, and several residential developments. Increased urbanization in the region will contribute to loss of upland habitat and increased human presence in natural areas. Cumulative effects on San Joaquin kit fox include continuing and future loss of suitable breeding, foraging, sheltering, and dispersal habitat resulting from conversion to urban development.

Regional conservation plans such as the East Contra Costa County HCP/NCCP and EACCS are intended to provide measures to help conserve remaining habitats. Collectively, adherence to conservation measures and project-specific mitigation are expected to offset direct, indirect, and cumulative effects.

4.6.3 Estimated Level of Take

Incidental take of San Joaquin kit fox is unlikely. Although suitable habitat is present in the plan area, there have been very few recent sightings of San Joaquin kit foxes in the region, and the high coyote presence in the plan area reduces the likelihood that San Joaquin kit foxes would be present. However, if San Joaquin kit foxes are present, take in the form of harm through displacement or behavioral disturbance that reduces survival rates may result from construction or O&M activities. Temporary and permanent habitat loss may also result in take (in the form of harm). Take of individuals in the form of direct injury or mortality or of harm by causes other than habitat modification is unlikely given the lack of species occurrences in the area.

Any take will be minimized by implementation of the avoidance and minimization measures described in Chapter 5, *Conservation Strategy*—particularly measures such as vehicle speed limits, tube capping and daily equipment inspections, and preconstruction surveys and den management protocols, if necessary.

The applicant requests authorization of any take associated with the disturbance of 47.7 acres of habitat: 1.8 acres of permanent habitat loss and 45.9 acres of temporary habitat disturbance, respectively, during construction and O&M activities (Table 5) and actions associated with maintenance and enhancement within the mitigation permit area.

4.6.4 Impacts with Respect to Survival and Recovery

The recovery plan for San Joaquin kit fox (U.S. Fish and Wildlife Service 1998) focuses on core areas which are not located within the project permit area. Dispersal habitat within the project permit area would remain following the construction of the project and the HCP is not expected to have impacts with respect to survival and recovery of the species.

Chapter 5
Conservation Strategy

This chapter describes the conservation strategy that the Permittee will implement to minimize and mitigate impacts on covered species to the maximum extent practicable as required under ESA Section 10(a)(2)(B). This strategy is consistent with USFWS's HCP Handbook (U.S. Fish and Wildlife Service and National Marine Fisheries Service 2016), which provides guidance on biological goals and objectives, adaptive management, monitoring, permit duration, and public participation components, all of which should be included in HCPs. It also considers the context of EACCS, which was developed in collaboration with USFWS and the California Department of Fish and Wildlife (CDFW) to guide long-term habitat protection and preserve endangered species in the eastern part of Alameda County.

5.1 Biological Goals

In the context of HCPs, biological goals form the guiding principles behind the conservation program. The biological goal of this HCP is to protect and provide for the continuing existence of California red-legged frog, California tiger salamander, and San Joaquin kit fox in the APWRA. The biological objectives associated with this HCP are to permanently conserve covered species habitat through conservation easement or mitigation credits.

5.2 Conservation Approach

5.2.1 Avoidance and Minimization Measures

As required by ESA, this HCP contains measures to avoid or minimize the taking of covered species. The primary focus of these measures is to avoid or minimize take (i.e., death or injury) of individuals of covered species and impacts on high-quality habitat, such as grassland areas that may be affected by covered activities. Even with these avoidance and minimization measures, other forms of take (e.g., harm of covered species) may still result from project implementation. Proposed avoidance and minimization measures for the construction, operation, and maintenance of the project and for activities on the mitigation lands are based on measures from the EACCS (ICF International 2010) and the associated EACCS PBO (U.S. Fish and Wildlife Service 2012), but these have been modified slightly in some cases to be specific to the needs of this HCP. To ensure consistency between documents and avoid confusion, identifiers for each measure (e.g., GEN-01, PBO General Protection Measure 2) have not been changed from their source document (EACCS or EACCS PBO).

5.2.1.1 General Avoidance and Minimization Measures Based on the East Alameda County Conservation Strategy

GEN-01. Employees and contractors performing construction activities will receive environmental sensitivity training. Training will include review of environmental laws and Avoidance and Minimization Measures (AMMs) that must be followed by all personnel to reduce or avoid effects on covered species during construction activities.

GEN-02. Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects to these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.

GEN-03. Contracts with contractors, construction management firms, and subcontractors will obligate all contractors to comply with these requirements, and AMMs.

GEN-04. The following will not be allowed at or near work sites for covered activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations and for Service Animals).

GEN-05. Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

GEN-06. Off-road vehicle travel will be minimized.

GEN-07. Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural land-cover types, or during off-road travel.

GEN-08. Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

GEN-09. Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

GEN-10. To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation will be either rice straw or weed-free straw.

GEN-11. Pipes, culverts and similar materials greater than four inches in diameter, will be stored so as to prevent covered wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved. An example of an appropriate storage method is to elevate materials at least 4 inches above the ground surface.

GEN-12. Erosion control measures will be implemented to reduce sedimentation in wetland habitat occupied by covered animal and plant species when activities are the source of potential erosion problems. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

GEN-13. Stockpiling of material will occur such that direct effects to covered species are avoided; areas with numerous rodent burrows will be avoided. Stockpiling of material in riparian areas will occur outside of the top of bank, and preferably outside of the outer riparian dripline and will not exceed 30 days.

GEN-14. Grading will be restricted to the minimum area necessary.

GEN-15. Prior to ground disturbing activities in sensitive habitats, project construction boundaries and access areas will be flagged during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.

GEN-16. Significant earth moving-activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1-inch of rain or more).

GEN-17. Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no covered species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist.

5.2.1.2 General Avoidance and Minimization Measures Based on East Alameda County Conservation Strategy Programmatic Biological Opinion

PBO General Protection Measure 1. At least 15 days prior to any ground disturbing activities, the applicant will submit to USFWS for review and approval the qualifications of the proposed biological monitor(s). A qualified biological monitor means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the listed species.

PBO General Protection Measure 2. A USFWS-approved biological monitor will remain on-site during all construction activities in or adjacent to habitat for listed species. The USFWS-approved biological monitor(s) will be given the authority to stop any work that may result in the take of listed species. If the USFWS-approved biological monitor(s) exercises this authority, USFWS will be notified by telephone and electronic mail within one working day. The USFWS-approved biological monitor will be the contact for any employee or contractor who might inadvertently kill or injure a listed species or anyone who finds a dead, injured or entrapped individual. The USFWS-approved biological monitor will possess a working wireless/mobile phone whose number will be provided to USFWS.

PBO General Protection Measure 3. Prior to construction, a construction employee education program will be conducted in reference to potential listed species on site. At minimum, the program will consist of a brief presentation by persons knowledgeable in endangered species biology and legislative protection (USFWS-approved biologist) to explain concerns to contractors, their employees, and agency personnel involved in the project. The program will include: a description of the species and their habitat needs; any reports of occurrences in the project permit area; an explanation of the status of each listed species and their protection under the Act; and a list of measures being taken to reduce effects to the species during construction and implementation. Fact sheets conveying this information and an educational brochure containing color photographs of all listed species in the work area(s) will be prepared for distribution to the above-mentioned people and anyone else who may enter the project permit area. A list of employees who attend the training sessions will be maintained by the applicant to be made available for review by USFWS upon request. Contractor training will be incorporated into construction contracts and will be a component of weekly project meetings.

PBO General Protection Measure 4. Preconstruction surveys for listed species will be performed immediately prior to groundbreaking activities. Surveys will be conducted by USFWS-approved biologists. If at any point, construction activities cease for more than five consecutive days, additional preconstruction surveys will be conducted prior to the resumption of these actions.

PBO General Protection Measure 5. To prevent the accidental entrapment of listed species during construction, all excavated holes or trenches deeper than 6 inches will be covered at the

end of each work day with plywood or similar materials. Foundation trenches or larger excavations that cannot easily be covered will be ramped at the end of the work day to allow trapped animals an escape method. Prior to the filling of such holes, these areas will be thoroughly inspected for listed species by USFWS-approved biologists. In the event of a trapped animal is observed, construction will cease until the individual has been relocated to an appropriate location.

PBO General Protection Measure 6. Relocation will be approved on a project specific basis. The applicant will prepare a listed species relocation plan for the project to be reviewed and approved by USFWS prior to project implementation. The plan will include trapping and relocation methods, relocation site, and post relocation monitoring.

PBO General Protection Measure 7. Only USFWS-approved biologists will conduct surveys and move listed species.

PBO General Protection Measure 8. All trash and debris within the work area will be placed in containers with secure lids before the end of each work day in order to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. Containers will be emptied as necessary to prevent trash overflow onto the site and all rubbish will be disposed of at an appropriate off-site location.

PBO General Protection Measure 10.[2] All construction activities must cease one half hour before sunset and should not begin prior to one half hour after sunrise. There will be no nighttime construction.

PBO General Protection Measure 11. Grading and construction will be limited to the dry season, typically May-October. If approved by USFWS, an extension will be allowed to finish work in the wet season. Ground-disturbing activities or construction will not be conducted during rain events or within 24 hours following a rain event. Rain events will be defined as at least 0.25 inch in a 24-hour period for any work involving heavy equipment/vehicles or hand tools. Modifications to these work windows require USFWS approval. Following a rain event and prior to the continuation of ground-disturbing activities, a USFWS-approved biologist will inspect the work area for the presence of central California tiger salamanders or California red-legged frogs. If individuals of either species are located during these surveys, they will be relocated outside the exclusion fencing (if present) or the boundary of the work area, a minimum of 70 feet. Planting and seeding activities may continue during the wet season within established work areas without the need for USFWS approval.

PBO General Protection Measure 12. Best Management Practices (BMPs) will be used to minimize erosion and impacts to water quality and effects to aquatic habitat. If necessary, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared.

PBO General Protection Measure 13. The applicant will ensure a readily available copy of this document is maintained by the construction foreman/manager on the project site whenever

[2] PBO General Protection Measure 9 is not included because work will not be conducted adjacent to ponds; furthermore, the measure is infeasible as it calls for manual removal of vegetation: "All vegetation which obscures the observation of wildlife movement within the affected areas containing or immediately adjacent aquatic habitats will be completely removed by hand just prior to the initiation of grading to remove cover that might be used by listed species. The USFWS-approved biologist will survey these areas immediately prior to vegetation removal to find, capture and relocate any observed listed species, as approved by USFWS."

earthmoving and/or construction is taking place. The name and telephone number of the construction foreman/manager will be provided to USFWS prior to groundbreaking.

PBO General Protection Measure 14. The construction area shall be delineated with high visibility temporary fencing at least 4 feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside of the construction area. Such fencing/flagging shall be inspected and maintained daily until completion of the project. The fencing will be removed only when all construction equipment is removed from the site.

PBO General Protection Measure 15.[3] Wildlife exclusion fencing will be installed at strategic locations to minimize impacts on species moving through the project permit area. For the dry season, proposed fencing locations will be submitted to USFWS for approval at least 15 days prior to the start of construction activities and will include installation of exclusion fencing around all work areas within 500 feet of potential California red-legged frog or California tiger salamander aquatic breeding habitat. Wet season fencing locations will be submitted to USFWS for approval by October 15. In order to monitor the effectiveness of the exclusionary fencing, a USFWS-approved biologist will conduct regular surveys of the access roads to check for evidence of vehicular strike of listed species. A USFWS-approved biologist will also walk all fencelines at the beginning and end of each work day to look for individuals stranded along the fenceline. Adaptive contingency measures including the installation of additional fencing, increased monitoring intensity, or a reduced speed limit on project roads may be implemented as appropriate to reduce take. Exclusion fencing will be at least 3 feet high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface. The fence will be pulled taut at each support to prevent folds or snags. Fencing shall be installed and maintained in good condition during all construction activities. Such fencing shall be inspected and maintained daily until completion of the project. The fencing will be removed only when all construction equipment is removed from the site.

PBO General Protection Measure 16. A USFWS-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. Invasive exotic plants occurring from project activities in the plan area shall be removed to baseline levels.

PBO General Protection Measure 17. Within 30 days prior to any ground disturbance, a qualified biologist will finalize the Grassland Restoration Plan[4] in coordination with USFWS and subject to USFWS approval, to ensure that temporarily disturbed annual grasslands and areas planned for the removal of turbine pad areas are restored to preconstruction conditions. The Grassland Restoration Plan will include but not be limited to the following measures:

- Gravel will be removed from areas proposed for grassland restoration.
- To the maximum extent feasible, topsoil will be salvaged from within onsite work areas prior to construction and stockpiled for use in restoration. Imported fill soils will be limited

[3] To avoid confusion or contradictory information related to the location of exclusionary fencing between EACCS PBO General Protection Measure 15 and EACCS Species AMMs (AMPH-1 and AMPH-2), the HCP will default to PBO General Protection Measure 15, which requires (1) submittal and approval of all dry and wet season fencing locations and (2) placement of exclusionary fencing at worksites that are within 500 feet of potential aquatic breeding habitat of California red-legged frog or California tiger salamander.

[4] A proposed Grassland Restoration Plan is provided as Appendix A. The Grassland Restoration Plan would be finalized with USFWS and CDFW prior to ground disturbance.

to weed free topsoil similar in texture, chemical composition, and pH to soils found at a reference site.

- Where appropriate, restoration areas will be seeded (hydroseeding is acceptable) to ensure erosion control. Seed mixes will be tailored to closely match that of reference site(s) within the project area and should include native or naturalized, non-invasive species sourced within the project area or within 50 miles of the project area.
- Reclaimed roads will be restored and vehicular travel will be restricted using grading or boulders or other appropriate methods to permanently restrict vehicle usage.
- Success criteria for determining whether restoration efforts are successful will be included. At a minimum, criteria will address the following: (1) removal of sufficient gravel; (2) appropriate levels of soil compaction that allow for burrow establishment and adequate infiltration rates; (3) appropriate vegetation communities and percent native species plant cover for slope, aspect, and hydrological conditions based on reference sites and pre-project condition; and (4) an acceptable level of invasive plant cover at or below pre-project conditions.
- A requirement to monitor restoration areas will be defined in the Grassland Restoration Plan.

PBO General Protection Measure 18. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

PBO General Protection Measure 19. If activities require dewatering, a USFWS-approved biologist shall permanently remove, from within the dewatered area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible. The applicant shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

5.2.1.3 Species-Specific Avoidance and Minimization Measures Based on East Alameda County Conservation Strategy

AMPH-1 (California Tiger Salamander and California Red-legged Frog).[5] If aquatic habitat is present, a qualified biologist will stake and flag an exclusion zone prior to activities. The exclusion zone will be fenced with orange construction zone and erosion control fencing (to be installed by construction crew). The exclusion zone will encompass the maximum practicable distance from the work site and at least 500 feet from the aquatic feature wet or dry.

AMPH-2 (California Tiger Salamander and California Red-legged Frog).[5]

- A USFWS-approved biologist will conduct preconstruction surveys prior to ground disturbing activities within 500 feet of an aquatic feature. If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS- and CDFW-approved relocation site.

[5] See footnote #3 on previous page.

- A USFWS-approved biologist should be present for initial ground disturbing activities.
- If the work site is within the typical dispersal distance (contact USFWS or CDFW for latest research on this distance for species of interest) of potential breeding habitat, barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Barrier fencing will be removed within 72 hours of completion of work.
- No monofilament plastic will be used for erosion control.
- Construction personnel will inspect open trenches in the morning and evening for trapped amphibians.
- A USFWS-approved biologist possessing a valid ESA Section 10(a)(1)(A) permit or USFWS approval under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside fenced area.
- Work will be avoided within suitable habitat from October 31 (or the first measurable fall rain of 1 inch or greater) to May 1; but if approved by USFWS, wet-season work can occur for a limited time.

MAMM-1 (San Joaquin Kit Fox).

- If potential dens are present, their disturbance and destruction will be avoided.
- If potential dens are located within the proposed work area and cannot be avoided during construction, USFWS-approved biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with USFWS and CDFW. If unoccupied, the USFWS-approved biologist will collapse these dens by hand in accordance with USFWS procedures (U.S. Fish and Wildlife Service 1999).
- Exclusion zones will be implemented following USFWS procedures (U.S. Fish and Wildlife Service 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards or will be as follows: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case-by-case basis in coordination USFWS and CDFW.
- Pipes will be capped and trenches will contain exit ramps to avoid direct mortality while construction areas are active.

5.2.1.4 Species-Specific Avoidance and Minimization Measures Based on East Alameda County Conservation Strategy Programmatic Biological Opinion

PBO Red-Legged Frog Measure 1. A USFWS-approved biologist shall survey the work site immediately prior to construction activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall contact USFWS to determine if moving any of these life-stages is appropriate. In making this determination USFWS shall consider if an appropriate relocation site exists as provided in a USFWS-approved relocation plan. If USFWS approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.

PBO Red-Legged Frog Measure 2. Bare hands shall be used to capture California red-legged frogs. USFWS-approved biologists will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within two hours before and during periods when they are capturing and relocating individuals. To avoid transferring disease or pathogens of handling of the amphibians, USFWS-approved biologists will follow the Declining Amphibian Populations Task Force's "Code of Practice."

PBO California Tiger Salamander Measure 1. A USFWS-approved biologist shall survey the work site immediately prior to construction activities. If Central California tiger salamanders, larvae, or eggs are found, the approved biologist shall contact USFWS to determine if moving any of these life-stages is appropriate. In making this determination USFWS shall consider if an appropriate relocation site exists as provided in a USFWS-approved relocation plan. If USFWS approves moving animals, the approved biologist shall be allowed sufficient time to move Central California tiger salamanders from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of Central California tiger salamanders.

PBO California Tiger Salamander Measure 2. Bare hands shall be used to capture Central California tiger salamanders. USFWS-approved biologists will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within two hours before and during periods when they are capturing and relocating individuals. To avoid transferring disease or pathogens of handling of the amphibians, USFWS-approved biologists will follow the Declining Amphibian Populations Task Force's "Code of Practice."

PBO San Joaquin Kit Fox Measure 1. A qualified USFWS-approved biologist will conduct a preconstruction survey no more than 30 days before the beginning of ground disturbance or any activity likely to affect San Joaquin kit fox. This measure will be implemented in all off-road construction areas. The biologist will survey the proposed construction area and a 200-foot buffer area around the construction area to identify suitable dens. The biologist will conduct den searches by systematically walking transects spaced 30-100 feet apart through the survey area. Transect distance should be determined on the basis of the height of vegetation such that 100 percent visual coverage of the project area is achieved. If dens are found during the survey, the biologist will map the location of each den as well as record the size and shape of the den entrance; the presence of tracks, scat, and prey remains; and if the den was recently excavated. The biologist will also record information on prey availability (e.g., ground squirrel colonies). The status of the den as defined by USFWS should also be determined and recorded. Dens will be classified in one of the following four den status categories:

a. Potential den: Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is sufficient to conclude that it is being used or has been used by a San Joaquin kit fox. Potential dens comprise: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for San Joaquin kit fox use.

b. Known den: Any existing natural den or artificial structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records; past or current radio telemetry or spotlighting data; San Joaquin kit fox signs such as tracks, scat, and/or prey remains; or other reasonable proof that a given den is being or has been used by a San Joaquin kit fox.

c. Natal or pupping den: Any den used by San Joaquin kit fox to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more San Joaquin kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which San Joaquin kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two; therefore, for purposes of this definition either term applies.

d. Atypical den: Any artificial structure that has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

Written results of the surveys will be submitted to USFWS within one week of the completion of surveys and prior to the beginning of ground disturbance and/or construction activities likely to affect San Joaquin kit fox.

PBO San Joaquin Kit Fox Measure 2. After preconstruction den searches and before the commencement of construction activities, a qualified USFWS-approved biologist will establish and maintain the following exclusion zones measured in a radius outward from the entrance or cluster of entrances of each den.

a. Potential and atypical dens: A total of 4 or 5 flagged stakes will be placed 50 feet from the den entrance to identify the den location.

b. Known den: Orange construction barrier fencing will be installed between the construction work area and the known den site at a minimum distance of 100 feet from the den. The fencing will be maintained until all construction-related disturbances have been terminated. At that time, all fencing will be removed to avoid attracting subsequent attention to the den.

c. Natal/pupping den: USFWS will be contacted immediately if a natal or pupping den is discovered at or within 200 feet from the boundary of the construction area.

d. Construction and other project activities will be prohibited or greatly restricted within these exclusion zones. Only essential vehicular operation on existing roads and foot traffic should be permitted and articulated to USFWS. All other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited in the exclusion zones.

e. In cases where avoidance is not a reasonable alternative, limited destruction of potential San Joaquin kit fox dens will be allowed. Potential dens can be removed by careful hand excavation by a USFWS-approved biologist or under the supervision of a USFWS-approved biologist, after the dens have been monitored for 3 days with tracking medium or a remote sensor camera and determined to be vacant of San Joaquin kit foxes. If, during excavation or monitoring, a potential den is determined to be currently or previously used (e.g., San Joaquin kit fox sign found inside) by San Joaquin kit fox, then destruction of the den or construction in that area will cease and USFWS will be notified immediately.

PBO San Joaquin Kit Fox Measure 3. Vehicle traffic will be restricted to established roads, construction areas, and other designated areas.

PBO San Joaquin Kit Fox Measure 4. Grading activities shall be designed to minimize or eliminate effects to rodent burrows. Areas with high concentrations of burrows and large

burrows suitable for San Joaquin kit fox dens shall be avoided by grading activities to the maximum extent possible. In addition, when concentrations of burrows or large burrows are observed within the site these areas shall be staked and flagged to ensure construction personnel are aware of their location and to facilitate avoidance of these areas.

5.2.1.5 Additional Conservation Measures

ADD-1. Coverboards will be placed every 50–100 feet along in the inside and outside of the fenceline to minimize mortality of individual California tiger salamanders during dispersal and migration. The inside cover boards will be checked daily during fenceline monitoring. If individuals are found, they will be relocated as directed in the USFWS-approved relocation plan.

ADD-2. To confirm the absence and facilitate avoidance of listed plant species within the project permit area, a special-status plant survey will be completed prior to construction. The focused survey shall be conducted by a qualified biologist/botanist during the appropriate blooming period, or when the plant is readily identifiable, prior to the initiation of construction. Any populations of listed plant species found will be avoided by construction and maintenance activities in a manner approved by CDFW and USFWS to ensure that populations will not be harmed by construction ground disturbance or postconstruction changes to hydrology or topography.

ADD-3. Nonnative or invasive species, such as American bullfrogs, if found in the work area should be permanently removed from the project site by the qualified biological monitor (as defined under PBO General Protection Measure 1) whenever possible.

ADD-4. All equipment will be cleaned prior to mobilization into the project permit area to reduce the spread of invasive weeds into the area. If equipment is being moved in the project permit area from a project site that has invasive weed species to another project that does not, the equipment will be cleaned.

ADD-5. Fencing used for the project must create a visual and physical barrier for California tiger salamanders and California red-legged frogs; if the fencing is mesh and see-through, some other material must be placed at the bottom to restrict frogs and salamanders from seeing through it.

ADD-6. Seams that develop in the fenceline must be checked during monitoring surveys as California tiger salamanders have been known to take refuge in them.

ADD-7: Any fencing that is not meant for long-term use (i.e., not Ertec-like), will be replaced after 1 year of use, if construction lasts that long.

ADD-8. A biological monitor will daily monitor wind speed and direction as well as dust created during vehicle transport around rock outcrops and dust generated by staging area activities. If the monitor believes that dust and wind conditions could cause dust to be deposited in rock outcrop pools, then the biological monitor has the authority to stop all activities until conditions improve or to modify activities to eliminate dust creation until adverse conditions are eliminated.

ADD-9. Roads, staging areas, and construction sites within 0.25 mile of rock outcrops will be watered down daily to ensure that no dust is created that could cause sedimentation into rock outcrops. Watering will occur as frequently as necessary to minimize dust conditions around rock outcrop pools.

ADD-10. To ensure that potential indirect effects on aquatic habitats are minimized, a hydrologist will assist with design of project components, including access roads that are constructed within 250 feet of aquatic habitats. The intent of this measure is for the hydrologist to ensure that the project components are constructed in consideration of site-specific conditions such that the components do not obstruct natural drainage patterns, potentially redirecting flows away from the aquatic features, or concentrate flows that could cause erosion and sediment delivery to the features. A description of the methods and results of this work will be provided to USFWS prior to construction of project components within 250 feet of aquatic habitats.

5.2.2 Compensatory Mitigation

The applicant has proposed compensatory mitigation to offset the permanent and temporary effects of the project on California red-legged frog, California tiger salamander, and San Joaquin kit fox within the project permit area. The applicant intends to purchase either mitigation land or credits in Alameda County in accordance with the conditions of the mitigation criteria listed below; however, final selection of mitigation land, credits, or some combination of the two will be based on availability of mitigation options at the time of purchase and will be contingent on approval by USFWS and CDFW. Mitigation lands or credits purchased for the mitigation will adhere to the species mitigation ratios in Tables 3-7, 3-8, and 3-11 in the EACCS; if mitigation lands are not in the same mitigation zone as the impact area, the ratios may differ from those shown in Table 6.

The applicant will provide proof of recordation of a conservation easement (a template is provided in Appendix C) or acquisition of mitigation credits to USFWS within 12 months after the initial ground disturbance date. To provide financial assurances, a letter of credit or a bond will be provided to USFWS within 30 days of the issuance of the HCP permit to provide for the purchase of mitigation land and its endowment. If a letter of credit is used to provide financial assurances, CDFW must be listed as the beneficiary. If a bond is used to provide financial assurances, USFWS must be listed as the beneficiary. The letter of credit or a bond will note that USFWS and CDFW will determine compliance with the terms and conditions of each agency's respective permits, prior to cancelling the letter of credit or bond. Mitigation credits will be purchased within the same timeline in the event the applicant cannot find mitigation lands. The letter of credit or bond will equal the amount of the estimated land price at the time of initial ground disturbance and the proposed endowment cost as required to support the long-term management plan (Appendix D) as detailed in Appendix E. The applicant will provide at least 51.3 acres of permanent mitigation lands (an amount equal to a 3:1 ratio for permanent impacts and a 1:1 ratio for temporary upland impacts) that meet the site selection criteria outlined in Section 5.2.2.1, *Site Selection Criteria*. Impacts and compensation are enumerated in Table 6. The permanent mitigation will compensate for both temporary and permanent construction impacts and temporary O&M impacts. By providing the O&M mitigation (3 acres) in advance of the impacts, the mitigation will also provide a temporal benefit for the species.

Table 6. Impacts and Compensation[1]

Land Cover Type	Acres in Project Permit Area	Disturbance Type	Impact Acres	Compensation Ratio	Acres or Credits to be Purchased
Annual grassland	575.3	Permanent*	1.8	3:1	5.4
		Temporary	45.9	1:1	45.9
Total					51.3

[1] The permanent impact Compensation Ratio will adhere to the species mitigation ratios in Tables 3-7, 3-8, 3-11 of the EACCS; if not in the same EACCS species mitigation zone as the impact area, these ratios may differ from those shown in this table.

5.2.2.1 Site Selection Criteria

The mitigation site will be selected based on the following criteria.

- It will be located within the mitigation permit area (Alameda County).
- The mitigation site must have known occurrences of breeding California tiger salamander and California red-legged frog onsite or it must be within 1 mile of a protected and occupied breeding pond that is being managed for these species in perpetuity with no barriers to dispersal to the mitigation site, so that individuals can access the upland habitat on the mitigation site.
- The mitigation site must be within the current range for San Joaquin kit fox. To use the proposed 3:1 ratio for listed amphibian species, the mitigation site must be north of I-580 and in the California tiger salamander North Mitigation Area, inside California red-legged frog critical habitat and in the California red-legged frog North Mitigation Area, and in the San Joaquin kit fox East Mitigation Area.
- The mitigation site will be connected to open space that is not planned for intensive land use, residential or commercial development, or non-rangeland agriculture, or to a preserve that is conserved in perpetuity and has habitat for California red-legged frog, California tiger salamander, or San Joaquin kit fox dispersal. The mitigation site will abut this open space such that an ecological connection is present (i.e., a connection that would allow the movement of individuals of covered species from one area to another).
- The lands to be conserved and managed will be within a large, contiguous habitat block with habitat for the covered species.
- The site cannot be adjacent to agricultural lands for a substantial portion of its perimeter to reduce the threat of pesticide impacts.

The following items will be required for the selected mitigation site and will meet the January 30, 2014, USFWS Section 7 Compensatory Review Site Criteria, unless otherwise stated here or in the reports provided in this HCP document (Appendix F).

- Title report
- Property assessment and warranty
- Legal description and parcel map
- Phase 1 Environmental Site Assessment
- Conservation easement (see below)

- Long-term management plan (see below)
- Endowment fund analysis (see below)

5.2.2.2 Conservation Easement

In the event the applicant purchases a conservation easement, the easement will be held by an accredited land trust or other entity approved by USFWS and CDFW. The easement will not allow development of wind resources and will not have any existing liens, leases, or other title encumbrances related to wind resources. The conservation easement template (Appendix B) will be completed based on the specific mitigation site identified.

5.2.2.3 Long-Term Management Plan

The applicant will prepare and submit to USFWS and CDFW for approval a long-term management plan for the easement, addressing enhancement and restoration methods, monitoring and reporting requirements, success criteria, and long-term management activities including invasive species and predator management. Moreover, the applicant will provide an endowment to fund the management, monitoring, and security of the mitigation permit area in perpetuity in accordance with terms approved by USFWS. The draft long-term management plan template (Appendix C) will be completed based on the specific mitigation site identified and the management needs of that site.

5.2.2.4 Endowment Fund Analysis

Rooney Ranch developed a PAR-like cost estimate for the long-term management of a 51.3-acre mitigation site (Appendix D). The cost estimate assumes that the elements of the long-term management plan would be implemented on the site. The endowment cost estimate will be refined when the final site is selected and the long-term management plan is developed.

5.2.2.5 Summary of Compensatory Mitigation

The applicant has developed the compensatory mitigation proposal to mitigate the impacts of the take of covered species to the maximum extent practicable. Permanent impacts on upland habitat for California tiger salamander, California red-legged frog, and San Joaquin kit fox would be mitigated at a 3:1 ratio. Temporary impacts on upland habitat for these species would also be mitigated at the mitigation permit area by permanently protecting upland habitat.

Overall, the mitigation proposal would mitigate the impacts of the covered species taking because of the following considerations.

- Permanent impacts are mitigated. The mitigation site will provide protection in perpetuity of occupied upland habitat for the covered species. The mitigation will be three times greater than the impact.
- Temporary impacts are mitigated. The mitigation site will provide protection in perpetuity of occupied upland habitat for the covered species. This mitigation is provided at an amount commensurate with the impact. Further, restoration actions will ensure that the impact areas are restored and become usable by the species again; therefore, the mitigation provided is beyond the extent of the taking.

- The applicant is proposing mitigation for all suitable dispersal habitat, including areas that extend beyond the average California tiger salamander and California red-legged frog dispersal distances.

5.3 Monitoring and Adaptive Management

5.3.1 Monitoring

As discussed in the following sections, monitoring will be conducted to verify completion of the HCP requirements, including estimated levels of take, as stated in this document (compliance and effects monitoring), and to monitor and evaluate the effectiveness of the conservation strategy (effectiveness monitoring).

The monitoring program was designed to ensure that the biological goals and objectives of this HCP are achieved. Management and monitoring of the mitigation site will be detailed in a USFWS-approved long-term management plan (Appendix C). Monitoring under the long-term management plan will inform the adaptive management process and will be used to ensure that the mitigation site remains suitable for covered species.

5.3.1.1 Compliance Monitoring

Compliance monitoring will be required under this HCP to verify and document that all requirements in the HCP and terms and conditions of the ITP are carried out. The applicant must verify that the avoidance and minimization measures, required under Section 5.2.1 of this HCP, have been implemented successfully. To satisfy this condition, the applicant will hire biologists approved by USFWS to conduct necessary preconstruction surveys and monitoring during the implementation of covered activities. A consultant will document compliance with the avoidance and minimization measures of this HCP by submitting monthly and year-end reports, through the applicant, to USFWS. These reports will document the activities that occurred and which avoidance and minimization measures were implemented. The HCP will be deemed in compliance if all the terms and conditions of the ITP have been implemented and documented.

Documentation will be provided to USFWS verifying compliance with the pre-project minimization measures no later than 14 calendar days before project implementation. The applicant will provide monthly compliance and status reports to the USFWS during construction by the 5th business day of each month for the prior month that project activities occurred, documenting: (1) dates that construction occurred; (2) photo documentation of construction and applicable minimization measures; (3) pertinent information concerning the success of the project in meeting minimization measures including status of the compensation; (4) an explanation of failure to meet such measures, if any; (5) known project effects on listed species, if any; (6) occurrences of incidental take of listed species, if any; (7) documentation of employee environmental education; and (8) other pertinent information. The report will identify and describe the location and acreage of temporary and permanent effects to date; the location, method, and acreage of restoration activities conducted to date; and a summary of construction monitoring activities including results of preconstruction and daily clearance surveys, compliance inspections, and observations of listed species.

5.3.1.2 Effectiveness Monitoring

Both the project permit area and the mitigation permit area will be monitored. The primary goal of effectiveness monitoring is to ensure that annual grassland habitat is restored in the project permit area and remains suitable for California tiger salamander, California red-legged frog, and San Joaquin kit fox in the mitigation area.

Project Permit Area

The primary purpose of monitoring in the project permit area will be to ensure that restored areas attain habitat characteristics and vegetation structure similar to those of adjacent annual grassland. Success criteria for grassland restoration will be based on existing vegetation conditions at a nearby reference site within the plan area and will be identified fully in the grassland restoration plan required under PBO General Protection Measure 17.

Mitigation Permit Area

The primary purpose of monitoring in the mitigation permit area will be to ensure that vegetation structure and habitat characteristics of existing annual grassland and aquatic habitats are maintained in perpetuity for the benefit of covered species and to sustain their populations at the site. Monitoring will be conducted in accordance with the USFWS-approved long-term management plan.

5.3.2 Adaptive Management

Adaptive management—the process of modifying and evolving management decisions based on data collected—is typically most appropriate for regional conservation plans. For this project-specific HCP, the applicant will implement passive adaptive management and will monitor the success of the restoration effort to maintain the integrity of habitat onsite. If restoration efforts are unsuccessful, the applicant will implement additional reseeding to recover upland habitat onsite.

5.3.3 Reporting

Rooney will prepare annual reports over the term of the HCP that document permit compliance, impacts, conservation actions, management actions, and monitoring results. The annual reports will summarize the previous year's implementation activities and be provided to USFWS by February 15 following the reporting year. Annual reports will require synthesis of data and reporting on important trends. The goals of the annual report are listed below.

- To provide the information and data necessary for Rooney to demonstrate to USFWS and the public that the HCP is being implemented properly.
- To disclose any problems with HCP implementation and the corrective measures planned or implemented to address the problem.
- To identify administrative or minor changes to HCP components necessary to increase the success of conservation measures.
- To describe all covered activities implemented during the reporting period and the total acreage of disturbed land resulting from these activities (including as-built drawings for the project and any compensatory mitigation features, if applicable).

- To provide a year-to-date and cumulative (i.e., from the start of the permit term) summary of permanent and temporary impacts on all land cover types.
- To provide a year-to-date and cumulative (i.e., from the start of the permit term) quantification of take for each species in terms of acres of disturbed habitat, demonstrating compliance with the authorized level of take in the ITP.
- To provide a year-to-date and cumulative quantification of the number of California red-legged frogs, California tiger salamanders, and San Joaquin kit foxes observed, killed, or harmed during implementation of covered activities.
- To provide a description of all habitat acquisition, restoration, and conservation actions implemented during the reporting period.
- To provide a year-to-date and cumulative summary of the extent of land cover types enhanced.
- To provide an evaluation of the economic assumptions on which the HCP was based (e.g., actual HCP costs versus projections).
- To describe the adaptive management process used during the reporting period, if applicable.
- To summarize the recommendations or advice provided by USFWS regarding adaptive management and monitoring, if applicable.
- To provide a summary for the reporting period of the monitoring program objectives, techniques, and protocols, including monitoring locations, variables measured, sampling frequency, timing and duration, and analysis methods.
- To assess the efficacy of the monitoring and research program and recommended changes to the program based on interpretation of monitoring results and research findings, if applicable.
- To assess the efficacy of habitat restoration and creation methods in achieving performance objectives and recommended changes to improve the efficacy of the methods.
- To describe all HCP-directed studies undertaken during the reporting period; summarize study results; and describe integration with monitoring, assessment, and compliance elements.
- To provide a description of any actions taken or expected regarding changed circumstances, including remedial actions, if applicable.
- To provide a description of any unforeseen circumstances that arose and responses taken, if applicable.
- To provide a summary of any administrative changes, minor modifications, or major amendments proposed or approved during the reporting year (Chapter 9, *Revisions and Amendments*).

5.4 Summary of Conservation Strategy

In summary, the conservation strategy consists of measures that minimize habitat disturbance and avoid injury of California red-legged frogs, California tiger salamanders, and San Joaquin kit foxes; restore temporarily affected habitat areas; and mitigate impacts through conservation at a 3:1 ratio for permanent effects on grasslands and at a 1:1 ratio for temporary effects regardless of the distance to suitable aquatic habitat. The permanent impact Compensation Ratio will adhere to the

species mitigation ratios in Tables 3-7, 3-8, and 3-11 of the EACCS. Covered activities will not preclude or disrupt important connectivity within or between covered species populations, and they will not preclude movement between aquatic habitat and surrounding upland areas because wind turbines, unlike urban development, are widely dispersed and represent low-intensity development. Moreover, direct impacts on suitable aquatic habitat will be avoided. In addition, continued wind energy development in this area will maintain the land in relative open space for the approximately 35-year life of the project[6] and will prevent future rezoning and more intensive agricultural development from occurring during that period. The lands to be conserved and managed will be within a large, contiguous habitat block suitable to support the covered species. These lands will provide long-term conservation value for the covered species, thereby offsetting impacts on habitat and the species.

[6] The total term of the HCP is 36 years, which covers up to 1 year of project construction and up to 35 years of operations.

Chapter 6
Plan Implementation

6.1 Responsible Parties

This section describes the organizational structure that will be established to implement the HCP and the roles, functions, and responsibilities of the parties involved in its implementation.

6.1.1 Permittee

The Permittee will be responsible for implementing the conservation measures described in Chapter 5, *Conservation Strategy*, including compliance monitoring and reporting. The Permittee will track and document compliance with the conservation measures and will be responsible for preparing compliance reports to be submitted to USFWS as described in Section 5.3.3, *Reporting*.

6.1.2 U.S. Fish and Wildlife Service

USFWS is the regulatory agency that issues the federal ITP and will oversee implementation of the HCP. USFWS will receive reports submitted by the Permittee and will have an opportunity to review and comment on these reports.

6.2 Compliance Monitoring and Reporting

The permittee will submit to USFWS and CDFW compliance monitoring and reporting consistent with Section 5.3.3, *Reporting.* The permittee will implement compliance and effectiveness monitoring as consistent with Section 5.3.1.

6.3 Assurances Requested

This section discusses the assurances requested by Rooney that will accompany the ESA Section 10(a)(1)(B) permit issued by USFWS. These assurances involve defining changed and unforeseen circumstances for this HCP and receiving "no surprises" coverage based on a common understanding of the commitments made in this HCP. The Habitat Conservation Plan Assurances ("No Surprises") Rule [50 CFR 17.21(b)(5)-(6) and 17.22(b)(5)-(6); 63 FR 8859] defines unforeseen circumstances and changed circumstances and describes the obligations of the permittee and USFWS.

- **Changed circumstances** are defined by federal regulation as those circumstances affecting a species or geographic area covered by an HCP that can be reasonably anticipated by the applicant and USFWS and to which the parties can plan a response (50 CFR Section 17.3).
- **Unforeseen circumstances** are defined by federal regulation as changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been

anticipated by the applicant or USFWS at the time of HCP development and that result in a substantial and adverse change in the status of the covered species (50 CFR Section 17.3).

- The **No Surprises Regulation** (50 CFR 17.22(b)(5) and 50 CFR 17.32(b)(5) allows the USFWS to require additional measures of the permittee where the conservation plan is being properly implemented, but only if such measures are limited to modifications within conserved habitat areas, if any, or to the conservation plan's operating conservation program for the affected species, and maintain the original terms of the conservation plan to the maximum extent possible. Additional conservation and mitigation measures will not involve the commitment of additional land, water or financial compensation or additional restrictions on the use of the land, water, or other natural resources otherwise available for development or use under the original terms of the conservation plan without the consent of the permittee.
- **Properly implemented** means that the commitments and provisions of an HCP, Implementing Agreement (if applicable), and permit are being fully implemented.

6.3.1 Changed Circumstances

Section 10 regulations (50 CFR Section 17.22 [b][1][iii]) require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during implementation of the HCP. The following changed circumstances can reasonably be anticipated in the mitigation permit area.

- New species listings
- Climate change
- Nonnative invasive species or disease
- Wildfire
- Drought
- Earthquakes

If Rooney becomes aware of a changed circumstance within the mitigation area as defined by these sections, it will modify its activities, in the manner described below, to the extent necessary to address the effects of the changed circumstances on the HCP's conservation strategy. Rooney will also notify USFWS to determine whether additional minimization or mitigation measures might be necessary. As noted and described in the Endowment Cost Estimate (Appendix E), 15% of the total estimate for long-term management has been added to the total for the endowment to address contingencies, including changed circumstances.

6.3.1.1 New Species Listings

Over the course of the 36-year permit term, USFWS could list species that are not covered under this HCP as threatened or endangered under the ESA. Once Rooney becomes aware that a new noncovered species associated with habitat in the plan area may be listed or proposed for listing or candidacy, the following measures will be taken.

- **Conduct an impact assessment.** The potential impacts of covered activities on the new noncovered species will be evaluated, including an assessment of the presence of suitable habitat in the plan area. If Rooney determines that the new species occurs or could occur in the

plan area, and once USFWS has made a "may be warranted" finding, Rooney will use best efforts to identify any necessary measures to avoid the likelihood of jeopardy to or take of the new noncovered species. These measures will be developed in coordination with USFWS.

- **Apply for permit amendment or alternative take coverage**. If the impact analysis indicates that a permit is required, Rooney will work with USFWS on interim guidelines for the species until the permit amendment is finalized. In most cases, permit amendments to include additional covered species are treated as a major amendment under USFWS Section 10 regulations (see Chapter 9, *Revisions and Amendments*). Alternatively, Rooney could apply for a new and separate permit.

6.3.1.2 Climate Change

Climate change is the observed increase in mean global temperature associated with increased greenhouse gas emissions, primarily carbon dioxide, as a result of human industrialization. Climate change is also predicted to lead to secondary global impacts such as sea level rise and changing weather patterns. Current global and regional trends suggest that climate change is likely to affect the mitigation area lands. Change in temperature over the past century was a global average of 0.6°C (2.2°F), and most global climate models predict temperature increases as high as 6°C (10.8°F) over the coming century (Intergovernmental Panel on Climate Change 2007). Temperature projections for various California ecoregions range within this annual average. Overall, climate change can reasonably be expected to influence the ecological response of covered species over the permit term. The magnitude of these changes and the specific changes remain uncertain. Declines of species on mitigation lands could occur. These changes would be considered a changed circumstance under this HCP and would not require additional action by Rooney.

6.3.1.3 Nonnative Invasive Species and Disease

Nonnative species (e.g., bullfrogs, invasive plants) and diseases (e.g., chytrid fungus) that exist in areas outside the plan area have the potential to spread into the plan area and adversely affect covered species. Because of the nature of invasive species and diseases, there is no unforeseen circumstance, only an upper limit (i.e., 15% of the endowment) to which changed circumstances will be funded. In other words, a new disease or invasive species spreading throughout the plan area within the permit term is a foreseeable event. If a disease or nonnative species spreads beyond the thresholds identified below, it will be considered an unforeseen circumstance.

The conservation strategy includes measures to reduce existing and prevent future infestations of nonnative invasive species and diseases in the plan area (GEN-10, PBO General Protection Measure 16, PBO Red-Legged Frog Measure 2, and PBO California Tiger Salamander Measure 2). The long-term management plan for the mitigation plan area includes measures to reduce existing and prevent future infestations of nonnative invasive species and diseases, including methods to be used to detect and remove invasive species as appropriate. However, it is possible the following events may occur despite implementation of the conservation strategy and monitoring program.

- New and aggressive nonnative species may invade the mitigation permit area.
- Infestations of a new disease that affects covered species may have dramatic effects in the mitigation permit area.

- Existing nonnative species or diseases may expand to unprecedented levels in the mitigation permit area, perhaps as a result of climate change or being brought in by construction equipment.

Under this HCP, the following are considered changed circumstances for which Rooney will implement remedial measures.

- Infestations of new diseases or new nonnative invasive species affecting up to 25% of the extent (i.e., acres) of a predominant land cover (see Chapter 3, *Physical and Biological Resources*) or occupied covered species habitat within the mitigation permit area in any given year.
- Spread of nonnative species or diseases up to 25% above current conditions within the mitigation permit area in any given year.

In the event of catastrophic spread of nonnative invasive species or disease, prior to ceasing or reducing remedial actions, Rooney must demonstrate the following to USFWS in writing.

- The changed circumstance was detected as soon as feasible and USFWS was notified.
- Rooney coordinated and worked actively with USFWS to assess the changed circumstance and determine the best course of action.
- Rooney implemented remedial measures for the changed circumstance according to the HCP but these measures failed to stop the spread of the disease or invasive species.
- The disease or invasive species is a serious problem outside the plan area, and similar control measures implemented by others also failed to control their spread.

6.3.1.4 Wildfire

Wildfire can reasonably be anticipated in the plan area over the duration of the permit. If fire occurs in the mitigation permit area, the land manager will implement one or more of the following measures to address the fire damage: reseeding, replanting, controlling post-fire runoff to restore covered species habitat, and planning for future strategic fire breaks. The land manager will develop a restoration strategy based on these measures using changed circumstance funding (i.e., 15% of the endowment) and will have the strategy approved by USFWS. The draft endowment estimate (Appendix D) includes up to 1 field day every 20 years to implement wildfire-related measures. The final endowment estimate, prepared once a mitigation site is selected, will determine if this level of effort and frequency is adequate and will confirm if the changed circumstance funding (15% of the endowment) is sufficient for the specific mitigation site.

6.3.1.5 Drought

Drought is an extended period when a region is deficient in its water supply, whether atmospheric, surface, or groundwater. Drought is reasonably certain to occur on mitigation lands over the course of the permit duration. If habitat conditions become degraded because of drought, the land manager will work with USFWS to identify implementable remedial measures such as augmented watering or vegetation planting prior to implementing such measures.

6.3.1.6 Earthquake

Earthquakes are likely to occur in the plan area over the course of the permit. An earthquake could damage infrastructure that is important to maintain suitable habitat on mitigation lands. The mitigation land manager will use changed circumstances funding to take corrective action to address the infrastructure needs and make the habitat suitable again.

6.3.2 Unforeseen Circumstances

Flooding is not expected in the project permit area. Depending on its location, the mitigation permit area could be subject to flooding. If flooding adversely affects the mitigation site, the land manager will implement the following remedial measures to help the species recover from a specific event: stock pond dam replacement, repairing and stabilizing eroding banks, redirecting high-energy runoff, and installing erosion control devices. The land manager will use changed circumstances funding to take corrective action to make the habitat suitable again, including repairing and stabilizing eroding banks and replanting vegetation.

Chapter 7
Funding and Assurances

7.1 Funding

The ESA requires that HCPs specify "the funding that will be available to implement" conservation actions that minimize and mitigate impacts on covered species (16 USC Section 1539[a][2][A]). The HCP Handbook (U.S. Fish and Wildlife Service and National Marine Fisheries Service 2016) outlines general cost categories and potential assurances for long-term permits for various types of applicants. The HCP Handbook notes that each type of applicant may need different types of funding assurances depending on the specific situation. Table 7 illustrates the cost categories, expected costs, and type of funding assurance proposed under the 36-year term of the HCP.

Table 7. Estimated Implementation Costs for the Habitat Conservation Plan

Cost Category	Units	Cost/unit	Total	Type of Funding Assurance
Administration				
Annual reporting	36 years	$1,000	$36,000	Annual project budget[a]
		Subtotal:	$36,000	
Implementation				
Avoidance and minimization measures (including monitoring and reporting during construction)	N/A	N/A	$200,000	Construction budget[b]
Construction restoration	42.9 acres	$3,500	$150,150	Construction budget[b]
		Subtotal:	$350,150	
Conservation Lands				
Lands (purchase or easement)[c]	51.3 acres	$7,000	$359,100	Letter of credit, performance or surety bond
Conservation easement endowment	1	$462,568	$478,049	Includes annual costs, contingency costs[d] (additional 15%), and a 3.5% capitalization rate (Appendix E, Table 1)
		Subtotal:	$837,149	
		Total:	$1,223,299	

[a] Rooney would include funding in its annual project operations and maintenance budget to cover annual reporting requirements under the HCP.

[b] Rooney would include funding in its construction budget to cover implementation of avoidance and minimization measures and restoration of the project site following construction.

[c] Rooney would either purchase species credits from a conservation or mitigation bank or would purchase and preserve suitable mitigation lands in perpetuity. If species credits are purchased, endowment costs would not be required because they would be included in the purchase price. If suitable mitigation lands are selected, an endowment to ensure the long-term management and maintenance of the lands would be required.

Cost Category	Units	Cost/unit	Total	Type of Funding Assurance
[d] Funding for changed circumstances in the conservation easement endowment estimate (Appendix E) are estimated at $16,732. As noted in Appendix E, contingency costs are estimated at $60,296 and are therefore sufficient to address funding for changed circumstances, if needed.				

Rooney will be responsible for funding all aspects of HCP implementation. As described in Table 7, for any HCP implementation costs outstanding after construction restoration and commencement of commercial operations, funding will be guaranteed through a letter of credit, performance or surety bond, or other acceptable form of security, demonstrating the applicant's ability to provide the necessary funding associated with such outstanding costs.

7.2 Assurances

Rooney will provide funding assurances as outlined in Table 7. The HCP Handbook (U.S. Fish and Wildlife Service and National Marine Fisheries Service 2016) outlines the different types of funding assurances appropriate for HCPs. For this HCP, Rooney proposes to directly fund implementation of the avoidance and minimization measures during construction and to post a security (e.g., letter of credit, performance or surety bond) that is acceptable to USFWS and consistent with the HCP Handbook.

Chapter 8
Alternatives to Take

8.1 Endangered Species Act Requirement

ESA Section 10(a)(2)(A)(iii) requires that an HCP describe what "alternatives to such taking" were considered and the reasons why such alternatives are not being used.

8.2 Reduced Take Alternatives

Rooney considered several approaches to avoid take of covered species:

1. Installing fewer turbines: Rooney considered installing fewer turbines, however fewer turbines will not meet the project objective of a 25.1 MW financially viable project.
2. Using fewer staging areas: Rooney needs staging areas for its equipment and turbine materials; Rooney considered using fewer staging areas, however the topography in the project area and the types of turbine and equipment staging that will be necessary do not allow for a smaller amount of staging.
3. Installing fewer roads: Rooney is already incentivized to minimize road construction because it is expensive; accordingly, roads would only be constructed where necessary to deliver turbines to the appropriate locations.
4. Overall, Rooney will work to minimize disturbance areas during construction and is incentivized to do so because they must be mitigated at great cost through the purchase of compensatory mitigation, but current engineering designs have sized the staging areas and turbine footprints as appropriate for the project. All proposed activities avoid direct and indirect impacts on aquatic habitats by being sited more than 240–250 feet from them. This avoidance design has minimized take to a substantial degree. No other feasible alternatives are available to further reduce the potential for take at this project site.

8.3 No Take Alternative

Rooney is unable to develop a method to install facilities without potentially affecting federally listed species. Project activities will require some ground disturbance, which could affect covered species.

Chapter 9
Revisions and Amendments

9.1 Minor Amendments

Minor amendments to this HCP are changes that do not adversely affect the impact assessment or conservation strategy described in the HCP and do not adversely affect the applicant's ability to achieve the conservation commitments outlined in the HCP. Minor amendments do not require an amendment to the ITP but do require preapproval by USFWS before being implemented. In addition, minor amendments do not change the scope or nature of the covered activities and do not trigger a new NEPA analysis. Examples of minor amendments are listed below.

- Updates to the species occurrence or habitat suitability data that are consistent with the predictions and expectations of the HCP.
- Updates needed to finalize the LTMP (Appendix C) and Funding Cost Estimate (Appendix D) once the mitigation site is selected. Including minor revisions to these documents for adaptive management.
- Establishing new incidental take avoidance measures.
- Minor changes to the biological goals or objectives in response to adaptive management.
- Modification of monitoring protocols for HCP effectiveness.
- Changes in standardized monitoring protocols from USFWS.
- Minor changes to the reporting protocol.
- Minor revision of restoration techniques.
- Other modifications to the HCP that meet the criteria listed below.
    - Will not result in operations under the HCP that are significantly different from those analyzed in connection with the HCP as approved.
    - Will not result in impacts on the environment or take effects that are new or significantly different from those analyzed in connection with the HCP as approved.
    - Will allow for the approval or execution of agreements to facilitate execution and implementation of the HCP.
    - Will allow the permittee to delegate any of its duties specified by the HCP to a third party under its direct control.

Minor amendments to the ITP may be proposed by the applicant or USFWS. While USFWS does not have the right to amend its own permit unilaterally, it may propose minor modifications to Rooney for consideration. Minor amendments will take the form of a proposal that includes the following elements.

- Description of the proposed minor amendment.
- Rationale for the proposed minor amendment.

- Analysis of the environmental impacts of the proposed minor amendment, including impacts on covered species and implications for the conservation strategy.
- Description and declaration of how the proposed minor amendment conforms to the conditions disclosed above (i.e., how it is compatible with conservation goals) and the terms of the HCP as it was originally adopted.

All minor amendments are subject to final approval by USFWS. To modify the HCP without amending the ITP, Rooney would submit to USFWS a written description of the proposed change and an explanation of why its impacts are not believed to be significantly different from those described in the original HCP.

Upon receiving the proposal for a minor amendment, USFWS may authorize the amendment, request additional information, or deny the amendment. If USFWS concurs with the proposal, it will authorize the amendment in writing, and the amendment will be considered effective on the date of USFWS's written authorization. If USFWS feels that the proposal lacks specific information, USFWS may request additional information to support authorization or denial of the amendment. If USFWS denies the amendment, it will provide explanation for the denial.

USFWS will not approve minor amendments to the HCP if it determines that the amendments would result in adverse impacts on covered species or habitat that are significantly different from those analyzed in the HCP. If USFWS denies a proposed amendment, it may be proposed as a standard amendment as described below.

9.2 Major Amendments

9.2.1 Amendments to the HCP

An amendment is a change in the HCP that may affect the impact analysis or conservation strategy. Amendments to the HCP and the ITP follow the same formal review process as the original HCP and permit, including NEPA review, Federal Register notices, and internal Section 7 consultation with USFWS. Rooney will submit a proposed amendment to USFWS in a report that includes a description of the need for the amendment, an assessment of its impacts, and any alternatives by which the objectives of the proposal might be achieved. Specific triggers and procedures for requesting amendments to Section 10(a)(1)(B) permits are described below.

9.2.2 Triggers for HCP Amendments

Examples of changes that could require an amendment are listed below.

- Addition of species to the covered species list because of new species listings or the expansion of a species range. In the case of an expansion of a species range, the following steps will be used to determine whether or not an amendment would be triggered.
    - *Step 1. Review data regarding species range expansion.* If requested by USFWS, Rooney will review the periodic 5-year status reports, U.S. Geological Survey data, or other readily available data indicating species range expansion. If data show there is an overlap of the plan area (e.g., project permit area), Rooney will proceed with the next step.

- *Step 2. Conduct an impact assessment.* If it is determined from the available data that take is reasonably certain to occur or if USFWS determines that the species is at risk of take, Rooney will coordinate with USFWS on possible measures to avoid the taking. The timing of deployment of the measures will be linked with the next step. The USFWS's Biological Opinion regarding this HCP describes conditions that, should they occur for the California condor (*Gymnogyps californianus*), will prompt USFWS to consider the status to have changed, and then to reinitiate consultation and analyze potential impacts on the condor. For other listed species, USFWS will inform Rooney that USFWS considers the status and range of the species to have changed, and USFWS will reinitiate consultation to analyze potential impacts.
- *Step 3. Apply for permit amendment or a new permit.* If the impact analysis indicates that take is reasonably certain to occur or if take of a non-covered species occurs, Rooney will work with USFWS on interim measures for the species until a permit amendment or new permit is finalized. A permit amendment would be treated as an amendment under USFWS Section 10 regulations and would require additional analysis by USFWS; therefore, Rooney may choose to apply for a new permit.

- Increasing the allowable take limit of existing covered activities or adding new covered activities to the HCP.
- Extending the term of the HCP permit beyond the 36-year term.
- Modifications of any important action or component of the conservation strategy under the HCP, including funding, that may substantially affect levels of authorized take, impacts of the covered activities, or the nature or scope of the conservation strategy.
- A major change in biological goals and objectives or conservation measures if monitoring or research indicates that they are not attainable because technologies to attain them are either unavailable or infeasible.

To amend the Section 10(a)(1)(B) permit, Rooney will submit a formal application to USFWS. This application must include a revised HCP, a permit application form, and any required fees. The appropriate NEPA process and document will depend on the nature of the amendment being proposed. A new scoping process may be required, depending on the nature of the amendment. If additional scoping is deemed appropriate and necessary, USFWS will publish a Notice of Intent in the Federal Register to initiate the scoping process. Upon submission of a completed application package, USFWS will publish a notice of the proposed application in the Federal Register, initiating the NEPA and HCP amendment review process. After public comment, USFWS may approve or deny the permit amendment application.

9.2.3 Amendments to the Section 10(a)(1)(B) Permit

Standard amendments to the HCP will require amendment of the Section 10(a)(1)(B) permit. Following receipt of a complete application package for a proposed amendment to a Section 10(a)(1)(B) permit, USFWS will publish a notice of the proposed amendment in the Federal Register as required by ESA initiating the NEPA and HCP amendment review process. After public comment, USFWS may approve or deny the permit amendment application. USFWS will use its reasonable efforts to process the proposed amendment within 180 calendar days of publication, except where longer periods are required by law. The amendment of a Section 10(a)(1)(B) permit will be treated as an original permit application. Such applications typically will require submittal of a revised HCP,

and a completed permit application form with appropriate fees. However, specific document requirements may vary based on the nature of the amendment.

9.3 Suspension and Revocation

USFWS may suspend or revoke the ITP if the Permittee fails to implement the HCP in accordance with the terms and conditions of the permit or if suspension or revocation is otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by USFWS will be in accordance with 50 CFR Sections 13.27–29, 17.32(b)(8).

9.4 Permit Transfer

In the event of sale or transfer of the project during the life of the permit, a new permit application, permit fee, and Assumption Agreement will be submitted to USFWS by the new Permittee(s). The Permittee(s) will commit to all requirements regarding the take authorization and conservation strategy obligations of this HCP unless otherwise specified in the Assumption Agreement and agreed to in advance by USFWS.

9.5 Permit Renewal

Upon expiration, the permit may be renewed without the issuance of a new permit, provided that the permit is renewable, and that biological circumstances and other pertinent factors affecting the covered species are not significantly different than those described in the HCP. To renew the permit, Rooney will submit to USFWS the items listed below.

- A request to renew the permit, referencing the original permit number.
- Certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct; a list of changes must be included.
- A description of any take that has occurred under the existing permit.
- A description of any portions of the project still to be completed, if applicable, or what activities will be covered under the original permit the renewal is intended to cover.
- Rooney need to submit evidence to the USFWS that they have complied with all reporting requirements to qualify for a permit renewal

If USFWS concurs with the information provided in the request, it will renew the permit consistent with permit renewal procedures required by federal regulation (50 CFR 13.22, 50 CFR 17.22(b) and 50 CFR 17.32(b)). If Rooney files a renewal request, and the request is on file with the issuing USFWS office at least 30 days prior to the permit's expiration date, the permit will remain valid while the renewal is being processed, provided the existing permit is renewable. However, Rooney may not take listed species habitat beyond the quantity authorized by the original permit. If Rooney fails to file a renewal request within 30 days prior to permit expiration, the permit will become

invalid upon expiration. Rooney must have complied with all reporting requirements to qualify for a permit renewal. The conservation land manager may also utilize this process to continue to secure its take authorization for maintenance activities associated with the mitigation permit area.

Chapter 10
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Appendix A

Grassland Restoration Plan

Appendix A
Grassland Restoration Plan

This plan describes how grasslands will be restored on the Rooney Ranch Wind Repowering Project (project) site following Rooney Ranch, LLC's (Rooney's) construction of a wind farm, and following any grassland-disturbing maintenance activities that take place during the 37-year permit term of the Rooney Wind Repowering Project Habitat Conservation Plan (HCP) prepared in compliance with Section 10 of the federal Endangered Species Act.

Annual grasslands will be restored in locations that are cleared for the project: staging areas, power collection system installation areas, temporary road expansions, and turbine installation areas. Restoration work will be conducted within 1 year of disturbance. The existing topsoil will be stripped and stockpiled for later reapplication to disturbed surfaces. The stockpiled topsoil will contain seeds and root stock from existing annual grasslands and will provide propagation material for revegetation efforts. The annual grasslands will also be seeded with naturalized grasses and forbs. Rooney will implement a postconstruction monitoring plan to measure the establishment of the restored grassland and will implement remedial measures as needed to ensure restoration success. These restoration efforts would convert most of the project site back into habitat that would be usable for the species covered under the HCP.

Site Preparation

Surveying and Staking of Construction Areas

Rooney will survey and stake the locations of work areas—both temporary and permanent impact areas—prior to initiating work. These actions will be performed by a professional surveyor and will be based on the construction documents (i.e., plans and specifications) prepared for the project.

Grassland Soil Stockpiling Areas

The location of each soil stockpile area will be staked and identified prior to start of work to ensure that the stockpiled soils are not disturbed by construction activities. Existing ruderal vegetation will be removed and disposed of offsite. The soil stockpile areas will be clearly marked to ensure that stockpiled soil is not used for other purposes.

Restoration

Grasslands will be restored where they are temporarily disturbed by construction and maintenance activities. The objective of the revegetation activities will be to restore covered species habitat within the temporary disturbance limits. While the seed mix applied to restored areas will consist of native grassland species, the success criteria will emphasize achieving overall grassland cover rather than achieving unrealistic native species cover or composition, because the nonnative grassland community in the disturbance areas is characteristic of the nonnative grassland

community that dominates the entire project area and vicinity. This plan does not propose to convert nonnative grassland to other habitat types.

Grassland restoration will entail the actions listed below.

- Restoring the land surfaces in the disturbed areas to preproject elevations.
- Removing gravel from the grassland restoration area.
- Spreading stockpiled topsoil over restored surfaces.
- Seeding disturbed surfaces.

Stockpiling of Grassland Topsoil

Prior to construction or ground-disturbing maintenance activity, the grading contractor will excavate and stockpile existing grassland topsoil for later reapplication. Separate topsoil stockpiling areas will be identified and clearly marked. An approximately 3-inch layer of topsoil will be excavated from all disturbed grassland surfaces. The stockpiled soil will be left uncovered to minimize damage to propagation material from heat that can build under a cover. The soil stockpile areas will be clearly marked to ensure that stockpiled soil is not used for other purposes.

Grading of Restored Grasslands

After an area has been restored to the original grade, the grading contractor will survey, grade, and restore the annual grasslands to preproject elevations. The restored topsoil layer will be approximately 3 inches deep. The topsoil layer will not be compacted except for any wheel compaction that occurs during topsoil application. Equipment and vehicle operations should not take place on restored surfaces to avoid compaction of the topsoil. Oversight by the construction contractor and designated biologist will ensure that the soil conditions are consistent with and conducive to the revegetation program.

Erosion Control

If deemed necessary by the contractor and in consultation with the designated biologist, erosion control best management practices (BMPs) may be installed. The seeding or hydroseeding of temporarily affected areas is a BMP for erosion control following construction completion. Erosion control maintenance during the 3-year monitoring period may include, as needed, installation of straw or coir wattles, straw or straw bales (weed free), or jute netting. If substantial erosion occurs in the restored areas, the contractor or other party designated by Rooney will be responsible for repairing erosion, unless the erosion is being caused by cattle or other livestock and would not be prevented by reestablishment of grass cover.

Grassland Seeding

An erosion control seed mix will be used to seed all disturbed areas (Table 1). The seed mix will be tailored to closely match that of reference site(s) in the project area and will include native or naturalized, noninvasive species sourced in or within 50 miles of the project area. All seed will be obtained from a reputable California-based seed supply company (e.g., Pacific Seed Company or equivalent). The seed mix will be applied by the construction contractor. The seed mix will be

applied during the fall immediately after completion of construction to reduce the chances of erosion during the following winter.

Table 1. Native California Erosion Control Seed Mix[1]

Scientific Name	Common Name
Bromus carinatus	California brome
Elymus glaucus	Blue wild rye
Festuca microstachys	Three weeks fescue
Trifolium willdenovii	Tomcat clover

Note: The application rate for all species combined will be 45 pounds per acre. The application rate by species will be determined based on availability.
[1] The specified mix or a similar mix acceptable to USFWS and CDFW would be obtained based on availability.

The annual grassland seed mix will be applied as a hydromulch. The soil surface will be scarified before seeding to ensure better root penetration. On slopes greater than 3:1 (33%), the seed mix should be applied using hydroseeding methods, and a biodegradable erosion control blanket should be placed on the slope to further reduce the likelihood of erosion. The hydromulch will consist of biodegradable paper mulch, dyed to ensure full coverage, and a tackifier. The hydromulch will be applied at a rate of 2,500 pounds per acre. The tackifier will be applied at a rate of 100 pounds per acre.

Table 2 presents the recommended hydroseed slurry specifications and application rate if hydroseeding is used. No fertilizer will be applied under either method because this would stimulate growth of additional weedy species. The native grasses can grow without applications of fertilizer.

Table 2. Hydroseed Slurry Recommendation[1]

Product	Application Rate (pounds/acre)
Conwed 1000 Wood Fiber Mulch	2,500
Ecology Controls M-Binder/Tack	150
AM 120 Mycorrhizal Inoculum	60

[1] The specified products or similar products acceptable to USFWS and CDFW would be used.

Invasive Species Control

A survey for invasive species will be conducted within the laydown areas prior to implementing restoration activities. The survey will document pre-project baseline conditions for the type, location, and general abundance of invasive plant species within the laydown areas. Prevention BMPs will be implemented during decommissioning to minimize the potential for the introduction or spread of invasive plants. BMPs will be determined by the contractor in coordination with the designated biologist and may include the following.

- Minimizing soil disturbance.
- Cleaning construction equipment before entering the work area at approved wash locations.

- Using certified weed-free straw and other erosion control materials.
- Revegetating with weed-free seed.

Construction Inspections

Progress inspections and other interim inspections of the grassland restoration activities will be conducted by a biologist from Rooney or its authorized representative to ensure that the mitigation is fully and properly installed to meet performance standards. Rooney will inspect mitigation construction operations at the critical phases of implementation listed below.

- Identification of construction boundaries prior to construction.
- Placement and installation of protective fencing.
- Placement of stockpiled topsoil.
- Seeding operations.

The construction inspections will ensure that the intent and critical details of the restoration design are understood and executed by the contractor.

Monitoring and Maintenance

Rooney will begin a 3-year (36-month) monitoring and maintenance period following completion of all initial annual grassland restoration activities. A biologist from Rooney or its designated contractor will maintain the restoration site during these 3 years.

Watering, regular weeding, and other routine maintenance will not be required for restored grasslands. Grassland restoration areas will be monitored during the maintenance period, and if remedial measures (see *Remedial Measures* below) are deemed necessary as a result of performance monitoring, Rooney will implement those measures during the maintenance period.

Inspections

A biologist from Rooney or its designated contractor will conduct reconnaissance-level inspections of the restored grasslands in conjunction with vegetation monitoring surveys to identify necessary corrective actions. The restored areas will be inspected for erosion, vandalism, and other problems and to identify necessary repairs or remedial measures. If remediation is required because of flooding, fire, vandalism, or other damage, Rooney will confer with the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) on the appropriate level of remediation and will implement the agreed-upon actions.

Monitoring Schedule

Vegetation will be monitored annually between March and May of years 1–3. Grassland monitoring may be discontinued before year 3 if the performance standards are met earlier than year 3. A monitoring schedule is presented in Table 3. One monitoring visit per year during the peak growing season, when most grasses are identifiable to the species level, should be sufficient to collect data on vegetation, erosion, and new invasive weed infestations.

Table 3. Monitoring Parameters and Schedule for Restoration Area at Patterson Run

Monitoring Activity	Year 1	Year 2	Year 3
Photo documentation	Annually in spring	Annually in spring	Annually in spring
Vegetation transects	Annually in spring	Annually in spring	Annually in spring

Transects

At the onset of year 1 monitoring, two 2-meter-wide belt transects will be established perpendicular to the longest (30-meter) edge of the restored areas, where a 30-meter tape will be laid as the baseline. The starting point of each transect along the 30-meter baseline will be determined by using a random number table. A second tape will then be laid at the starting point perpendicular to the 30-meter tape to represent the centerline of the 2-meter-wide belt transect. The total length of each transect centerline will be limited by the extent or dimensions of the restored area at that location but is expected to be approximately 15 meters long.

At the onset of year 1 monitoring, a reference site of comparable size will be established near the restored area; the reference site will be representative of typical nonnative grassland that was not affected by covered activities. Two 2-meter-wide belt transects will be established within the reference sites using the method described above.

Transect locations will be clearly marked on a map and will be mapped with a handheld global positioning system (GPS) unit. Installation of permanent markers in the field to identify transect locations is discouraged, as such markers may attract livestock or wildlife loafing and perching, with the potential to concentrate soil disturbance and seed dispersal in the monitoring areas.

Quantitative Observations

Absolute cover determinations will involve the collection of data along the randomly placed transects using the line-intercept method (Bonham 1989) following systematic sampling, wherein the transect is considered the sampling unit. Under this method, the observer proceeds along the line transect, identifies plant species intercepted by the tape, and records intercept distance. Absolute cover (i.e., the proportion of the ground surface covered by live plants) is calculated by adding all intercept distances and expressing the total as a proportion of tape length.

Rupture resistance (i.e., a measure of the strength of the soil to withstand stress, sometimes referred to as friability) of soils will be measured at a representative point along each of the transects and will be based on the force required to rupture (break) the soils between fingers. The guidelines for the force required to determine rupture resistance are described in the *Field Book for Describing and Sampling Soils* (Schoeneberger et al. 2012: 2-62, 2-63).

Qualitative Observations

In addition to the quantitative data on vegetation and bare ground collected using transects, monitors also will record general observations regarding the conditions of vegetation and soil erosion in the restored areas relative to surrounding adjacent grassland. Both the quantitative and qualitative data will inform conclusions regarding performance and recommendations for maintenance, intervention, or remedial action.

Photo Documentation

During the first year of monitoring, photo points will be established at each end of the belt transects and at a minimum of two locations capturing representative views of the restored grassland. These photo point locations will be recorded using GPS so that they can be relocated each year. Photographs will be taken at the beginning of each annual monitoring visit before transects are walked for monitoring so that trampling by monitors does not alter the appearance of vegetation cover captured by photographs.

Performance Standards and Success Criteria

Restoration areas will be monitored in years 1–3, and large (more than 500 square feet) bare areas will be identified and reseeded. At the end of 3 years, the restoration will be considered successful if the following have been achieved

- Gravel was removed from areas needing restoration.
- Soil in restoration areas has a sufficient rupture resistance to allow for burrow establishment and infiltration of rainfall. Soils will be categorized with a rupture resistance of loose to very firm (as measured when moist), and evidence of burrowing mammals will be observed.
- Vegetation communities and percent native species plant cover is appropriate for slope, aspect, and hydrological conditions based on reference sites and pre-project condition.
- An acceptable level of invasive plant cover occurs at or below pre-project conditions measured at reference sites.

Table 4 details the performance standards and success criteria for revegetation. The restoration will be considered complete when the final success criteria have been met.

Table 4. Performance Standards and 3-Year Success Criteria

Parameter	Performance Standard	Final Success Criterion
Total vegetation cover	Year 1: at least 50% Year 2: at least 75%	Year 3: must be within 10% of average reference site values
Invasive[a] plant species cover—excluding grasses	Year 1: not greater than 15% of the total vegetation cover Year 2: not greater than 10% of the total vegetation cover	Year 3: must be less than 10% of average reference site values
Invasive[a] plant species richness—number of invasive plant species, excluding grasses	Years 1 and 2: not greater than the highest number of invasive plant species recorded in a given reference transect	Year 3: not greater than the highest number of invasive plant species recorded in a given reference transect
Erosion—percent cover bare ground	Year 1: no more than 50% Year 2: no more than 25%	Year 3: must be within 10% of average reference site values
Rupture resistance[b]—suitable for burrow establishment and rainfall infiltration	Years 1 and 2: Soils are loose to very firm as measured when moist[c]	Year 3: must be within the performance standard or evidence of burrowing animals must be observed

[a] Invasive plant species are plant species rated high or included as a red alert species by the California Invasive Plant Council (http://www.cal-ipc.org/), or high-priority species listed by the Bay Area Early Detection Network (http://www.baedn.org/).

[b] Rupture resistance is described in Schoeneberger et al. 2012, pages 2-62 and 2-63, and is defined as "A measure of the strength of soil to withstand an applied stress."

[c] Native soils on the project site are described as Altamont Clay soil map units and have a rupture resistance described as very firm (Natural Resources Conservation Service 2009).

Supplemental Seeding

All disturbed grasslands will be seeded after construction. These seeded areas will be maintained during the 3-year maintenance period. It is anticipated that seeded areas will become vegetated by seeded species and colonized by other herbaceous species that occur in adjacent areas. Maintenance of seeded areas will include reseeding large bare areas. If vegetation cover in the restored area is not meeting performance standards, supplemental seeding may be implemented. If the seed mix or application rate is deemed inappropriate or insufficient to meet the performance standards, a restoration ecologist will be consulted to develop an alternative seed mix or application rate.

If performance criteria are not achieved by the end of the third year, Rooney will consult with USFWS and CDFW to determine whether the restoration effort is acceptable. If at any time during implementation and establishment of the restoration area(s) and prior to verification of meeting success criteria, a catastrophic natural event (such as fire, flood, or landslide) or other force of nature results in changes to the landscape or character of the restoration site, Rooney will coordinate with USFWS and CDFW on any changes that may need to be incorporated into the restoration strategy.

Annual Reports

Rooney will prepare an annual monitoring report and submit it to USFWS and CDFW by December 31 of each monitoring year. Each monitoring report will include the components listed below.

- A summary of the project location and description.
- A summary of the monitoring methods.
- A list of the names, titles, and companies of the people who prepared the content of the annual report or participated in monitoring activities that year.
- A summary and analysis of the monitoring results, including an evaluation of site conditions in the context of the performance standards and success criteria.
- A discussion of the monitoring results.
- Management recommendations, including discussion of areas with inadequate performance and recommendations for remedial action.
- A discussion of modifications made to the monitoring methods.
- A discussion of the previous year's maintenance efforts.

The first annual monitoring report will include details of the seed mix and hydroseed slurry, such as commercial source of materials, species composition, application rate, and dates of application. This information, along with any significant problems encountered or necessary changes made in the field, will be recorded and included in the report. The first annual report will include photographs of the restored areas taken within 48 hours of hydroseed application (and before the first rainfall event).

USFWS and CDFW will be advised, in conjunction with the annual performance monitoring report, when the revegetated laydown areas appear to meet the final success criteria. Rooney's obligations will be deemed complete when USFWS and CDFW communicate in writing that the Temporary Impact Restoration measure identified in the permits has been fulfilled.

The goal of the restoration plan is to reestablish grassland habitat requiring minimal to no follow-up or maintenance. The as-needed maintenance program will begin when construction and hydroseeding have been completed. Rooney will be responsible for retaining a contractor qualified to perform maintenance activities described herein.

Remedial Measures

The purpose of this restoration plan is to ensure that the targeted physical and ecological functions are achieved. Remedial measures provide a mechanism for ensuring that the restoration effort is successful if the restoration effort is characterized by either of the following.

- Continually does not achieve the performance standards during years 1–3.
- Does not achieve the success criteria in year 3.

Remedial measures will be developed in consideration of the qualitative and quantitative monitoring results. To develop remedial measures, Rooney will evaluate why a specific performance

standard or success criterion was not achieved and will determine the most effective remedy. Remedial measures could include additional seeding and invasive species management actions.

Notification of Completion

Rooney will notify USFWS and CDFW when the success criteria have been met. A map of the restoration site and the annual monitoring report will be furnished with the notification to provide documentation to USFWS that the restoration requirements have been completed.

USFWS Confirmation of Completion

Based on the notification of completion, the annual monitoring reports, and if deemed necessary by USFWS and CDFW during a site visit, USFWS and CDFW will confirm that the restoration plan has met the success criteria and will provide Rooney with written confirmation that its obligations have been achieved.

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Appendix B

Detailed Impact Maps

Rooney Ranch Repowering Project

March 2019
Overview Map

Project Area
Map Sheets
Impacted Areas

0 250 500 1,000
Feet

N

Coordinate System:
California State Plane Zone III NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983
Source: SPower (2017), ICFI (2017), USDA (2017)
Imagery Source: USDA/NAIP (2016)

Path: \\PDOC1\RDSGIS\1\Projects_1\New_Dimension_Energy\00066_17_Rooney\Figures\Doc\HCP\Appendix_A_Wetland_Delineation_Overview.mxd; Author: ; Date: 3/28/2019

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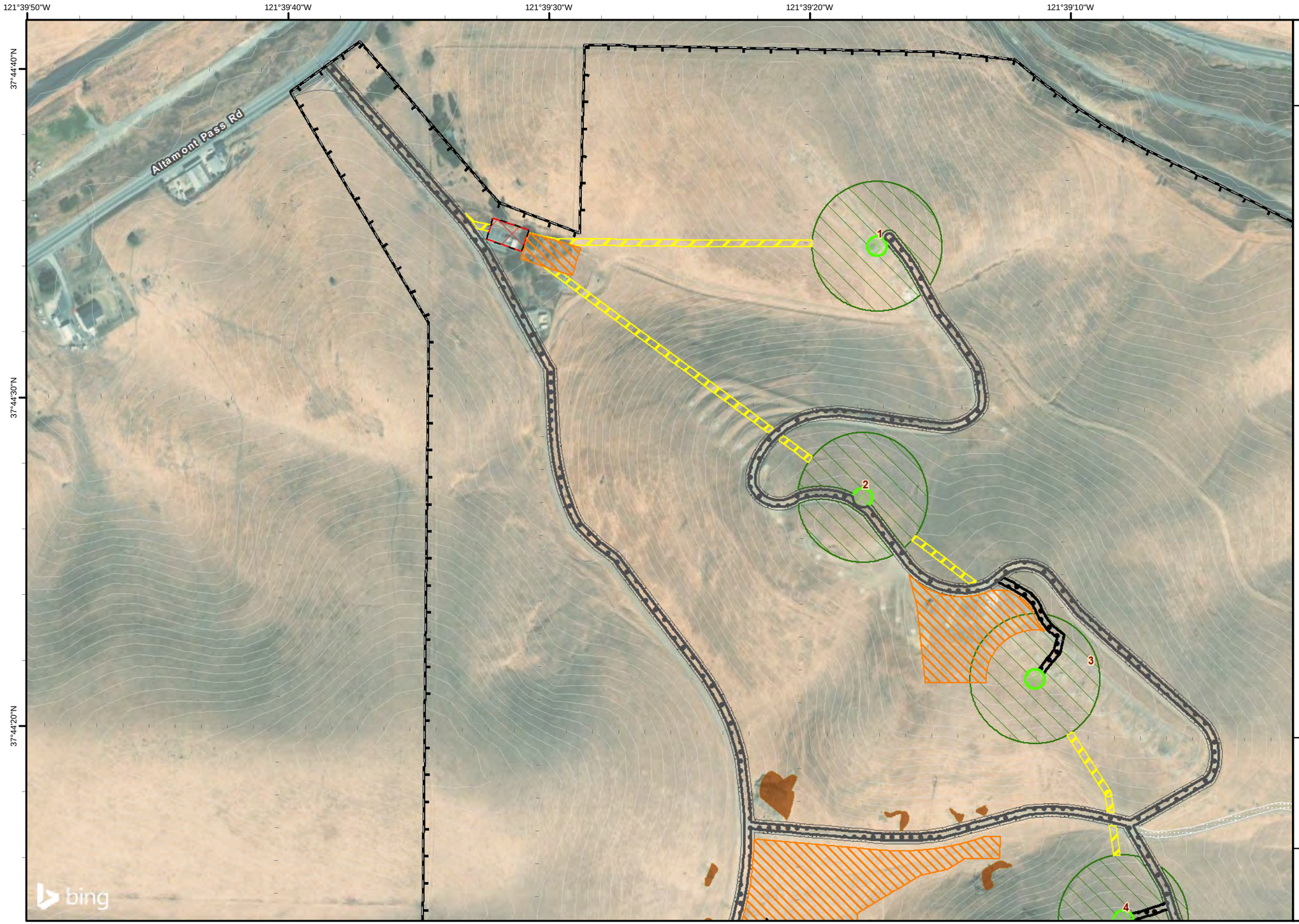
Appendix B
Rooney Ranch Detailed Impact Maps



Rooney Ranch Repowering
Project Impacts
March 2019
Sheet 1

Legend

- Delineation Area (582 Acres)
- Flow Direction
- Rock Outcrop

Non-wetland Waters - 0.80 acres

- Pond (P) - 0.63 acres
- Ephemeral Drainage (ED) - 0.17 acres

Proposed Project Components

Permanent Impacts

- Met Tower Location
- Existing Road - Permanent
- Turbine Location
- Proposed Road - Permanent
- Entrance Road Improvements
- Santa Clara Substation

Temporary Impacts

- Turbine Work Area
- Road Work Area
- Temporary Access Road
- Laydown Area
- Met Tower Work Area
- Collector

N

0 150 300 600
Feet
1 inch = 300 feet

Notes:

Coordinate System:
California State Plane Zone III NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983
Contour Interval = 10ft.
Source: ICFI 2017
Imagery Source: Microsoft Bing 2013

Project Contact: Sustainable Power Group

Delineated By: Kate Carpenter
Delineation Date: March 3rd and 14th, 2017
Drawn By: Daniel Schiff

Path: \\PDOCIT RD-SGIS1\Projects_1\New_Dimension_Energy\00066_17_Rooney\Figures\Doc\HCP\Appendix_A_Wetland_Delineation_WorkAreas.mxd; Author: ; Date: 3/28/2019

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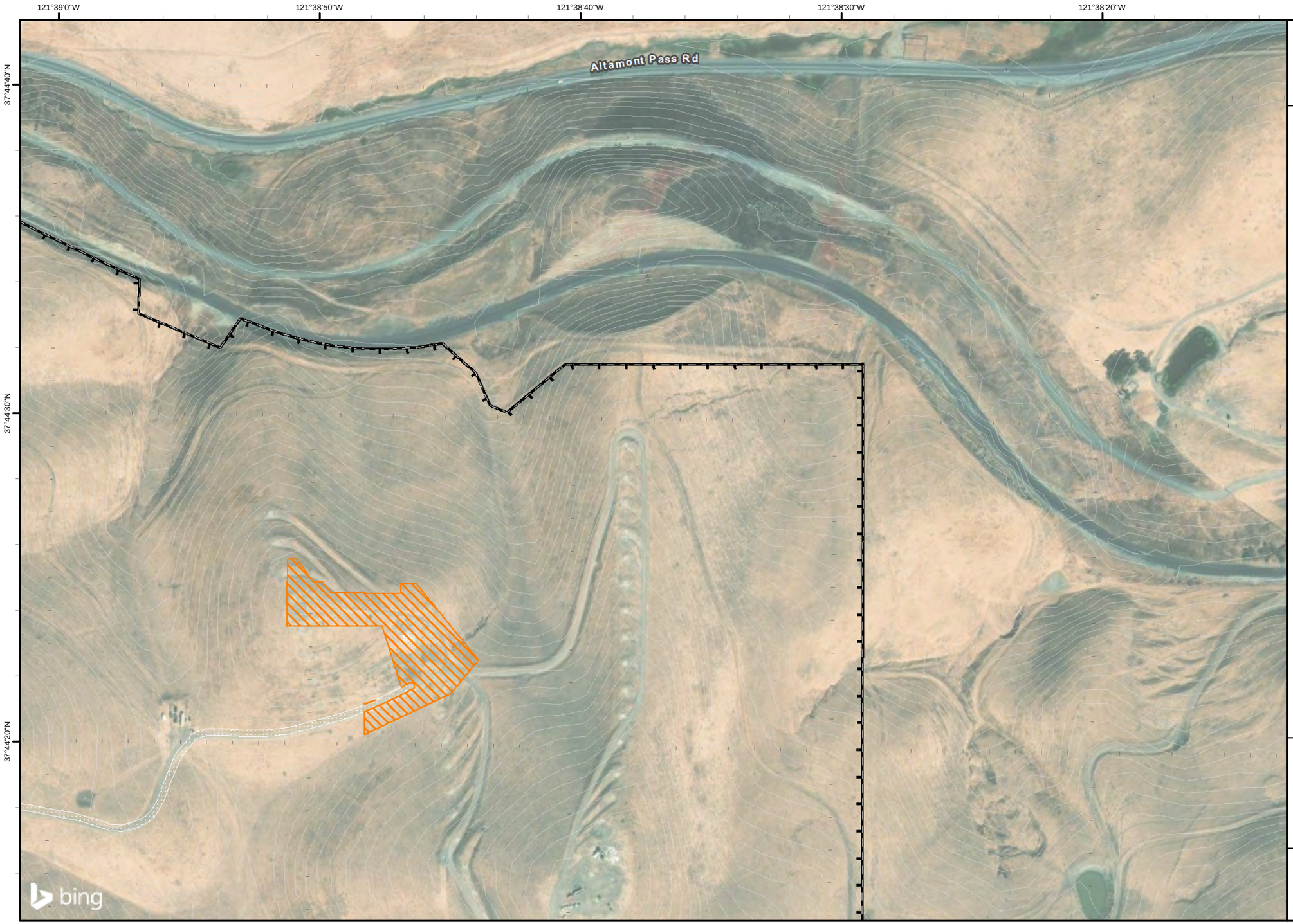
Appendix B
Rooney Ranch Detailed Impact Maps



Rooney Ranch Repowering
Project Impacts
March 2019
Sheet 2

Legend

- Delineation Area (582 Acres)
- Flow Direction
- Rock Outcrop

Non-wetland Waters - 0.80 acres

- Pond (P) - 0.63 acres
- Ephemeral Drainage (ED) - 0.17 acres

Proposed Project Components

Permanent Impacts

- Met Tower Location
- Existing Road - Permanent
- Turbine Location
- Proposed Road - Permanent
- Entrance Road Improvements
- Santa Clara Substation

Temporary Impacts

- Turbine Work Area
- Road Work Area
- Temporary Access Road
- Laydown Area
- Met Tower Work Area
- Collector

N

0 150 300 600
Feet
1 inch = 300 feet

Notes:

Coordinate System:
California State Plane Zone III NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983
Contour Interval = 10ft.
Source: ICFI 2017
Imagery Source: Microsoft Bing 2013

Project Contact: Sustainable Power Group

Delineated By: Kate Carpenter
Delineation Date: March 3rd and 14th, 2017
Drawn By: Daniel Schiff

Path: \\PDOCIT RD-SGIS1\Projects_1\New_Dimension_Energy\00066_17_Rooney\Figures\Doc\HCP\Appendix_A_Wetland_Delineation_WorkAreas.mxd; Author: ; Date: 3/28/2019

ICF

Appendix B
Rooney Ranch Detailed Impact Maps

Rooney Ranch Repowering
Project Impacts
March 2019
Sheet 3

Legend

- Delineation Area (582 Acres)
- Flow Direction
- Rock Outcrop

Non-wetland Waters - 0.80 acres

- Pond (P) - 0.63 acres
- Ephemeral Drainage (ED) - 0.17 acres

Proposed Project Components

Permanent Impacts

- Met Tower Location
- Existing Road - Permanent
- Turbine Location
- Proposed Road - Permanent
- Entrance Road Improvements
- Santa Clara Substation

Temporary Impacts

- Turbine Work Area
- Road Work Area
- Temporary Access Road
- Laydown Area
- Met Tower Work Area
- Collector

N

0 150 300 600
Feet
1 inch = 300 feet

Notes:

Coordinate System:
California State Plane Zone III NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983
Contour Interval = 10ft.
Source: ICFI 2017
Imagery Source: Microsoft Bing 2013

Project Contact: Sustainable Power Group

Delineated By: Kate Carpenter
Delineation Date: March 3rd and 14th, 2017
Drawn By: Daniel Schiff

Path: \\PDOCIT RD-SGIS1\Projects_1\New_Dimension_Energy\00066_17_Rooney\Figures\Doc\HCP\Appendix_A_Wetland_Delineation_WorkAreas.mxd; Author: ; Date: 3/28/2019

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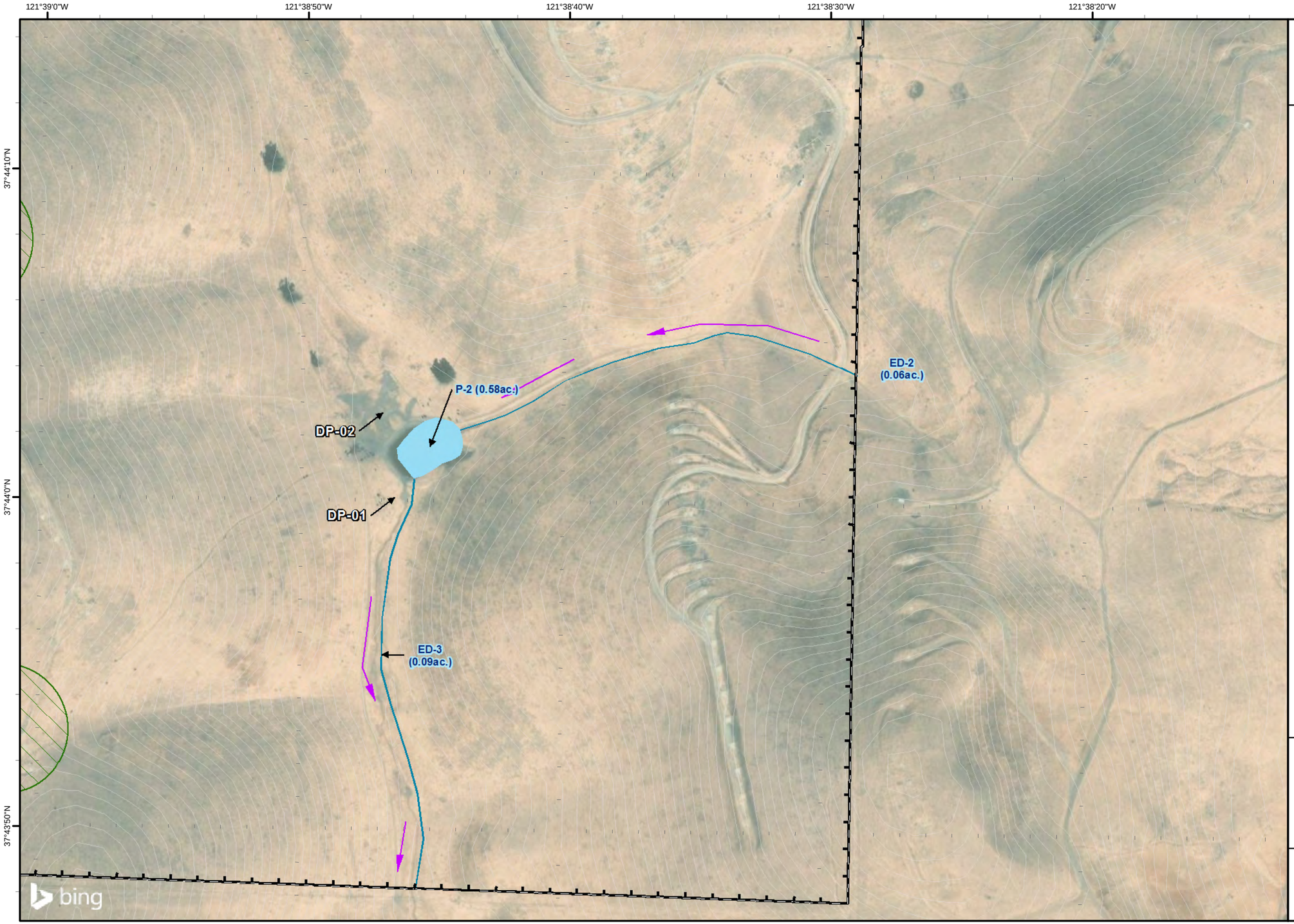
Appendix B
Rooney Ranch Detailed Impact Maps



Rooney Ranch Repowering
Project Impacts
March 2019
Sheet 4

Legend

- Delineation Area (582 Acres)
- Flow Direction
- Rock Outcrop

Non-wetland Waters - 0.80 acres

- Pond (P) - 0.63 acres
- Ephemeral Drainage (ED) - 0.17 acres

Proposed Project Components

Permanent Impacts

- Met Tower Location
- Existing Road - Permanent
- Turbine Location
- Proposed Road - Permanent
- Entrance Road Improvements
- Santa Clara Substation

Temporary Impacts

- Turbine Work Area
- Road Work Area
- Temporary Access Road
- Laydown Area
- Met Tower Work Area
- Collector

N

0 150 300 600
Feet
1 inch = 300 feet

Notes:

Coordinate System:
California State Plane Zone III NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983
Contour Interval = 10ft.
Source: ICFI 2017
Imagery Source: Microsoft Bing 2013

Project Contact: Sustainable Power Group

Delineated By: Kate Carpenter
Delineation Date: March 3rd and 14th, 2017
Drawn By: Daniel Schiff

Path: \\PDCCITRDSGIS1\Projects_1\New_Dimension_Energy\00066_17_Rooney\Figures\Doc\HCP\Appendix_A_Wetland_Delineation_WorkAreas.mxd; Author: ; Date: 3/28/2019

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Appendix B
Rooney Ranch Detailed Impact Maps

Appendix C

Conservation Easement Template

PLEASE NOTE:
The following Conservation Easement Deed template for the Rooney Ranch Wind Repowering Project, is provided by the Sacramento United States Fish and Wildlife Office. Any modifications to this template shall be identified using tracked changes or other editable electronic comparison.

RECORDING REQUESTED BY AND
WHEN RECORDED MAIL TO:

[***Fill in Grantee Name/Address***]
Grantee Name
Grantee Address
City, State ZIP
Attn:_____

_____
Space Above Line for Recorder's Use Only

CONSERVATION EASEMENT DEED
[*Insert Conservation Site Name*]

THIS CONSERVATION EASEMENT DEED ("Conservation Easement") is made as of the _____ day of _____, 20____, by [***insert full legal name(s) of Grantor:*** _____] ("Grantor"), in favor of [***insert Grantee's full legal name:*** _____] ("Grantee"), with reference to the following facts:

RECITALS

A. Grantor is the sole owner in fee simple of certain real property containing approximately _____ acres, located in the City of [***insert City name***], County of [***insert County name***], State of California, and designated Assessor's Parcel Number(s) [***insert Assessor's Parcel Number(s)***] (the "Conservation Site Property"). The Conservation Site Property is legally described and depicted in **Exhibit A** attached to this Conservation Easement and incorporated in it by this reference.

B. The Conservation Site Property possesses wildlife and habitat values of great importance to Grantee, the people of the State of California and the people of the United States. The Conservation Site Property will provide high quality natural, restored and/or enhanced habitat for California tiger salamander, California red-legged frog, and San Joaquin kit fox (hereafter "covered species") and contain annual grassland habitat and aquatic habitat for the covered species. Individually and collectively, these wildlife and habitat values comprise the "Conservation Values" of the Conservation Site Property.

C. The United States Fish and Wildlife Service (the "USFWS"), an agency within the United States Department of the Interior, has jurisdiction over the conservation, protection,

restoration and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of these species within the United States pursuant to the federal Endangered Species Act (ESA), 16 U.S.C. Section 1531, *et seq.*, the Fish and Wildlife Coordination Act, 16 U.S.C. Sections 661-666c, the Fish and Wildlife Act of 1956, 16 U.S.C. Section 742(f), *et seq.*, and other provisions of federal law.

D. The California Department of Fish and Wildlife ("CDFW") has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and the habitat necessary for biologically sustainable populations of these species pursuant to California Fish and Game Code Section 1802. CDFW is authorized to hold conservation easements for these purposes pursuant to California Civil Code Section 815.3, Fish and Game Code Section 1348, and other provisions of California law.

E. [***Use this version of Recital E when qualified nonprofit organization is Grantee***]. Grantee is authorized to hold this conservation easement pursuant to California Civil Code Section 815.3 and Government Code Section 65967. Specifically, Grantee is (i) a tax-exempt nonprofit organization qualified under section 501(c) (3) of the Internal Revenue Code of 1986, as amended, and qualified to do business in California; (ii) a "qualified organization" as defined in section 170(h) (3) of the Internal Revenue Code; and (iii) an organization which has as its primary and principal purpose and activity the protection and preservation of natural lands or resources in its natural, scenic, agricultural, forested, or open space condition or use.

[***Use this version of Recital E when governmental entity is Grantee***]. Grantee is authorized to hold this conservation easement pursuant to California Civil Code Section 815.3. Specifically, Grantee is a governmental entity identified in Civil Code Section 815.3 (b) and otherwise authorized to acquire and hold title to real property.

F. This Conservation Easement is being established by Grantor and Grantee knowingly and voluntarily as a means to implement certain agreed upon conservation measures as described in the Habitat Conservation Plan, USFWS File No. 2014-TA-0377**,** issued by the **USFWS Sacramento Field Office** and the Incidental Take Permit, issued by the CDFW under Section 2081 of the California Fish and Game Code. These conservation measures were proposed by **Rooney Wind, LLC** as a means of minimizing the effect(s) of the Rooney Wind Repowering Project on the covered species, federally listed as **threatened** under the federal and/or State ESA's. To fully implement these conservation measures, a Long-term Management Plan has been developed, and is incorporated by this reference into this Conservation Easement as if fully set forth herein.

A final, approved copy of the Long-term Management Plan, and any amendments thereto approved by the USFWS and CDFW, shall be kept on file at the Sacramento Field Office of the USFWS and the Bay Delta Region 3 Office of the CDFW. If Grantor, or any successor or assign, requires an official copy of the Management Plan, it should request a copy from the USFWS or CDFW at its address for notices listed in Section 12 of this Conservation Easement.

G. All section numbers referred to in this Conservation Easement are references to sections within this Conservation Easement, unless otherwise indicated.

COVENANTS, TERMS, CONDITIONS AND RESTRICTIONS

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and pursuant to the laws of the United States and the State of California, including California Civil Code Section 815, *et seq.*, Grantor hereby voluntarily grants and conveys to Grantee a conservation easement in perpetuity over the Conservation Site Property.

1. Purposes.

The purposes of this Conservation Easement are to ensure that the Conservation Site Property will be retained forever in its natural, restored, or enhanced condition as contemplated by the Long-term Management Plan, and to prevent any use of the Conservation Site Property that will impair or interfere with the Conservation Values of the Conservation Site Property. Grantor intends that this Conservation Easement will confine the use of the Conservation Site Property to activities that are consistent with such purposes, including, without limitation, those involving the preservation, restoration and enhancement of native species and their habitats implemented in accordance with the Development Plan and the Management Plan.

2. Grantee's Rights.

To accomplish the purposes of this Conservation Easement, Grantor hereby grants and conveys the following rights to Grantee:

(a) To preserve and protect the Conservation Values of the Conservation Site Property.

(b) To enter the Conservation Site Property at reasonable times, in order to monitor compliance with and otherwise enforce the terms of this Conservation Easement, the Development Plan, and the Management Plan and to implement at Grantee's sole discretion Development Plan and Management Plan activities that have not been implemented, provided that Grantee shall not unreasonably interfere with Grantor's authorized use and quiet enjoyment of the Conservation Site Property.

(c) To prevent any activity on or use of the Conservation Site Property that is inconsistent with the purposes of this Conservation Easement and to require the restoration of such areas or features of the Conservation Site Property that may be damaged by any act, failure to act, or any use or activity that is inconsistent with the purposes of this Conservation Easement.

(d) To require that all mineral, air and water rights as Grantee deems necessary to preserve and protect the biological resources and Conservation Values of the Conservation Site Property shall remain a part of and be put to beneficial use upon the Conservation Site Property, consistent with the purposes of this Conservation Easement.

(e) All present and future development rights appurtenant to, allocated, implied, reserved or inherent in the Conservation Site Property; such rights are hereby terminated and extinguished, and may not be used on or transferred to any portion of the Conservation Site Property, nor any other property adjacent or otherwise.

3. Prohibited Uses.

Any activity on or use of the Conservation Site Property that is inconsistent with

the purposes of this Conservation Easement is prohibited. Without limiting the generality of the foregoing, the following uses and activities by Grantor, Grantor's agents, and third parties are expressly prohibited:

(a) Unseasonable watering; use of fertilizers, pesticides, biocides, herbicides or other agricultural chemicals; weed abatement activities; incompatible fire protection activities; and any and all other activities and uses which may impair or interfere with the purposes of this Conservation Easement [***include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(b) Use of off-road vehicles and use of any other motorized vehicles except on existing roadways [***include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(c) Agricultural activity of any kind [***include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:***] except grazing for vegetation management as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(d) Recreational activities, including, but not limited to, horseback riding, biking, hunting or fishing except for personal, non-commercial, recreational activities of the Grantor, so long as such activities are consistent with the purposes of this Conservation Easement and specifically provided for in the Management Plan.

(e) Commercial, industrial, residential, or institutional uses.

(f) Any legal or de facto division, subdivision or partitioning of the Conservation Site Property.

(g) Construction, reconstruction, erecting or placement of any building, billboard or sign, or any other structure or improvement of any kind [***include the following language only if the Development Plan or Management Plan specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(h) Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids or any other materials.

(i) Planting, introduction or dispersal of non-native or exotic plant or animal species.

(j) Filling, dumping, excavating, draining, dredging, mining, drilling, removing or exploring for or extracting minerals, loam, soil, sand, gravel, rock or other material on or below the surface of the Conservation Site Property, or granting or authorizing surface

entry for any of these purposes.

(k) Altering the surface or general topography of the Conservation Site Property, including but not limited to any alterations to habitat, building roads or trails, paving or otherwise covering the Conservation Site Property with concrete, asphalt or any other impervious material except for those habitat management activities specified in the Development Plan or Management Plan.

(l) Removing, destroying, or cutting of trees, shrubs or other vegetation, except as required by law for (i) fire breaks, (ii) maintenance of existing foot trails or roads, or (iii) prevention or treatment of disease [***include the following language only if the Development Plan or Management Plan specifies such an exception:***]; and except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(m) Manipulating, impounding or altering any natural water course, body of water or water circulation on the Conservation Site Property, and any activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or sub-surface waters [***include the following language only if the Development Plan or Management Plan specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(n) Without the prior written consent of Grantee, which Grantee may withhold, transferring, encumbering, selling, leasing, or otherwise separating the mineral, air or water rights for the Conservation Site Property; changing the place or purpose of use of the water rights; abandoning or allowing the abandonment of, by action or inaction, any water or water rights, ditch or ditch rights, spring rights, reservoir or storage rights, wells, ground water rights, or other rights in and to the use of water historically used on or otherwise appurtenant to the Conservation Site Property, including but not limited to: (i) riparian water rights; (ii) appropriative water rights; (iii) rights to waters which are secured under contract with any irrigation or water district, to the extent such waters are customarily applied to the Conservation Site Property; and (iv) any water from wells that are in existence or may be constructed in the future on the Conservation Site Property.

(o) Engaging in any use or activity that may violate, or may fail to comply with, relevant federal, state, or local laws, regulations, or policies applicable to Grantor, the Conservation Site Property, or the use or activity in question.

(p) [Insert additional prohibitions as appropriate for the particular Bank Property and its Conservation Values.]

4. Grantee's Duties.

(a) To ensure that the purposes of this Conservation Easement as described in Section 1 are being accomplished, Grantee and its successors and assigns shall:

(1) Perform, at a minimum on a twice annual basis, compliance monitoring inspections of the Conservation Site Property; and

(2) Prepare reports on the results of the compliance monitoring inspections, and provide these reports to the USFWS on an annual basis.

(b) In the event the Grantee's interest in this Conservation Easement reverts to or is transferred to the State of California, CDFW will carry out the tasks specified in Section 4 (a) to the extent that funds and staff are available for that purpose. If CDFW determines that it cannot carry out the specified tasks, the Third Party Beneficiaries may identify a replacement Grantee, acceptable to all, and CDFW, subject to obtaining all necessary approvals, will transfer this Conservation Easement to the identified replacement Grantee in compliance with Section 20(a) of this Conservation Easement.

5. Grantor's Duties.

Grantor shall undertake all reasonable actions to prevent the unlawful entry and trespass by persons whose activities may degrade or harm the Conservation Values of the Conservation Site Property or that are otherwise inconsistent with this Conservation Easement. In addition, Grantor shall undertake all necessary actions to perfect and defend Grantee's rights under Section 2 of this Conservation Easement, and to observe and carry out the obligations of Grantor under the Development Plan and the Management Plan.

6. Reserved Rights.

Grantor reserves to itself, and to its personal representatives, heirs, successors, and assigns, all rights accruing from Grantor's ownership of the Conservation Site Property, including the right to engage in or permit or invite others to engage in all uses of the Conservation Site Property that are not prohibited or limited by, and are consistent with the purposes of, this Conservation Easement.

7. Grantee's Remedies.

If Grantee determines that a violation of this Conservation Easement has occurred or is threatened, Grantee shall give written notice to Grantor of such violation and demand in writing the cure of such violation ("Notice of Violation"). If Grantor fails to cure the violation within thirty (30) days after receipt of a Notice of Violation, or if the cure reasonably requires more than thirty (30) days to complete and Grantor fails to begin the cure within the thirty (30)-day period or fails to continue diligently to complete the cure, Grantee may bring an action at law or in equity in a court of competent jurisdiction for any or all of the following: to recover any damages to which Grantee may be entitled for violation of the terms of this Conservation Easement or for any injury to the Conservation Values of the Conservation Site Property; to enjoin the violation, *ex parte* as necessary, by temporary or permanent injunction without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies; to pursue any other legal or equitable relief, including but not limited to, the restoration of the Conservation Site Property to the condition in which it existed prior to any violation or injury; or to otherwise enforce this Conservation Easement. Without limiting the liability of Grantor, Grantee may apply any damages recovered to the cost of undertaking any corrective action on the Conservation Site Property.

If Grantee, in its sole discretion, determines that circumstances require immediate action to prevent or mitigate injury to the Conservation Values of the Conservation Site Property,

Grantee may pursue its remedies under this Conservation Easement without prior notice to Grantor or without waiting for the period provided for cure to expire. Grantee's rights under this section apply equally to actual or threatened violations of this Conservation Easement.

Grantor agrees that Grantee's remedies at law for any violation of this Conservation Easement are inadequate and that Grantee shall be entitled to the injunctive relief described in this section, both prohibitive and mandatory, in addition to such other relief to which Grantee may be entitled, including specific performance of this Conservation Easement, without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies. Grantee's remedies described in this section shall be cumulative and shall be in addition to all remedies now or hereafter existing at law or in equity, including but not limited to the remedies set forth in California Civil Code Section 815, *et seq.* The failure of Grantee to discover a violation or to take immediate legal action shall not bar Grantee from taking such action at a later time.

(a) Costs of Enforcement.

All costs incurred by Grantee, where Grantee is the prevailing party, in enforcing the terms of this Conservation Easement against Grantor, including, but not limited to, costs of suit and attorneys' and experts' fees, and any costs of restoration necessitated by negligence or breach of this Conservation Easement, shall be borne by Grantor.

(b) Grantee's Discretion.

Enforcement of the terms of this Conservation Easement by Grantee shall be at the discretion of Grantee, and any forbearance by Grantee to exercise its rights under this Conservation Easement in the event of any breach of any term of this Conservation Easement shall not be deemed or construed to be a waiver of such term or of any subsequent breach of the same or any other term of this Conservation Easement or of any rights of Grantee under this Conservation Easement. No delay or omission by Grantee in the exercise of any right or remedy shall impair such right or remedy or be construed as a waiver.

(c) Acts Beyond Grantor's Control.

Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury to or change in the Conservation Site Property resulting from (i) any natural cause beyond Grantor's control, including, without limitation, fire not caused by Grantor, flood, storm, and earth movement, or any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Conservation Site Property resulting from such causes; or (ii) acts by Grantee or its employees.

(d) Enforcement; Standing.

All rights and remedies conveyed to Grantee under this Conservation Easement shall extend to and are enforceable by the Third-Party Beneficiaries (as defined in Section 14(m)). These enforcement rights are in addition to, and do not limit, the rights of enforcement under the Development Plan or the Management Plan. If at any time in the future Grantor uses, allows the use, or threatens to use or allow use of, the Conservation Site Property for any purpose that is inconsistent with or in violation of this Conservation Easement then, despite the provisions of California Civil Code Section 815.7, the California Attorney General

and the Third-Party Beneficiaries each has standing as an interested party in any proceeding affecting this Conservation Easement.

(e) Notice of Conflict.

If Grantor receives a Notice of Violation from Grantee or a Third-Party Beneficiary with which it is impossible for Grantor to comply consistent with any prior uncured Notice(s) of Violation, Grantor shall give written notice of the conflict (hereinafter "Notice of Conflict") to the Grantee and Third-Party Beneficiaries. In order to be valid, a Notice of Conflict shall be given within fifteen (15) days of the date Grantor receives a conflicting Notice of Violation, shall include copies of the conflicting Notices of Violation, and shall describe the conflict with specificity, including how the conflict makes compliance with the uncured Notice(s) of Violation impossible. Upon issuing a valid Notice of Conflict, Grantor shall not be required to comply with the conflicting Notices of Violation until such time as the entity or entities issuing said conflicting Notices of Violation issue(s) revised Notice(s) of Violation that resolve the conflict. Upon receipt of a revised Notice of Violation, Grantor shall comply with such notice within the time period(s) described in the first grammatical paragraph of this Section. The failure of Grantor to issue a valid Notice of Conflict within fifteen (15) days of receipt of a conflicting Notice of Violation shall constitute a waiver of Grantor's ability to claim a conflict.

(f) Reversion.

If the Signatory Agencies determine that Grantee is not holding, monitoring or managing this Conservation Easement for conservation purposes in the manner specified in this Conservation Easement or in the Development Plan or the Management Plan then, pursuant to California Government Code Section 65965(d), this Conservation Easement shall revert to the State of California, or to another public agency or nonprofit organization qualified pursuant to Civil Code Section 815.3 and Government Code Section 65967 (and any successor or other provision(s) then applicable) and approved by the USFWS.

8. Access.

This Conservation Easement does not convey a general right of access to the public.

9. Costs and Liabilities.

Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Conservation Site Property. Grantor agrees that neither Grantee nor any Third-Party Beneficiaries shall have any duty or responsibility for the operation, upkeep or maintenance of the Conservation Site Property, the monitoring of hazardous conditions on it, or the protection of Grantor, the public or any third parties from risks relating to conditions on the Conservation Site Property. Grantor remains solely responsible for obtaining any applicable governmental permits and approvals required for any activity or use permitted by this Conservation Easement [***insert if CDFW or another government entity is Grantee:*** , including those permits and approvals required from Grantee acting in its regulatory capacity],and any activity or use shall be undertaken in accordance with all applicable federal, state, local and administrative agency laws, statutes, ordinances, rules, regulations, orders and requirements.

(a) Taxes; No Liens.

Grantor shall pay before delinquency all taxes, assessments (general and special), fees, and charges of whatever description levied on or assessed against the Conservation Site Property by competent authority (collectively "Taxes"), including any Taxes imposed upon, or incurred as a result of, this Conservation Easement, and shall furnish Grantee with satisfactory evidence of payment upon request. Grantor shall keep the Conservation Site Property free from any liens (other than a security interest that is expressly subordinated to this Conservation Easement, as provided in Section 14(k)), including those arising out of any obligations incurred by Grantor for any labor or materials furnished or alleged to have been furnished to or for Grantor at or for use on the Conservation Site Property.

(b) Hold Harmless.

Grantor shall hold harmless, protect and indemnify Grantee and its directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (each a "Grantee Indemnified Party" and collectively, "Grantee's Indemnified Parties") from and against any and all liabilities, penalties, costs, losses, damages, expenses (including, without limitation reasonable attorneys' fees and experts' fees), causes of action, claims, demands, orders, liens or judgments (each a "Claim" and, collectively, "Claims"), arising from or in any way connected with: (i) injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Conservation Site Property, regardless of cause, except that this indemnification shall be inapplicable to any Claim due solely to the negligence of Grantee or any of its employees; (ii) the obligations specified in Sections 5, 9 and 9(a); and (iii) the existence or administration of this Conservation Easement. If any action or proceeding is brought against any of the Grantee's Indemnified Parties by reason of any such Claim, Grantor shall, at the election of and upon written notice from Grantee, defend such action or proceeding by counsel reasonably acceptable to the Grantee's Indemnified Party. [***insert if CDFW is grantee:*** or reimburse Grantee for all charges incurred for services of the California Attorney General in defending the action or proceeding].

(1) Grantor shall hold harmless, protect and indemnify Third-Party Beneficiaries and their respective directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (each a "Third-Party Beneficiary Indemnified Party" and collectively, "Third-Party Beneficiary Indemnified Parties") from and against any and all Claims arising from or in any way connected with: (i) injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Conservation Site Property, regardless of cause and (ii) the existence or administration of this Conservation Easement. *Provided, however,* that the indemnification in this Section 9 (b) (2) shall be inapplicable to a Third-Party Beneficiary Indemnified Party with respect to any Claim due solely to the negligence of that Third-Party Beneficiary Indemnified Party or any of its employees. If any action or proceeding is brought against any of the Third-Party Beneficiary Indemnified Parties by reason of any Claim to which the indemnification in this Section 9 (b) (2) applies, then at the election of and upon written notice from the Third-Party Beneficiary Indemnified Party, Grantor shall defend such action or proceeding by counsel reasonably acceptable to the applicable Third-Party Beneficiary Indemnified Party or reimburse the Third-Party Beneficiary Indemnified Party for all charges incurred for services of the California Attorney General or the U.S. Department of Justice in defending the action or proceeding.

(c) Extinguishment.

If circumstances arise in the future that render the preservation of Conservation Values, or other purposes of this Conservation Easement impossible to accomplish, this Conservation Easement can only be terminated or extinguished, in whole or in part, by judicial proceedings in a court of competent jurisdiction.

(d) Condemnation.

The purposes of this Conservation Easement are presumed to be the best and most necessary public use as defined at California Code of Civil Procedure Section 1240.680 notwithstanding Code of Civil Procedure Sections 1240.690 and 1240.700.

10. Transfer of Conservation Easement or Conservation Site Property.

(a) Conservation Easement.

This Conservation Easement may be assigned or transferred by Grantee upon written approval of the USFWS, which approval shall not be unreasonably withheld or delayed, but Grantee shall give Grantor and the USFWS at least sixty (60) days prior written notice of the proposed assignment or transfer. Grantee may assign or transfer its rights under this Conservation Easement only to an entity or organization: (i) authorized to acquire and hold conservation easements pursuant to California Civil Code Section 815.3 and Government Code Section 65965 (and any successor or other provision(s) then applicable), or the laws of the United States; and (ii) otherwise reasonably acceptable to the USFWS. Grantee shall require the assignee to record the assignment in the county where the Conservation Site Property is located. The failure of Grantee to perform any act provided in this section shall not impair the validity of this Conservation Easement or limit its enforcement in any way. Any transfer under this section is subject to the requirements of Section 11.

(b) Conservation Site Property.

Grantor agrees to incorporate the terms of this Conservation Easement by reference in any deed or other legal instrument by which Grantor divests itself of any interest in all or any portion of the Conservation Site Property, including, without limitation, a leasehold interest. Grantor agrees that the deed or other legal instrument shall also incorporate by reference the Development Plan, the Management Plan, and any amendment(s) to those documents. Grantor further agrees to give written notice to Grantee and the USFWS of the intent to transfer any interest at least sixty (60) days prior to the date of such transfer. Grantee or the USFWS shall have the right to prevent any transfers in which prospective subsequent claimants or transferees are not given notice of the terms, covenants, conditions and restrictions of this Conservation Easement (including the exhibits and documents incorporated by reference in it). The failure of Grantor to perform any act provided in this section shall not impair the validity of this Conservation Easement or limit its enforceability in any way. Any transfer under this section is subject to the requirements of Section 11.

11. Merger.

The doctrine of merger shall not operate to extinguish this Conservation Easement if the Conservation Easement and the Conservation Site Property become vested in the same party. If, despite this intent, the doctrine of merger applies to extinguish the Conservation

Easement then, unless Grantor, Grantee, and the Signatory Agencies otherwise agree in writing, a replacement conservation easement or restrictive covenant containing the same protections embodied in this Conservation Easement shall be recorded against the Conservation Site Property.

12. Notices.

Any notice, demand, request, consent, approval, or other communication that Grantor or Grantee desires or is required to give to the other shall be in writing, with a copy to the USFWS, and served personally or sent by recognized overnight courier that guarantees next-day delivery or by first class United States mail, postage fully prepaid, addressed as follows:

To Grantor:	[Grantor name] [Grantor address] Attn:_____
To Grantee:	[Grantee name] [Grantee address] Attn: _____
To CDFW:	Department of Fish and Wildlife Bay Delta Region (Region 3) 2825 Cordelia Road, Suite 100 Fairfield, CA 94534 Attn: Regional Manager
With a copy to:	Department of Fish and Wildlife Office of General Counsel 1416 Ninth Street, 12th Floor Sacramento, CA 95814-2090 Attn: General Counsel
To USFWS:	United States Fish and Wildlife Service Sacramento Office 2800 Cottage Way, Room W-2605 Sacramento, CA 95825 Attn: Field Supervisor

or to such other address a party or the Signatory Agencies shall designate by written notice to Grantor, Grantee and the Signatory Agencies. Notice shall be deemed effective upon delivery in the case of personal delivery or delivery by overnight courier or, in the case of delivery by first class mail, three (3) days after deposit into the United States mail.

13. Amendment.

This Conservation Easement may be amended only by mutual written agreement of Grantor and Grantee and written approval of the Signatory Agencies, which approval shall not be unreasonably withheld or delayed. Any such amendment shall be consistent with the

purposes of this Conservation Easement and California law governing conservation easements, and shall not affect its perpetual duration. Any such amendment shall be recorded in the official records of the county in which the Conservation Site Property is located, and Grantee shall promptly provide a conformed copy of the recorded amendment to the Grantor and the USFWS.

14. Additional Provisions.

(a) Controlling Law.

The interpretation and performance of this Conservation Easement shall be governed by the laws of the United States and the State of California, disregarding the conflicts of law principles of such state.

(b) Liberal Construction.

Despite any general rule of construction to the contrary, this Conservation Easement shall be liberally construed to effect the purposes of this Conservation Easement and the policy and purpose of California Civil Code Section 815, *et seq.* [***add if Grantee is nonprofit organization:*** and Government Code Section 65965]. If any provision in this instrument is found to be ambiguous, an interpretation consistent with the purposes of this Conservation Easement that would render the provision valid shall be favored over any interpretation that would render it invalid.

(c) Severability.

If a court of competent jurisdiction voids or invalidates on its face any provision of this Conservation Easement, such action shall not affect the remainder of this Conservation Easement. If a court of competent jurisdiction voids or invalidates the application of any provision of this Conservation Easement to a person or circumstance, such action shall not affect the application of the provision to any other persons or circumstances.

(d) Entire Agreement.

This document (including its exhibits and the Development Plan and the Management Plan incorporated by reference in this document) sets forth the entire agreement of the parties and the USFWS with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings, or agreements of the parties relating to the Conservation Easement. No alteration or variation of this Conservation Easement shall be valid or binding unless contained in an amendment in accordance with Section 13.

(e) No Forfeiture.

Nothing contained in this Conservation Easement will result in a forfeiture or reversion of Grantor's title in any respect.

(f) Successors.

The covenants, terms, conditions, and restrictions of this Conservation Easement shall be binding upon, and inure to the benefit of, the parties and their respective personal representatives, heirs, successors, and assigns, and shall constitute a servitude running in perpetuity with the Conservation Site Property.

(g) Termination of Rights and Obligations.

A party's rights and obligations under this Conservation Easement terminate upon transfer of the party's interest in the Conservation Easement or Conservation Site Property, except that liability for acts, omissions or breaches occurring prior to transfer shall survive transfer.

(h) Captions.

The captions in this instrument have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon its construction or interpretation.

(i) No Hazardous Materials Liability.

(1) Grantor represents and warrants that it has no knowledge or notice of any Hazardous Materials (defined below) or underground storage tanks existing, generated, treated, stored, used, released, disposed of, deposited or abandoned in, on, under, or from the Conservation Site Property, or transported to or from or affecting the Conservation Site Property.

(2) Without limiting the obligations of Grantor under Section 9 (b), Grantor hereby releases and agrees to indemnify, protect and hold harmless the Grantee's Indemnified Parties (defined in Section 9 (b) (1)) from and against any and all Claims (defined in Section 9 (b)(1)) arising from or connected with any Hazardous Materials or underground storage tanks present, alleged to be present, released in, from or about, or otherwise associated with the Conservation Site Property at any time, except any Hazardous Materials placed, disposed or released by Grantee or any of its employees. This release and indemnification includes, without limitation, Claims for (A) injury to or death of any person or physical damage to any property; and (B) the violation or alleged violation of, or other failure to comply with, any Environmental Laws (defined below). If any action or proceeding is brought against any of the Grantee's Indemnified Parties by reason of any such Claim, Grantor shall, at the election of and upon written notice from the applicable Grantee Indemnified Party, defend such action or proceeding by counsel reasonably acceptable to the Grantee Indemnified Party

(3) Without limiting the obligations of Grantor under Section 9 (b), Grantor hereby releases and agrees to indemnify, protect and hold harmless the Third-Party Beneficiary Indemnified Parties (defined in Section 9 (b)(2)) from and against any and all Claims arising from or connected with any Hazardous Materials or underground storage tanks present, alleged to be present, released in, from or about, or otherwise associated with the Conservation Site Property at any time, except that this release and indemnification shall be inapplicable to a Third-Party Beneficiary Indemnified Party with respect to any Hazardous Materials placed, disposed or released by that Third-Party Beneficiary Indemnified Party or any of its employees. This release and indemnification includes, without limitation, Claims for (A) injury to or death of any person or physical damage to any property; and (B) the violation of alleged violation of, or other failure to comply with, any Environmental Laws. If any action or proceeding is brought against any of the Third-Party Beneficiary Indemnified Parties by reason of any such Claim, Grantor shall, at the election or and upon written notice from the applicable Third-Party Beneficiary Indemnified Party, defend such action or proceeding by counsel reasonably acceptable to the Third-Party Beneficiary Indemnified Party for all charges incurred for services of the California Attorney General or the U.S. Department of Justice in defending the action or

proceeding.

(4) Despite any contrary provision of this Conservation Easement, the parties do not intend this Conservation Easement to be, and this Conservation Easement shall not be, construed such that it creates in or gives to Grantee or any Third-Party Beneficiaries any of the following:

(A) The obligations or liability of an "owner" or "operator," as those terms are defined and used in Environmental Laws (defined below), including, without limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. § 9601, *et seq.*; hereinafter, "CERCLA"); or

(B) The obligations or liabilities of a person described in 42 U.S.C. § 9607(a)(3) or (4); or

(C) The obligations of a responsible person under any applicable Environmental Laws; or

(D) The right to investigate and remediate any Hazardous Materials associated with the Conservation Site Property; or

(E) Any control over Grantor's ability to investigate, remove, remediate or otherwise clean up any Hazardous Materials associated with the Conservation Site Property.

(5) The term "Hazardous Materials" includes, without limitation, (a) material that is flammable, explosive or radioactive; (b) petroleum products, including by-products and fractions thereof; and (c) hazardous materials, hazardous wastes, hazardous or toxic substances, or related materials defined in CERCLA, the Resource Conservation and Recovery Act of 1976 (42 U.S.C. § 6901, et seq.; hereinafter, "RCRA"); the Hazardous Materials Transportation Act (49 U.S.C. §5101, et seq.; hereinafter, "HTA"); the Hazardous Waste Control Law (California Health & Safety Code § 25100, et seq.; hereinafter, "HCL"); the Carpenter-Presley-Tanner Hazardous Substance Account Act (California Health & Safety Code § 25300, et seq.; hereinafter "HSA"), and in the regulations adopted and publications promulgated pursuant to them, or any other applicable Environmental Laws now in effect or enacted after the date of this Conservation Easement.

(6) The term "Environmental Laws" includes, without limitation, CERCLA, RCRA, HTA, HCL, HSA, and any other federal, state, local or administrative agency statute, ordinance, rule, regulation, order or requirement relating to pollution, protection of human health or safety, the environment or Hazardous Materials. Grantor represents, warrants and covenants to Grantee and Third-Party Beneficiaries that, activities upon and use of the Bank Property by Grantor, its agents, employees, invitees and contractors will comply with all Environmental Laws.

(j) Warranty.

Grantor represents and warrants that Grantor is the sole owner of the Conservation Site Property. Grantor also represents and warrants that, except as specifically

disclosed to and approved by the USFWS pursuant to the Conservation Site Property Assessment and Warranty signed by Grantor, and attached as an exhibit to the [***insert:*** BEI ***or*** CBEI], [***choose applicable statement:*** there are no outstanding mortgages, liens, encumbrances or other interests in the Conservation Site Property (including, without limitation, mineral interests) which may conflict or are inconsistent with this Conservation Easement ***or*** the holder of any outstanding mortgage, lien, encumbrance or other interest in the Conservation Site Property (including, without limitation, mineral interest) that may conflict or are otherwise inconsistent with this Conservation Easement has expressly subordinated such interest to this Conservation Easement by a recorded Subordination Agreement approved by Grantee and the USFWS].

(k) Additional Interests.

Grantor shall not grant any additional easements, rights of way or other interests in the Conservation Site Property (other than a security interest that is expressly subordinated to this Conservation Easement), nor shall Grantor grant, transfer, abandon or relinquish (each a "Transfer") any mineral, air, or water right or any water associated with the Conservation Site Property, without first obtaining the written consent of Grantee and the USFWS. Such consent may be withheld if Grantee or the USFWS determines that the proposed interest or Transfer is inconsistent with the purposes of this Conservation Easement or will impair or interfere with the Conservation Values of the Conservation Site Property. This Section 14(k) shall not limit the provisions of Section 2(d) or 3(n), nor prohibit transfer of a fee or leasehold interest in the Conservation Site Property that is subject to this Conservation Easement and complies with Section 10. Grantor shall provide a copy of any recorded or unrecorded grant or Transfer document to the Grantee and USFWS.

(l) Recording.

Grantee shall record this Conservation Easement in the Official Records of the County in which the Conservation Site Property is located, and may re-record it at any time as Grantee deems necessary to preserve its rights in this Conservation Easement.

(m) Third-Party Beneficiary.

Grantor and Grantee acknowledge that the USFWS is a third party beneficiary of this Conservation Easement with the right of access to the Conservation Site Property and the right to enforce all of the obligations of Grantor including, but not limited to, Grantor's obligations under Section 14, and all other rights and remedies of the Grantee under this Conservation Easement.

(n) Funding.

Endowment funding for the perpetual management, maintenance, and monitoring of the Conservation Site Property is specified in and governed by the Management Plan.

15. Exhibits.

The following Exhibits referenced in this Conservation Easement are attached to and incorporated by reference herein:

Exhibit A – Legal Description and Map of Property

IN WITNESS WHEREOF Grantor has executed this Conservation Easement Deed the day and year first above written.

GRANTOR: [***Notarization Required***]

BY:_____

NAME:_____

TITLE:_____

DATE: _____

Approved as to form:

GRANTEE:

BY: _____

NAME: _____

TITLE: _____

DATE: _____

USFWS:

BY: _____

NAME: _____

TITLE: _____

DATE: _____

CDFW:

BY: _____

NAME: _____

TITLE: _____

DATE: _____

Appendix D

Long-Term Management Plan

Note: The California multi-agency Project Delivery Team developed this general outline to assist in the development of the Long-term Management Plan for mitigation banks. This specific template is for the Rooney Ranch Wind Repowering Project mitigation site. The mitigation site has not yet been selected. Rooney Ranch, LLC will complete this long-term management plan for the mitigation site when it has been selected. The final LTMP and funding cost analysis estimate (Appendix D) will be approved by USFWS prior to finalization and can be modified without a permit amendment to the HCP. Finalization of these documents would be considered minor amendments to the HCP.

Long-term Management Plan
For
The Rooney Ranch Wind Repowering Project Mitigation Site

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Long-Term Management Plan

I. Introduction

A. Purpose of Establishment

The Rooney Ranch Wind Repowering Project Mitigation Site "Mitigation Site" was established to compensate for unavoidable impacts to, and to conserve and to protect waters of the U.S., covered species and covered habitat. The Mitigation Site includes _____acres of waters of the U.S. including _____acres [*insert as applicable:* of /all of which are] preserved wetlands, _____acres of created wetlands, _____acres of covered species habitat for California tiger salamander, California red-legged frog, and San Joaquin kit fox. The Signatory Agencies are the Sacramento Office of the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife ("CDFW") Bay Delta Region.

B. Purpose of this Long-term Management Plan

The purpose of this long-term management plan is to ensure the Mitigation Site is managed, monitored, and maintained in perpetuity. This management plan establishes objectives, priorities and tasks to monitor, manage, maintain and report on the waters of the U.S., covered species and covered habitat on the Mitigation Site, consistent with the goals and objectives of the Sand Hill Wind Repowering Project Habitat Conservation Plan and the Incidental Take Permit issued by CDFW under Section 2081 of the California Fish and Game Code. This management plan is a binding and enforceable instrument, implemented by the conservation easement covering the Mitigation Site.

C. Land Manager and Responsibilities

The land manager is _____. The land manager, and subsequent land managers upon transfer, shall implement this long-term management plan, managing and monitoring the Mitigation Site in perpetuity to preserve its habitat and conservation values in accordance with the conservation easement, and the long-term management plan. Long-term management tasks shall be funded through the Endowment Fund. The land manager shall be responsible for providing an annual report to the Signatory Agencies detailing the time period covered, an itemized account of the management tasks and total amount expended. Any subsequent grading, or alteration of the site's hydrology and/or topography by the land manager or its representatives must be approved by the Signatory Agencies and the necessary permits, such as a Section 404 permit, must be obtained if required.

II. Property Description

A. Setting and Location

The Mitigation Site is located at _____ [*include address and county*], State of California, designated Assessor's Parcel No. _____. The Property is shown on the general vicinity map (Figure 1) and the Mitigation Site property map (Figure 2). The general vicinity map shows the Mitigation Site location in relation to cities, towns, or major roads, and other distinguishable landmarks. The Mitigation Site property map shows the property boundaries on a topographic map.

B. History and Land Use

[*Describe past and present land use including grazing practices*]. The land in the general area of the Mitigation Site is currently _____ [*Describe adjacent land and local area land uses.*]

C. Cultural Resources – (if applicable, refers to Cultural Resources Survey,)

[*Describe all existing structures including roads, levees, fencing, and buildings, and their intended future use on the area. If such structures are likely to be considered "historical resources" of the state pursuant to Executive Order W-26-92 and historic resources preservation laws.*]

[*Describe any known archeological sites without providing their specific locations on the property and include a summary of the results of any site surveys/inventories, including who conducted them. An assessment of the impacts of management should be given for such sites.*]

D. Hydrology and Topography

[*Describe hydrology and topography of Mitigation Site. Indicate whether wetlands are driven by surface flows (i.e., fluvial systems) or groundwater flows from offsite sources. Describe precipitation onto and off of the site.]*

E. Soils

[*Describe soils on the Mitigation Site*.]

F. Existing Easements

[*Include descriptions/locations of existing easements, their nature (buried pipeline, overhead power, ingress/egress, etc.), authorized users (if known), access procedures, etc. Depict easements, rights of way, ingress, and egress routes on an attached map.*]

G. Adjacent Land Uses

[*Detail the baseline adjacent land uses. These land uses may change over time; however, the description of the baseline conditions will give the manager some idea of the conditions present when the management plan was first developed. Also detailing adjacent land uses will bring to light areas that may be of management concern or items that may compromise biological integrity over time.*]

III. Habitat and Species Descriptions

A. Biological Resources Survey of the Mitigation Site

[*The Biological Resources Survey of the Mitigation Site shall include a general description of geographic location and features, topography, soils, vegetation (assessment of native vs. exotic species), species present and potentially present, habitat requirements of each species and a quality assessment of all habitat types (i.e. life history requirements of covered species met, habitat diversity, connectivity to other habitats and protected areas), and species presence based on the results of protocol surveys. In addition, provide an inventory list, if available, of plant and animal species which are known or likely to occur on the property. An overview of native plant species present, if applicable, their habitat and management requirement should be presented here.]*

B. Endangered and Threatened Species

[*Describe all endangered and threatened species that occur or may occur on the Mitigation Site. If applicable, provide map showing their location.]*

The Mitigation Site is occupied by California red-legged frog and California tiger salamander and is suitable dispersal habitat for San Joaquin kit fox.

C. Rare Species and Species of Special Concern

[*Description of rare species and species of special concern that occur or may occur on the Mitigation Site. If applicable, provide map showing their location.]*

IV. Management and Monitoring

The overall goal of long-term management is to foster the long-term viability of the Mitigation Site's waters of the U.S., covered species and covered habitat. Routine monitoring and minor maintenance tasks are intended to assure the viability of the Mitigation Site in perpetuity.

A. Biological Resources

The approach to the long-term management of the Mitigation Site's biological resources is to conduct annual site examinations and monitoring of selected characteristics to determine stability and ongoing trends of the preserved and created waters of the U.S., including wetlands, aquatic and upland habitats for California tiger salamander and California red-legged frog, and dispersal habitat for San Joaquin kit fox. Annual monitoring will assess the Mitigation Site condition, degree of erosion, invasion of exotic or deleterious (e.g., thatch producing) species, water quality, fire hazard, and/or other aspects that may warrant management actions. While it is not anticipated that major management actions will be needed, objectives of this long-term management plan are to conduct monitoring to identify any issues that arise and to use adaptive management to determine what actions might be appropriate. Individuals chosen to accomplish monitoring responsibilities will have the knowledge, training, and experience to accomplish monitoring responsibilities.

The monitoring and management efforts summarized in Table 1 are intended to determine whether the management efforts are achieving the desired conditions. These monitoring efforts will include an annual grazing assessment (i.e., seasonality of grazing, casual observations related to grazing) and a summary of any anomalous site conditions (i.e., problems with any infrastructure or features). In addition, the Land Manager will conduct focused surveys every 5 years (or at a different frequency if determined through USFWS coordination to be appropriate), to determine the status of California red-legged frogs and Central California tiger salamanders on the Mitigation Site Analysis of occurrence of special-status species, in conjunction with livestock use records, will allow the Land Manager to ensure that the goals of long-term management are met in perpetuity.

The Land Manager will implement all management activities within an adaptive management framework that allows the Land Manager to modify management as necessary based on changes such as climate change, fire, flooding, or other natural events whose occurrence and effects cannot be predicted, or as needed to improve the effectiveness of management. The Land Manager will determine how the land is managed, and will coordinate with the Reviewing Agencies before making any adaptive management changes to the LTMP. All management activities described below are subject to the notification requirements described in Section V, and the Land Manager will summarize these activities in all annual reports to the Reviewing Agencies and City as described in Section IV.D

Table 1. Frequency and Timing of Long-term Habitat Monitoring, Management, Maintenance, and Reporting Tasks

Task	Object of Inspection or Survey	Criteria to Trigger Task or to Consider Successful	Frequency			Timing[3]											
			Once[1]	Annually	Periodic[2]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Task 1. Annual walk-through survey to qualitatively monitor the general condition of waters of the U.S. and wetlands		Conducted annually		X					X	X							
Task 2: Establish reference sites for photographs and prepare a site map showing the reference sites for the Mitigation Site file.					X				X	X	X	X					
Task 3: Install Staff Gauges and Conduct a Baseline Inspection of each pond to determine its suitability and use as a breeding habitat for California red-legged frog and California tiger salamander			X		X	X	X	X	X	X	X	X	X				
Task 4: Inspect Pond Hydroperiod, Surface Extent of Ponding, Vegetation, Pond Berms/Dams, and Accumulation of Sediment and Repair as Needed to determine its suitability and use as a breeding habitat for California red-legged frog and California tiger salamander	Water depth, integrity of the berm/dam, extent of sedimentation and vegetation	Successful – when ponds meet the success criteria and the berm/dam has no leaks, cracks, erosion, or head cut that threaten to degrade ecological conditions for the Central California tiger salamander or California red-legged frog		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Task 5. Remove Accumulated Sediment and Vegetation from Ponds		Trigger – when it is observed that the ponding capacity in a pond has reduced to 50% below the baseline ponding conditions, has greater vegetation than defined in the LTMP, does not meet slope conditions, or			X								X	X	X		

Task	Object of Inspection or Survey	Criteria to Trigger Task or to Consider Successful	Frequency			Timing[3]											
			Once[1]	Annually	Periodic[2]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		has dried before May 31 (or August 31 for California red-legged frog breeding pond) in a year of average rainfall															
Task 6: Perform Baseline Upland Habitat Surveys	RDM at each established key grassland monitoring plot and ground squirrel burrow mapping	Visually estimate biomass at monitoring plots, and any areas of excessive bare ground, erosion, invasive plant infestations.	X						X	X			X				
Task 7: Establish and Perform Spring Biomass Estimates and Fall RDM Measurements	RDM at each established key grassland monitoring plot in the fall prior to the first significant rain events of the season	Successful – when the RDM is between 500 – 1,500 lbs/ac depending on slope and grazing plan targets. Trigger – when RDM measurement are not within planned targets or when excessive bare ground, plant material, erosion, invasive species, or pest plant infestations are observed that threaten to degrade ecological conditions for the California tiger salamander or California red-legged frog. Trigger: significant decrease in active ground squirrel burrows and colony presence		X					X					X			
Task 8. Conduct Baseline Surveys for California Red-legged Frog Presence, Relative Abundance, and Reproductive Success (first three years)	Presence of California red-legged frog tadpoles, metamorphs, subadults, and/or adults in designated California red-legged frog breeding ponds	Successful - metamorphs observed in or around pond Additional criteria TBD during final LTMP	X					X	X	X							
Task 9. Conduct Surveys for California Red-legged Frog Presence, relative	Presence of California red-legged frog tadpoles,	Successful - metamorphs observed in or around pond			X			X	X	X		X	X				

Task	Object of Inspection or Survey	Criteria to Trigger Task or to Consider Successful	Frequency			Timing[3]											
			Once[1]	Annually	Periodic[2]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
abundance, and reproductive success	metamorphs, subadults, and/or adults in designated California red-legged frog breeding ponds	Additional criteria TBD during final LTMP Trigger - significant decrease from baseline of relative abundance of larvae, metamorphs, and adults															
Task 10. Conduct Baseline Surveys for California tiger salamander Breeding and Abundance (first three years)	Presence of California tiger salamander larvae in all mitigation site ponds	Successful - relatively large larvae observed in pond that holds water through May. Additional criteria TBD during final LTMP.	X						X	X							
Task 11. Conduct Surveys for California tiger salamander breeding	Presence of California tiger salamander larvae in all mitigation site ponds	Successful - relatively large larvae observed in pond that holds water through May. Additional criteria TBD during final LTMP Trigger- significant decrease from baseline of relative abundance of large larvae			X				X	X							
Task 12. Conduct Baseline Surveys for San Joaquin kit fox Evidence of Use (first three years)	Presence of San Joaquin kit fox use or suitable habitat	Successful – Evidence of use observed or if no evidence of use observed, then no significant barriers (e.g., new structures or features on the landscape (adjacent properties), which could preclude the movement of San Joaquin kit fox, such as new roadways, new fencing, or other structures that are not permeable to animals) to use observed.	X						X	X							
Task 13. Assess San Joaquin kit fox Dispersal Habitat	Presence of San Joaquin kit fox use or suitable habitat	Successful- No significant barriers to use observed			X				X	X							
Task 14: Conduct Surveys for Invasive Plant Species	Extent and abundance of weeds, effectiveness of prior treatments			X				X	X			X	X				

Task	Object of Inspection or Survey	Criteria to Trigger Task or to Consider Successful	Frequency			Timing[3]											
			Once[1]	Annually	Periodic[2]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Task 15: Prioritize and Treat Populations of Invasive Plants		Trigger – when infestations of weeds (large enough to require management in the Land Manager's opinion); infestations of new or incipient species that have a limited distribution within the mitigation site or regionally; infestations of species that, by nature of their biology and ecology, have a high potential to spread and cause ecological damage and are reducing habitat quality for the Central California tiger salamander and California red-legged frog Successful – maintain acceptable levels or decrease. More specific success criteria will be determined during final LTMP.			X			X	X	X	X	X	X	X	X		
Task 16. Conduct Observations of Nonnative Animals	Extent and abundance of nonnative animals, effectiveness of prior treatments	Trigger- presence of nonnative animals that are threats to the listed species		X				X	X	X	X	X	X	X	X		
Task 17. Perform Nonnative Animal Management		Trigger – when bullfrog adults or tadpoles, crayfish, and/or fish or other invasive species that threaten to degrade ecological conditions for the Central California tiger salamander or California red-legged frog are observed. Successful- nonnative animals are not present on the mitigation site.			X				X	X	X	X	X	X	X		
Task 18: During each site visit, record occurrences of trash and/or trespass.	Incidences of trash accumulation and/or trespass	Successful- No incidences of trash accumulation or trespass		X		X	X	X	X	X	X	X	X	X	X	X	X

Task	Object of Inspection or Survey	Criteria to Trigger Task or to Consider Successful	Frequency			Timing[3]											
			Once[1]	Annually	Periodic[2]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Record type, location, and management mitigation recommendations to avoid, minimize, or rectify a trash and/or trespass impact.																	
Task 19: At least once yearly, and as necessary, collect and remove as much trash and repair and rectify vandalism and trespass impacts.	Incidences of trash accumulation and/or trespass	Trigger - observed accumulation of trash, trespass, or vandalism		X		X	X	X	X	X	X	X	X	X	X	X	X
Task 20: Mow or graze to reduce vegetation in areas required by authority agency(ies), and as approved by the Signatory Agencies, for fire control. Use of controlled burning as a management tool will not be used on the mitigation site unless approved by the Service.					X					X	X	X	X	X	X		
Task 21: Inspect and Repair Fencing, Associated Gates, and Access Roads	Fencing, gates, signage, access roads	Trigger – when there is any of the following: missing post, sagging wire, absence of a sign every 1,000 feet along perimeter fencelines and at every exterior gate, rusted, bent, or otherwise a non-functional gate, damaged access roads		X		X	X	X	X	X	X	X	X	X	X	X	X
Task 22. Inspect and Repair Livestock Watering Troughs and/or Livestock Improvements	Livestock watering troughs, water pipes, water pumps, spring developments, or other livestock improvements	Trigger - observed needed repairs		X		X	X	X	X	X	X	X	X	X	X	X	X
Task 23: Prepare an Annual Report				X		X	X										X

[1] Some baseline survey tasks would be conducted one time early in the management period and would not be repeated annually or periodically.

[2] The frequency of occurrence of activities described as “periodic” will vary by the activity, from ongoing (e.g., monitoring of public access) to infrequent/as needed (e.g., repair of failing berms or dams). More detail is provided in the description of each element below.

[3] “Timing” refers to the approximate month(s) in which each task is most likely to be performed, rather than necessarily restricting tasks to the month(s) indicated. Tasks are not necessarily performed within each of the months indicated (e.g., they may be performed only once, or multiple times, within the months indicated). More detail is provided in the description of each element below.

The land manager for the Mitigation Site shall implement the following monitoring and management activities:

Element A.1 Waters of the U.S., including wetlands

Objective A.1-1: Monitor the Mitigation Site's waters of the U.S., including wetlands.

Task 1: Annual walk-through survey to qualitatively monitor waters of the U.S., wetlands, and general site conditions.

One annual walk-through survey will be conducted each management year. General topographic conditions, pond hydrology and habitat suitability (see Task 4), general vegetation cover and composition, invasive species (see Task 16), and erosion, will be noted, evaluated, and mapped during a site examination in the spring. Notes to be made will include observations of species encountered, water quality, general extent of wetlands, and any occurrences of erosion and weed invasion. In addition, monitoring of reference photos (see Task 2), monitoring of trash and vandalism (see Task 18), inspections of fences, gates and roads (see Task 21), and inspections of livestock improvements (see Task 22) will occur during the annual walk-through.

Task 2: Establish reference sites for photographs, prepare a site map showing the reference sites for the Mitigation Site file, and take reference photographs.

Photographic reference sites, which represent the range of wetland types and conditions present on the Mitigation Site, will be established. Reference photographs will be taken of representative wetland types every five years during the annual walkthrough (see Task 1) from the beginning of the management period. The number and location of photographic reference sites will be determined in the final LTMP and will be based on the presence and extent of on-site waters of the U.S. and wetlands.

Element A.2 Covered Species Habitat

Objective A.2-1: Monitor and manage the Mitigation Site's ponds with respect to habitat for California red-legged frogs and California tiger salamanders.

Task 3: Install Staff Gauges and Conduct a Baseline Inspection of each pond to determine its suitability and use as a breeding habitat for California red-legged frog and California tiger salamander

The Land Manager will install a staff gauge in the deepest part of each pond (if not already present) for use in monitoring pond depth during baseline surveys and subsequent inspections. To determine the baseline habitat conditions of each pond in providing aquatic breeding habitat for California red-legged frogs and California tiger salamander, the Land Manager will inspect each pond concurrent with other tasks such as Task 1, Task 7, Task 8, Task 10, Task 12, and Task 19 during monthly visits within the ponding period (typically January through August) for the first three years of management. The inspection will consist of measuring water depth, surface extent of ponding, describing the amount and type of vegetation, documenting the condition of the berm/dam for each pond. Additionally, the Land Manager will document the depth of water and surface extent of ponding in each pond once per month from the time the pond first holds water, until the pond dries.

Task 4: Inspect Pond Hydroperiod, Surface Extent of Ponding, Vegetation, Pond Berms/Dams, and Accumulation of Sediment and Repair as Needed to determine its suitability and use as a breeding habitat for California red-legged frog and California tiger salamander

Concurrent with activities associated with Task 1, ponds will be visually monitored once a year for continued functioning as habitat for California red-legged frogs and California tiger salamander. Permanent photo-documentation points will be established during the first such pond inspection and monitoring photos taken once each year from these points. The Land Manager will inspect and document functionality of the dam, berm, and spillway as well as any negative impacts from grazing management (erosion, pond side slopes, etc.). It will be determined if the ponds are functioning properly and whether there is any need for repairs (See Task 1- Annual Walk-Through Survey).

Every five years, concurrent with Task 1, Task 7, Task 9, Task 11, Task 13, and Task 19 the Land Manager will monitor monthly (typically January to August) at the aquatic features: percent absolute vegetation cover, slope ratio, and document the water depth in each pond by reading the staff gauge

and recording water depth. Erosion and sediment deposition will also be assessed to determine whether remedial action is required to ensure the pond has appropriate hydrology to support successful breeding and metamorphosis by California tiger salamander and California red-legged frog. Additionally, during the monitoring year, during the period coinciding with aquatic breeding of the covered species, the Land Manager will document the depth of water and surface extent of ponding in each pond. Success criteria and management thresholds for these measurements will be determined in the final LTMP.

Target criteria to be measured and monitored for ponds to be determined suitable for successful breeding by California tiger salamanders and California red-legged frogs will be detailed in the final Service-approved LTMP. Criteria will include the following measurements: inundation duration of aquatic feature, minimum depth at the deepest part for the majority of the breeding season, minimum depth at the deepest part between December 1 and February 29, slope ratios of the sides of the aquatic feature, absolute emergent vegetation cover within aquatic feature. If aquatic habitat criteria are not met, but abundances of California tiger salamanders and California red-legged frogs are maintained at suitable levels for the Service and reproductive success is observed, then aquatic habitat success criteria can be amended with Service approval. Success criteria and management thresholds for these measurements will be determined in the final LTMP and will be based on average rainfall years.

The Land Manager will also inspect the integrity of the berm/dam of, and extent of sedimentation in each pond and determine if they are functioning properly and whether there is any need for repairs.

Task 5. Remove Accumulated Sediment and Vegetation from Ponds

If monitoring results indicate that a pond has lost 50% or more of its baseline ponding capacity and/or does not retain the required amount of water for California tiger salamander and California red-legged frog as determined by the suitable habitat criteria listed above in a year of average rainfall, and this reduction is due to an accumulation of sediment or vegetation, the Land Manager will remove the sediment and/or vegetation. The removal will occur in the fall when ponds have dried and California tiger salamander have metamorphosed out of the ponds. An approved

biologist will monitor the sediment/vegetation removal activity.

Objective A.2-2: Monitor and manage the Mitigation Site's upland habitat at its baseline level to maintain habitat for the Covered Species.

Task 6: Perform Baseline Upland Habitat Surveys

During the first year of the management period, the Land Manager will determine baseline upland habitat condition at the Mitigation Site that are suitable for all Covered Species. The Land Manager will conduct visual biomass surveys in upland habitats by designated monitoring plots that represent the range of conditions at the Mitigation Site. The Land Manager will estimate biomass at the monitoring plots in the spring and will conduct residual dry matter (RDM) measurements in the fall. The locations of which will be stratified according to slope and aspect prior to the first significant rain. Further clarification of methods for monitoring grazing on the mitigation site will be included in the final Service-approved LTMP. The methods for these measurement collection will be described in the final LTMP.

In addition, concentrations of California ground squirrel burrows and burrow complexes will be mapped using aerial photography and on-the ground visual observation; the presence and abundance of ground squirrels burrows/complexes will be used as a success criteria to determine suitability of upland habitat for California tiger salamander. Success criteria and management thresholds for these measurements will be determined in the final LTMP. Burrow surveys will be updated during the periodic 5-year species' surveys (Task 9 or 11).

It will be assumed that the presence and abundance of California red-legged frog and Central California tiger salamander in these uplands is being maintained if the upland habitat success criteria described here are met.

Task 7: Perform Spring Biomass Estimates and Fall RDM Measurements

Every year, the Land Manager will estimate the amount of standing biomass in upland areas. The estimates will be performed in the spring (March or April) at each of the monitoring plots established under Task 6 above. The purpose of the biomass estimates will be to provide a prediction regarding

when RDM levels will be reached so that the Land Manager can add or remove grazing as necessary to achieve target RDM levels in fall. If the Land Manager observed localized overgrazing or undergrazing, or conditions which could degrade ecological conditions for the California tiger salamander, California red-legged frog, or San Joaquin kit fox, the Land Manager will identify remedial measures. Following monitoring each year, the Land Manager will adjust management (i.e., grazing) activities to attempt to achieve adequate terrestrial habitat for CRLF and CTS movement and use. Management levels will be documented in the annual report.

The specific success criteria metrics will be detailed in the final Service-approved LTMP, but will generally target grass or stubble height during the spring and fall that is less than six (6) inches tall during the monitoring event. The initial Target range for RDM, will be between 500-1,500 lbs/ac, depending on slope (Ford et al 2013, Bartolome et al 2006). Success criteria and management thresholds for these measurements will be determined in the final LTMP. If the initial RDM monitoring results show that more optimal habitat characteristics are created for the California tiger salamanders and California red-legged frog by implementing different RDM target values then the final LTMP success criteria and management thresholds will be adjusted accordingly as determined by the Land Manager and in consultation with the Service and amended in the LTMP.

In addition to the methods described above, land management staff with range management will continue to qualitatively assess the vegetation condition on mitigation lands at least annually to help guide vegetation management. Qualitative vegetation monitoring will be conducted periodically during the year. The grazing intensity may be modified on an annual basis, based on monitoring results and management recommendations. Use of controlled burning as a management tool will not be used on the mitigation site.

Invasive plant species surveys (see Task 14) will occur annually concurrent with activities associated with this task.

Element A.3 Threatened/Endangered Animal Species Monitoring

[Note: Refinement and finalization of Species-specific objectives and tasks will need to be developed in consultation with the appropriate Signatory Agencies once the Mitigation Site is

selected]

Objective A.3-1: Monitor California red-legged frog presence, relative abundance, and reproductive success at suitable aquatic features on the mitigation site.

Task 8. Conduct a Baseline Survey for California Red-legged Frog Presence, Relative Abundance, and Reproductive Success

Conduct baseline surveys for California red-legged frog during the first three years. Survey protocols for California red-legged frog presence, relative abundance of all life stages, and reproductive success will be approved by the USFWS and incorporated here at the approval of the final LTMP.

Task 9. Conduct Surveys for California Red-legged Frog Presence, relative abundance, and reproductive success

Every five years, the Land Manager will conduct surveys for California red-legged frog tadpoles, subadults, and adults in Mitigation Site ponds. If it is determined that a different frequency is more appropriate, then the frequency of visits can be adjusted with Service approval. Survey protocols for California red-legged frog presence, relative abundance, and reproductive success will be approved by the USFWS and incorporated here at the approval of the final LTMP. More specific success criteria and management thresholds for these measurements will be determined in the final LTMP.

Objective A.3-2: Monitor California tiger salamander presence, relative abundance, and reproductive success at suitable aquatic features on the mitigation site.

Task 10. Conduct a Baseline Survey for California tiger salamander Breeding and Abundance

Conduct baseline trend surveys for California tiger salamander during the first three years. Survey protocols for California tiger salamander presence, relative abundance of all life stages, and reproductive success will be approved by the USFWS and incorporated here at the approval of the final LTMP.

Task 11. Conduct Surveys for California tiger salamander breeding

Every five years, the Land Manager will conduct larval surveys for California tiger salamanders in Mitigation Site ponds. If it is determined that a different frequency is more appropriate, then the frequency of visits can be adjusted with Service approval. Survey protocols for California tiger salamanders presence, relative abundance of all life stages, and reproductive success will be approved by the USFWS and incorporated here at the approval of the final LTMP. More specific success criteria and management thresholds for these measurements will be determined in the final LTMP.

Objective A.3-3: Monitor San Joaquin kit fox dispersal habitat suitability.

Task 12. Conduct a Baseline Survey for San Joaquin kit fox Evidence of Use

During the first three years of the management period, surveys for San Joaquin kit fox will be conducted on the Mitigation Site. Survey protocols for San Joaquin kit fox presence and/or relative abundance will be approved by the USFWS and incorporated here at the approval of the final LTMP. The success criteria for this task is to document any evidence of use of the mitigation site by San Joaquin kit fox.

Task 13. Assess San Joaquin kit fox Dispersal Habitat

Every five years, the Land Manager will conduct an additional assessment to determine if the site is suitable as San Joaquin kit fox dispersal habitat. Methods for the additional assessment may include completion of the "early evaluation requirements" from the USFWS San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999), which is designed to allow the Service to determine whether or not the project site represents kit fox habitat. The final methods for this additional assessment will be approved by the USFWS and incorporated here at the approval of the final LTMP. The site will be considered dispersal habitat if it has appropriate vegetation communities, has continuity with adjacent lands, and has a prey base and denning potential. More specific criteria for these measurements will be determined in the final LTMP.

Element A.4 Nonnative Invasive Species

Invasive species threaten the diversity or abundance of native species through competition for resources, predation, parasitism, interbreeding with native populations, transmitting diseases, or causing physical or chemical changes to the invaded habitat.

Objective A.4-1: Minimize the spread of existing nonnative invasive plants and any newly introduced invasive plants

Task 14: Conduct Surveys for Invasive Plant Species

Every year, concurrent with activities associated with Task 7, the Land Manager will conduct surveys for invasive plant species (defined as having a "High" or "Alert" status by the California Invasive Plant Council) at the Mitigation Site. The purpose of the surveys will be to determine whether new invasive species are present or whether the distributions of existing invasive species are expanding. Success criteria for Task 14 is to minimize absolute cover of invasive plants on the mitigation site so they do not degrade habitat for the covered species. Success criteria will be determined in the final Service-approved LTMP but will be aimed at maintaining (if present condition is considered acceptable by the Service) or decreasing invasive species on the mitigation site. More specific success criteria and management thresholds for these measurements will be determined in the final LTMP and after baseline surveys.

Task 15: Prioritize and Treat Populations of Invasive Plants

The surveys described under Task 14 will form the basis for determining whether substantial change, relative to baseline conditions, in invasive plant distributions or abundance have occurred, and the necessity of treatment efforts. The Land Manager will determine and prioritize treatment needs based on which plant species have the greatest potential for spread or those with the greatest risk of degrading habitat for covered species. The Land manager will treat invasive plant occurrences through the use of hand removal, small powered or handheld equipment. The use of herbicides will be avoided to the maximum extent practicable at the Mitigation Site and will only be used if approved by the USFWS and CDFW. If necessary, an Herbicide Application Plan will be reviewed and approved by USFWS and CDFW to assure that no adverse effects will occur to listed species. Success criteria for Task 15 is to minimize absolute cover of invasive plants on the mitigation site so they do not degrade habitat for the covered species.

Success criteria will be determined in the final Service-approved LTMP but will be aimed at maintaining (if present condition is considered acceptable by the Service) or decreasing invasive species on the mitigation site. More specific success criteria and management thresholds for these measurements will be determined in the final LTMP and after baseline surveys.

Objective A.4-2: Avoid an increase in the number of fish, crayfish, and bullfrogs in amphibian breeding ponds relative to baseline levels

Task 16. Conduct Observations of Nonnative Animals

During the annual walk-through (Task 1) and during periodic surveys for California red-legged frog and California tiger salamander (conducted every 5 years), the Land Manager will also conduct surveys for nonnative aquatic or amphibious species (i.e., fish, crayfish, and bullfrogs). If the Land Manager captures bullfrogs (including tadpoles), crayfish, or fish during surveys, they will be immediately dispatched by the Land Manager to prevent competition with covered species. No bullfrogs, crayfish, or other invasive predator populations will be allowed on the mitigation site. More specific success criteria and management thresholds for these measurements will be determined in the final LTMP and after baseline surveys.

Task 17. Perform Nonnative Animal Management

The Land Manager will implement measures as needed to control bullfrogs, crayfish, and fish. No bullfrogs, crayfish, fish, or other invasive predator populations will be allowed on the mitigation site. Methods used to manage nonnative animals will include their capture and removal by seine or dipnet, nighttime removal, or as a last resort, drawdown or dewatering of a pond. Dewatering or drawdown would occur in September or October, after larvae of the California red-legged frog and California tiger salamander have metamorphosed, leaving bullfrog tadpoles, crayfish, and/or fish in the pond.

B. Security, Safety, and Public Access

The Mitigation Site will be fenced and shall have no general public access, nor any regular public or private use. Research and/or other educational programs or efforts may be

allowed on the Mitigation Site as approved by the Signatory Agencies but are not specifically funded or a part of this long-term management plan.

Potential wildfire fuels will be reduced as needed by mowing in areas where approved by the Signatory Agencies.

Element B.1 Trash and Trespass

Objective B.1-1: Monitor sources of trash, vandalisms, and trespass.

Task 18: During each site visit, record occurrences of trash and/or trespass. Record type, location, and management mitigation recommendations to avoid, minimize, or rectify a trash and/or trespass impact.

The Land Manager will monitor for sources of trash, vandalisms and trespass during the annual walk-through (Task 1), spring biomass estimates and fall RDM surveys (Task 7), and trash removal (Task 19), conducted each year during the management period.

Objective B.1-2: Collect and remove trash, repair vandalized structures, and rectify trespass impacts.

Task 19: At least once yearly, and as necessary, collect and remove as much trash and repair and rectify vandalism and trespass impacts.

The Land Manager will collect and remove trash and repair vandalized structures as needed during the management period.

Element B.2 Fire Hazard Reduction

Objective B.2-1: Maintain the site as required for fire control while limiting impacts to biological values.

Task 20: Mow or graze to reduce vegetation in areas required by authority agency(ies), and as approved by the Signatory Agencies, for fire control.

The Land Manager will reduce vegetation to control fire danger. Use of controlled burning as a management tool will not be used on the mitigation site unless approved by the Service. Success criteria for this task will be further described in the final Service-approved LTMP.

C. Infrastructure and Facilities

[*Fence and gate maintenance and repair frequency will be dependent on trespass and access control issues, as well as whether grazing is utilized as a vegetation management technique and to what extent.]*

Element C.1 Fences, Gates, and Roads

Objective C.1-1: Monitor and maintain fences and gates to prevent casual trespass, allow administrative access, and [if applicable: facilitate grazing regime and management.]

Task 21: Inspect and Repair Fencing, Associated Gates, and Access Roads

The Land Manager will inspect fencing, gates, and roads during the annual walk-through (Task 1), spring biomass estimates and fall RDM surveys (Task 7), and trash removal (Task 19) conducted each year of the management period. If after five years, it is determined that a reduced frequency is more appropriate, then the frequency of visits can be reduced with Service approval. The Land Manager will look for gaps in the barbed wire or downed barbed wire and dislodged or broken fence posts. The Land Manager will also inspect the gates in the fencing to ensure they are functioning correctly. If any of the fencing or gates need to be repaired, the Land Manager will make the repairs, as needed. All fencing will be done in a manner that allows access to and from the site by covered species. The Land Manager will inspect roads for evidence of erosion or other issues to ensure that access roads are suitable for site access and site management. Roads will be maintained and repaired as necessary.

Task 22. Inspect and Repair Livestock Watering Troughs and/or Livestock Improvements

The Land Manager will inspect livestock management improvements during the annual walk-through (Task 1) to ensure they are in proper working order. If any of the improvements need to be repaired, the Land Manager will make the repairs.

D. Reporting and Administration

Element D.1 Annual Report

Objective D.1-1: Provide annual report on all management tasks conducted and general site conditions to Signatory Agencies and any other appropriate parties.

Task 23: Prepare an Annual Report

The Land Manager will submit an annual report to the Signatory Agencies by February 15, which will include a detailed description of the condition of the Mitigation Site; a description of the results of any monitoring activities completed in the previous calendar year; management actions taken at the Mitigation Site; an accounting of funds expended in the management of the Mitigation Site; and recommendations for adaptive management actions to be undertaken in subsequent years. The annual report will also measure and assess the progress in achieving the goals and objectives specifically detailed in this LTMP. The annual report will describe the methods used to collect and analyze the data, the results of the data analysis, a discussion of the results, and conclusions regarding the present condition of the Mitigation Site. The annual report will include any recommended changes to the management plan or monitoring regime, any remedial actions that are necessary or that were taken, and an analysis of relationships between monitoring results and objectives. Representative photographs will be included.

Specific data to be included and analyzed in this report includes monthly rainfall data; results of the hydrological monitoring (including maximum water depth in late April and May when California red-legged frog and Central California tiger salamander surveys will be conducted); species composition and percent cover of vegetation around the ponds; results of California red-legged frog and Central California tiger salamander larval surveys; any incidental sightings of California red-legged frogs, Central California tiger salamanders, bullfrogs, crayfish, and fish; results of photographic monitoring; and restoration and management recommendations and remediation needs. A summary of grazing indicators (e.g., monitoring of RDM) will be included in the report as appropriate.

The Reviewing Agencies may provide comments on the report and request a meeting to discuss the comments and any changes for the following year. In this case, the Land Manager will schedule a meeting with the interested

parties to review and discuss the recommendations made in the annual report and any agency comments. The meeting will be scheduled within 30 days of the release of the annual report, so that the results and recommendations of the report can be discussed prior to required approvals. The purpose of the annual report and meeting is to evaluate and discuss the efficacy of past management and identify changes to monitoring and/or management strategies for the following year.

V. Avoidance and Minimization Measures

California Tiger Salamander and California Red-legged Frog

The Land Manager will implement the following AMMs during selected maintenance and management activities, such as pond repair and sediment removal, to address any impacts related to operations and maintenance activities on the mitigation site and with maintenance of California red-legged frog and Central California tiger salamander habitat. All Best Management Practices (BMPs) included below may be modified to accommodate changes to needs and conditions as they are implemented over time.

1. For all activities involving ground disturbance, BMPs designed to prevent activity-related discharge into surface waters will be implemented. BMPs for water quality will be implemented during all activities in upland areas where runoff could transport materials, to minimize mobilization of sediments and other harmful materials into downstream areas. These BMPs must consider not only mobilization of sediments during ground disturbance (which will likely occur primarily in dry conditions), but also the potential for sediments loosened by ground disturbing activities to be moved downstream during the following wet season. These BMPs will address at least the following items: mobilization of sediment due to gravity, erosion, or runoff during ground disturbing activities; potential spills of fuel or other chemicals into aquatic habitats; operation of equipment in flowing water; and stabilization (e.g., with vegetative cover) of any bare soils to prevent erosion and sedimentation. With the exception of sediment removal, berm/dam repair, and outlet repair at ponds, most management and maintenance activities will involve minimal soil disturbance and would therefore have little potential to result in discharge of sediment or other

materials into wetlands and other waters. As a result, BMPs will be tailored to individual activities.

2. Areas that are temporarily affected by ground disturbing activities will be restored to pre-existing or better condition upon completion of work (e.g., by seeding with an appropriate herbaceous seed mix to inhibit colonization of disturbed areas by invasive plants).
3. On-site monitoring by a FWS- and CDFW- approved biologist will be performed throughout the proposed work to ensure compliance with work limits, BMPs, and wildlife associated restrictions.
    a. Prior to any ground disturbance, an FWS- and CDFW-approved biologist will survey the action area for listed species and will subsequently monitor work activities. This survey will permit the biologist the opportunity to observe whether there are any listed animal or plant species that may be salvaged before or during ground-disturbing activities.
    b. During ground-disturbing activities, the FWS- and CDFW-approved biologist will be as close to the excavation as safety protocols will permit to observe whether there are any listed animal or plant species that may be salvaged before or during ground-disturbing activities. The distance at which observations will occur will be determined based on coordination between the biologist and the site safety officer.
    c. The FWS- and CDFW-approved biologist will keep daily field logs and take photographs to document how the observations were performed.
4. The names and credentials of biologists specified for this project will be submitted to the Service. Credentials shall include species-specific training hours, Protocol-level survey hours, life-stages observed and handled. The biologist will be approved by the Service to handle the species of question at the site.
5. Any biologist performing pre-activity surveys, monitoring during management, maintenance, and operation activities, or relocation of Covered Species will have been approved by the Service in advance. The approved biologist shall be given the authority to stop any work that may result in the take of listed species. If the approved biologist exercises this authority, the Reviewing Agencies shall be notified by telephone and electronic mail within one (1) working day. The approved biologist will be the contact for any employee or contractor who might

inadvertently kill or injure a Covered Species or anyone who finds a dead, injured, or entrapped individual of these species. The approved biologist shall possess a working cellular telephone whose number shall be provided to the Service. If a species is only injured it should be taken to the Lindsay Wildlife Rehabilitation Hospital or another Service-approved facility. Equipment intended to be used for project activities will be inspected by a FWS- and CDFW-approved biologist for the presence of invasive weed species before it is mobilized into the project area. If weed species are observed or expected, the equipment will be cleaned prior to mobilization into the project area.

6. Project personnel will immediately report any observed mortality of Covered species to the on-site Service-approved biologist. The Service approved biologist will then identify the carcass. If the carcass is that of a listed species, the approved biologist will report it to the Service within 24 hours.
7. A Worker Environmental Awareness Program (WEAP) will be given to all personnel before the commencement of any vegetation clearing or ground-disturbing activities. An approved biologist will explain to construction workers how best to avoid the accidental take of Covered Species. This training session will be required as a mandatory informational field meeting for contractors and all construction personnel. Interpretation will be provided for non-English speaking workers. The field meeting will include information on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of relevant AMMs. Handouts, illustrations, photographs, and maps showing areas where minimization and avoidance measures must be implemented will be included as part of this education program. The WEAP will increase the awareness of the contractors and construction workers about existing federal and state laws regarding endangered species, as well as increase their compliance with all local, state, and federal permit conditions. When new personnel are added to the project, they will receive the mandatory training before starting work. Proof of worker attendance will be kept on file by the Land Manager.
8. Relocation of any Covered Species will occur according to the relocation plan approved by the Service. The plan identifies appropriate relocation methods and sites for any adult, juvenile, or larval Central

California tiger salamander or California red-legged frog that may be observed during the pre-activity surveys or during biological monitoring and that may need to be relocated. The Reviewing Agencies will approve this relocation plan by virtue of approving this LTMP.

9. Ground-disturbing activities, including vegetation removal that results in soil disturbance, will be performed between 30 April and October 15 (or the first measurable fall rain of 1 centimeter) to minimize the potential for impacts on California red-legged frogs and Central California tiger salamanders moving aboveground. Ground-disturbing activities may occur outside this work window only with the Service approval. Planting may continue during the wet season within established work areas without the need for additional approval by the Service. No work will be scheduled during or within 24 hours after a forecasted rain event, to the extent possible. Before work resumes after a rain event and before project ground-disturbing activities continue, an Service-approved biologist will inspect the work area for the presence of CTSs. If either species are located during these surveys, they will be relocated as instructed by the FWS. Decontamination of excavation equipment will be in accordance with an approved sampling and analysis plan (SAP).
10. Activities involving large amounts of ground disturbance (sediment removal or berm/dam repair) and that directly impact habitat that is ponded at the time of construction (i.e., ponds or pools within creeks) shall occur during the July–October period to avoid the period when California red-legged frog and Central California tiger salamander larvae are most likely to be present. In-water work will take place as late as feasible within this work window. For seasonal waterbodies that are dry (i.e., that have no surface water) when the activity occurs, the upland work window described in the preceding bullet shall apply.
11. All vehicles will observe a 20 mile-per-hour speed limit within the Mitigation Area (this does not apply on City and County roads and State highways).
12. Work within the Mitigation Site will be limited to daylight hours from 30 minutes after sunrise until 30 minutes before sunset unless the Reviewing Agencies provide written approval, on a site-by-site or activity-by-activity basis, for performance of work during other times. The Reviewing Agencies may require the implementation of additional

avoidance measures (i.e., restrictions on lighting or on work during rain events) for night work.

13. California red-legged frogs and Central California tiger salamanders are attracted to structures providing cavities such as pipes, and they may enter stored pipes and become trapped. All pipes, culverts, or similar structures that are stored at ground level in a work area for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the approved biologist for these animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Central California tiger salamander or California red-legged frog is discovered inside a pipe, the approved biologist will move the animal to a safe nearby location in accordance with the species relocation plan.
14. To eliminate an attraction to the predators of the Covered Species all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed from any work site daily.
15. Any contractor, employee, or agency personnel who inadvertently kills or injures a Covered Species during management, maintenance, or operations activities will immediately report the incident to an approved biologist. The biologist will contact the Reviewing Agencies to report the dead or injured animal via electronic mail and telephone within one working day. In addition, any incidental take of listed species in the form of death or injury will be tracked and, within five days, reported to the Reviewing Agencies along with a summary of the cumulative take of individuals to date.
16. All vehicles and equipment refueling will occur at least 200 feet from wetlands. An exception is provided if a bermed and impermeable fabric-lined fueling area is constructed, and a spill kit is located at the fueling station
17. If erosion control materials are used for any management or maintenance activity, tightly woven fiber netting or similar material will be used for erosion control or other purposes to ensure that individuals are not trapped. Plastic monofilament netting (erosion control matting) or similar material will not be used because California red-legged frogs and Central California tiger salamanders may become entangled or trapped in it.

18. To prevent inadvertent entrapment of individuals during ground disturbance activities, the on-site biologist and/or construction foreman/manager will ensure all excavated, steep-walled holes or trenches more than 1-foot deep, are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the approved biologist. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals by the approved biologist and/or designated construction monitor. If at any time a trapped Central California tiger salamander or California red-legged frog is discovered, the approved biologist will move the animal in accordance with the relocation plan.
19. An approved biologist will be present to monitor all ground-disturbing management and maintenance activities within the Mitigation Site that may result in take of the Covered Species. If one of the Covered Species is observed in a work area, all work that could potentially harm the individual will be stopped until the approved biologist has moved the individual out of the work area in accordance with the approved species relocation plan.
20. To protect amphibians from mowers that may be used to clear grass prior to project implementation, mower blades will be adjusted to a height of 125–150 mm to allow clearance of amphibians that may be sheltering in the grass.
21. When practicable, holes and trenches will be backfilled at the end of each day, or wildlife-compatible ramps created, to prevent wildlife entrapment.
22. Where possible, ground-disturbing activities will avoid burrows and burrow complexes.
23. Prior to stepping in ponds on the mitigation site, all workers will spray bleach solution for decontamination procedures. Boots should be decontaminated appropriately before stepping onto the mitigation site.
24. An approved biologist will monitor berm/dam repair and sediment/vegetation removal, activities that have the greatest potential for resulting in injury or mortality of California red-legged frogs or California tiger salamanders. The approved biologist will monitor ensuring the following avoidance and minimization measures are implemented during habitat management activities.
    - Repair of failing berms/dams or removal of sediment/vegetation

from ponds will occur between September 1 and October 15 unless the pond is otherwise dry.

- Unless off-road travel is required to access ponds, vehicles will be restricted to roads. If off-road travel is needed to deliver supplies to the ponds the Land Manager will avoid wetlands, sensitive habitats, and ground squirrel burrows, to the extent feasible**.**
- Within 7 days prior to berm/dam repair or removal of silt, the work site will be surveyed by an authorized biologist for the presence of individuals of California red-legged frogs or California tiger salamanders. If water is present in the pond, the survey will involve using a dip net or seine to sample the ponded water for larval individuals.
- If the biologist detects individuals of any life stage of the covered species and determines that they are in harm's way, the biologist will capture and relocate these individuals to nearby appropriate aquatic or upland habitat as outlined in a relocation plan.
- The biologist will monitor the repair activity and will be the contact for any worker who finds a dead, injured, or entrapped individual of California red-legged frog or California tiger salamander.

25. If drawdown of a pond is necessary to control nonnative animals or repair failing berms/dams or to remove sediment/vegetation from ponds, the Land Manager will draw down the pond in which nonnatives need to be controlled in September or October, after larvae of the California red-legged frog and California tiger salamander have metamorphosed, leaving bullfrog tadpoles (which typically require two seasons to develop and metamorphose), crayfish, and/or fish in the pond.
    a. If a pump is used to draw down the pond, measures will be implemented to prevent aquatic organisms from being drawn in.
    b. An approved biologist will monitor the drawdown to ensure that California red-legged frogs and California tiger salamanders are not harmed by the drawdown activity.
    c. If larvae are detected, the biologist will capture and relocate these larvae to nearby appropriate aquatic habitat per an approved relocation plan.
    d. All individuals working in aquatic habitat will adhere to *the Equipment Decontamination Protocol for Field Staff in Sequoia and Kings Canyon National Parks*

(https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/SEKI_DecontaminationProtocol_2014.pdf) or other current USFWS protocol for decontamination to prevent the spread of Amphibian diseases (e.g. boots and waders should be decontaminated appropriately).

e. The biologist will dispatch any bullfrog larvae, fish, or crayfish detected during the drawdown and pond will be kept dry long enough to ensure that any remaining individuals have died.

San Joaquin Kit Fox

The following measures will be incorporated during management and monitoring activities at the mitigation site to avoid and minimize effects on San Joaquin kit fox.

26. The guidelines described in U.S. Fish and Wildlife Service 2011, or the most recent version of these guidelines will be implemented, except as modified by other measures below. The applicant will inquire with the Service yearly to obtain the most recent guidelines.
27. If it is determined that management and monitoring activities could disturb denning kit fox, pre-work surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of ground disturbance, or any activity likely to affect San Joaquin kit fox. The biologists shall conduct den searches by systematically walking transects through the project site and a buffer area to be determined in coordination with the Service. Transect distance will be based on the height of vegetation such that 100% visual coverage of the project site is achieved. If a potential or known den is found during the survey, the biologist will measure the size of the den, evaluate the shape of the den entrances, and note tracks, scat, prey remains, and recent excavations at the den site. Dens will be classified into the den status categories defined by the Service (Service 2011). A report of the preconstruction survey shall be submitted to the Service for review and approval.
28. If potential den sites are located they shall be monitored by a biologist approved by the
Service. The biologist will use an infrared beam camera and track plates or powder, to determine if the den is currently being used. The camera and track plates will be placed at the burrow for a minimum of 5 consecutive days. Other signs of occupancy (e.g., scat, fur) will be

searched for in and around the burrow and, if found, documented with photographs.

29. San Joaquin kit fox are attracted to den-like structures such as stored pipes. All construction pipes, culverts, or similar structures with a 4-inch or greater diameter that are stored at the construction site for one or more overnight periods shall be closed off at both ends and thoroughly inspected before they are buried, capped, or otherwise used or moved in any way. If a kit fox is discovered in a pipe, that section of pipe shall not be moved until the kit fox is allowed to leave unimpeded or the Service have been consulted.

    All materials staged on the project site, and especially in staging areas, shall be spaced so as to not provide areas suitable for Covered Species to seek shelter. At no time shall materials be haphazardly piled on the project sites. All materials shall be inspected thoroughly by the biological monitor prior to being moved.

30. Construction activities shall be prohibited within exclusion zones around suitable burrows,

    based on their type. If any San Joaquin kit fox dens or potential dens are found during

    preconstruction surveys, the status of the dens shall be evaluated prior to project ground

    disturbance. The configuration of exclusion zones around San Joaquin kit fox dens should have the radius measured outward from the entrance or cluster of entrances, as follows.

    - *Potential den*: a 50-foot avoidance buffer will be used when kit fox occupation is expected but not confirmed.
    - *Known den:* a 100-foot avoidance buffer will be used if kit fox activity is observed.
    - *Natal/pupping den:* the Wildlife Agencies must be contacted.

31. Rodenticide, herbicide, and pesticide use is prohibited on the mitigation site unless approved by the Service for specific use.

VI. Adaptive Management

Adaptive management means an approach to natural resource management which incorporates changes to management practices, including corrective actions as determined to be appropriate by the Signatory Agencies in discussion with the land manager. Adaptive management includes those activities necessary to address the effects of climate change, fire, flood, or other natural events,

force majeure, etc. Before considering any adaptive management changes to the long-term management plan, the Signatory Agencies will consider whether such actions will help ensure the continued viability of the Mitigation Site's biological resources.

The management tasks described in this LTMP and the monitoring required to ensure the performance goals are being met are based on existing conditions, experience managing habitat for the target species and experience monitoring ponds for California red-legged frog and California tiger salamander. While monitoring and conducting management activities within the Mitigation Site, modifications to plan requirements or new actions to improve land management may be identified. The most likely area of possible adaptations will be in grazing management. All proposed adaptations will first be proposed for approval in an annual report to the Signatory Agencies. Once approved, adaptations will be incorporated into the LTMP requirements.

VII. Transfer, Replacement, Amendments, and Notices

A. Transfer

Any subsequent transfer of responsibilities under this long-term management plan to a different land manager shall be requested by the land manager in writing to the Signatory Agencies, shall require written approval by the Signatory Agencies, and shall be incorporated into this long-term management plan by amendment. Any subsequent Property Owner assumes land manager responsibilities described in this long-term management plan and as required in the Conservation Easement, unless otherwise amended in writing by the Signatory Agencies.

B. Replacement

If the land manager fails to implement the tasks described in this long-term management plan and is notified of such failure in writing by any of the Signatory Agencies or the conservation easement grantee, land manager shall have 90 days to cure such failure. If failure is not cured within 90 days, land manager may request a meeting with the Signatory Agencies to resolve the failure. Such meeting shall occur within 30 days or a longer period if approved by the Signatory Agencies. Based on the outcome of the meeting, or if no meeting is requested, the Signatory Agencies may designate a replacement land manager in writing by amendment of this long-term management plan. If land manager fails to designate a replacement land manager, then such public or private land or resource management organization acceptable to and as directed by the Signatory Agencies may enter onto the Mitigation Site property in order to fulfill the purposes of this long-term management plan.

C. Amendments

The land manager**,** property owner**,** and the Signatory Agencies may meet and confer from time to time, upon the request of any one of them, to revise the long-term management plan to better meet management objectives and preserve the habitat and conservation values of the Mitigation Site. Any proposed changes to the long-term management plan shall be discussed with the Signatory Agencies and the land manager. Any proposed changes will be designed with input from all parties. Amendments to the long-term management plan shall be approved by the Signatory Agencies in writing. Plan amendments shall be required management components and shall be implemented by the land manager.

If the CDFW or USFWS determine, in writing, that continued implementation of the long-term management plan would jeopardize the continued existence of a state or federally listed species, any written amendment to this long-term management plan, determined by either the CDFW or USFWS as necessary to avoid jeopardy, shall be a required management component and shall be implemented by the land manager.

D. Notices

Any notices regarding this long-term management plan shall be directed as follows:

Land Manager (name, address, telephone and FAX)

_____

_____

_____

_____

Property Owner (name, address, telephone and FAX)

_____

_____

_____

_____

Conservation Easement Holder (name, address, telephone and FAX)

_____

_____

_____

_____

Signatory Agencies:

U.S. Fish and Wildlife Service
Sacramento Office
2800 Cottage Way, Room W-2605
Sacramento, CA 95825
Attn: Field Supervisor
Telephone: 916-414-6600
Fax: 916-414-6710

California Department of Fish and Wildlife
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
Attn: Regional Manager
Telephone:
Fax:

California Department of Fish and Wildlife
Habitat Conservation Branch
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

Attn: Branch Chief

Telephone: 916-653-4875

Fax: 916-653-2588

VIII. Funding and Task Prioritization

A. Funding

[*The list of tasks in Table 2 is not meant to be exhaustive and some potential mitigation sites may have more elements to consider and some may have fewer depending on the attributes of the Mitigation Site chosen.*]
Table 2 summarizes the anticipated costs of long- term management for the Mitigation Site. These costs include estimates of time and funding needed to conduct the basic long term monitoring and management actions described here and listed in Table 1 above.

The total annual funding anticipated is approximately $_____ for long-term management, therefore, with the current annual estimated capitalization rate of,____ the total endowment amount required for long-term management and monitoring activities on the Mitigation Site in a manner consistent with this long-term management Plan will be $_____.

A qualified, USFWS-approved, non-profit organization or government agency shall hold the endowment principal and interest monies as required by law in the Special Deposit Fund, or a subsequent state authorized trustee fund, which consists of monies that are paid into it in trust pursuant to law, and is appropriated to fulfill the purposes for which payments into it are made. These interest monies will fund the long-term management, enhancement, and monitoring activities on habitat lands in a manner consistent with this long-term management plan.

Land manager shall consult with the conservation easement holder on a year to year basis to determine the amount of funding available for management and monitoring activities. Following annual management activities, land manager may invoice the conservation easement holder for management activities following the invoicing instructions provided by the conservation easement holder.]

B. Task Prioritization

Due to unforeseen circumstances, prioritization of tasks, including tasks resulting from new requirements, may be necessary if insufficient funding is available to accomplish all tasks. The land manager and the Signatory Agencies shall discuss task priorities and funding availability to

determine which tasks will be implemented. In general, tasks are prioritized in this order: 1) required by a local, state, or federal agency; 2) tasks necessary to maintain or remediate habitat quality; and 3) tasks that monitor resources, particularly if past monitoring has not shown downward trends. Equipment and materials necessary to implement priority tasks will also be considered priorities. Final determination of task priorities in any given year of insufficient funding will be determined in consultation with the Signatory Agencies and as authorized by the Signatory Agencies in writing.

Appendix E

Endowment Cost Estimate

Table E-1. Conservation Easement Management and Monitoring Cost Estimate

Task List	Description	Unit	Level of Effort[1] Land Mgr Hr	Cost	$175 Sr. Tech Hr	Cost	$120 Tech Hr	Cost	$90 Field Crew Hr	Cost	$75 Admin Staff Hr	Cost	Materials $75 Cost	Qty	Miles	Mileage Cost 0.58 current IRS rate	Qty	Total	Frequency (years)	Frequency[2]	Cost Per Year	Stewardship Endowment	Assumptions
I. Introduction (No Action)																							
II. Property Description (No Action)																							
III. Habitat and Species Description (No Action)																							
IV. Management and Monitoring (Actions under Individual Elements)																							
Element A1. Waters of the US and Wetlands																							
Task 1. Annual walk-through		Hours			$0	10	$1,200		$0		$0		$0		100	$58	1	$1,258	1	1	$1,258	$35,943	Materials cost is 100 mile round trip x 0.58/mile
Task 2. Reference photos																							
Establish reference photos and prepare a site map (once)		Hours			$0	0	$0		$0		$0	2	$150					$150	0	0 NA	NA		Done at the same time as baseline survey tasks, no additional field work cost included on this line.
Monitor reference photos (assumed every 5 years)		Hours			$0	0	$0		$0		$0		$0					$0	5	0.2	$0	$0	Done at the same time as task 1, no additional cost included on this line.
Element A2. Covered Habitat																							
Task 3. Install and Repair Staff Gauges																							
Baseline Pond Inspection (first three years)		Hours			$0		$0	8	$720		$0		$0					$720	0	0 NA	NA		Up to 8 visits per year conducted mostly concurrently with Tasks 1, 7 (2 visits under Task 7), 8, 10, 12, and 19, plus another staff day for a winter visit.
Install staff gauge (once)		Hours			$0		$0	8	$720		$0		$0	$50	1	100 $58		$828	0	0 NA	NA		Assumes one pond needs a gauge. Cost of gauge is $50 plus 100 mile round trip.
Replace Gauge (assumed every 28.5 years)		Hours			$0		$0	8	$720		$0		$0	$50	1	100 $58		$828	28.5	0.035	$29	$828	
Task 4. Inspect ponds and repair, inspection hydroperiod																		$0					
Visual Monitoring of Ponds (annually)		Hours			$0		$0	8	$720		$0		$0			$0	1	$720	0	0	$0	$0	Done at the same time as task 1, no additional cost included on this line.
Inspect Pond hydrology and habitat suitability (every 5 years)		Hours			$0		$0	8	$720		$0		$0		100	$58	1	$778	5	0.2	$156	$4,446	Up to 8 visits per 5 year survey conducted mostly concurrently with Tasks 1, 7 (2 visits under Task 7), 9, 11, 13, and 19, plus another staff day for a winter visit.
Repair Ponds (assumed every 10 years)		Hours			$0		$0	10	$900	10	$750		$0	$500	1	100 $58	1	$2,208	10	0.1	$221	$6,309	Assumes one day and one piece of equipment to remove sediment each visit. Equipment cost of $500 and 100 miles.
Task 5. Remove sediment from ponds (assumed every 10 years)		Hours			$0		$0	10	$900	10	$750		$0	$500	1	100 $58	1	$2,208	10	0.1	$221	$6,309	Assumes one day and one piece of equipment to remove sediment each visit. Equipment cost of $500 and 100 miles.
Task 6. Baseline Upland Surveys																		$0					One person for one day. Plus 100 miles.
Establish biomass estimate and RDM monitoring sites (once)		Hours			$0	8	$960		$0		$0		$0		100	$58	1	$1,018	0	0 NA	NA		
Ground Squirrel Burrow mapping (once)		Hours			$0	8	$960		$0		$0		$0		100	$58	1	$1,018	0	0 NA	NA		
Ground Squirrel Burrow Survey Updates (every five years concurrent with species surveys)		Hours			$0		$0		$0		$0		$0			$0	1	$0	5	0.2	$0	$0	Done at the same time as Task 9 and 11, no addition field work cost included on this line.
Task 7. Spring Biomass Estimates and Fall RDM Measurements																		$0					
Spring Biomass estimates (annually in the spring)		Hours			$0		$0		$0	10	$750		$0		100	$58	1	$808	1	1	$808	$23,086	1 person day plus 100 mile round trip.
RDM Survey (annually in the fall)		Hours			$0		$0		$0	10	$750		$0		100	$0	1	$750	1	1	$750	$21,429	1 person day plus 100 mile round trip.
Element A3. T&E Wildlife																							
Task 8. Baseline CRLF survey (first three years)		Hours			$0	30	$3,600		$0		$0		$0		300	$174	1	$3,774	0	0 NA	NA		Tasks 8, 10, and 12 would be conducted concurrently each year and a total 3 biologist days is available each year for surveys. Also includes 100 mile round trip each year.
Task 9. CRLF suvey (every 5 years)		Hours			$0	10	$1,200		$0		$0		$0		100	$58	1	$1,258	5	0.2	$252	$7,189	Tasks 9, 11, and 13 would be conducted concurrently each 5 year survey and a total 3 biologist days is available each 5 year survey. Also includes 100 mile round trip each 5 year survey.
Task 10. Baseline CTS survey (first three years)		Hours			$0	30	$3,600		$0		$0		$0		300	$174	1	$3,774	0	0 NA	NA		Tasks 8, 10, and 12 would be conducted concurrently each year and a total 3 biologist days is available each year for surveys. Also includes 100 mile round trip each year.
Task 11. CTS survey (every 5 years)		Hours			$0	10	$1,200		$0		$0		$0		100	$58	1	$1,258	5	0.2	$252	$7,189	Tasks 9, 11, and 13 would be conducted concurrently each 5 year survey and a total 3 biologist days is available each 5 year survey. Also includes 100 mile round trip each 5 year survey.
Task 12. Baseline SJKF survey (first three years)		Hours			$0	30	$3,600		$0		$0		$0		300	$174	1	$3,774	0	0 NA	NA		Tasks 8, 10, and 12 would be conducted concurrently each year and a total 3 biologist days is available each year for surveys. Also includes 100 mile round trip each year.
Task 13. SJKF dispersal habitat survey (every 5 years)		Hours			$0	10	$1,200		$0		$0		$0		100	$58	1	$1,258	5	0.2	$252	$7,189	Tasks 9, 11, and 13 would be conducted concurrently each 5 year survey and a total 3 biologist days is available each 5 year survey. Also includes 100 mile round trip each 5 year survey.
Element A4. Invasive Species																							
Task 14. Conduct surveys for invasive plants (annually)		Hours			$0	0	$0	0	$0		$0		$0			$0	1	$0	1	1	$0	$0	Done at the same time as task 7, no additional cost included on this line.
Task 15. Prioritize and Treat invasive plants (assumed every 5 years)																							
Herbicide Application Plan Preparation and Approval		Hours			$0		$0		$0	10	$750		$0		100	$58	1	$808	5	0.2	$162	$4,617	
Treatment		Hours			$0		$0		$0	10	$750		$0	$500	100	$58	1	$1,308	5	0.2	$262	$7,474	Assumes one staff to treat invasives. Plus $500 in eqipment or herbicide and 100 mile round trip.
Task 16. Conduct observations of nonnative animals (annually)		Hours			$0		$0	0	$0		$0		$0			$0	1	$0	1	1	$0	$0	Done at the same time as task 1, no additional cost included on this line.
Task 17. Perform nonative animal management (assumed every 5 years)		Hours			$0		$0	10	$900	10	$750		$0		100	$58	1	$1,708	5	0.2	$342	$9,760	Assumes one field crew for one day. Plus 100 mile round trip.
Element B1. Trash and Tresspass																							
Task 18. Trash, vandalisms, and trespass monitoring (annually during each site visit)		Hours			$0		$0		$0	0	$0		$0		0	$0		$0	1	1	$0	$0	Done at the same time as task 1, no additional cost included on this line.
Task 19. Trash and vandalism removal and cleanup (annually)		Hours			$0		$0		$0	10	$750		$0	$100	100	$58	1	$908	1	1	$908	$25,943	Assumes one visit per year. Plus 100 miles round trip and $100 in dumping fees.
Element B2. Fire Hazard Reduction																							
Task 20.1 Reduce vegetation for fire control (assumed every 5 years)		Hours			$0		$0		$0	10	$750		$0	$250			1	$1,000	5	0.2	$200	$5,714	Assumes mowing event is required every 5 years. Grazing is typically sufficient to control vegetation on an annual basis.
Element C1. Fences and Gates																							
Task 21. Inspect and Repair Fencing, Associated Gates, and Access Roads		Hours																					
Inspect fence, gates, and roads (annually during each site visit)		Hours			$0		$0		$0	0	$0		$0					$0	1	1	$0	$0	Done concurrent with Task 1, Task 7 (two separate site visits), and Task 19, totaling 4 times/year. No additional cost included on this line.
Repair of fencing, gates, and roads (assumed every 5 years)		Hours			$0		$0		$0	10	$750		$0	$500	100	$58		$1,308	5	0.2	$262	$7,474	Assumes fencing, gate or road repair is needed every 10 years. $5.00 per linear foot of fencing x up to 50 feet need repair equals $250 in fencing. Plus $250 equipment rental for road repairs. Plus mileage.
Task 22. Inspect and Repair Livestock Improvements																							
Inspect Livestock Improvements (annually)		Hours			$0		$0		$0	0	$0		$0					$0	1	1	$0	$0	Done at the same time as task 1, no additional cost included on this line.
Repair Livestock Improvements (assumed every 10 years)		Hours			$0		$0		$0	8	$600		$0		100	$58		$658	10	0.1	$66	$1,880	Assumes livestock improvement repair is needed every 10 years. Plus 100 mile round trip.
Element D1. Annual Report																							
Task 23. Prepare annual report (including meeting with agencies)		Hours	4	$700		8	$960	8	$720	10	$750		$0	$200	100	$58	1	$3,388		1	$3,388	$96,800	Assumes prep of report and one meeting with agencies (if needed) to discuss. Travel to meeting is assumed at 100 mile round trip. Also includes miscellaneous expenses totalling $200 per year. Other administrative costs are covered under "administration and operations costs below.
V. Avoidance and Minimization Measures (Actions would be triggered by individual elements above)																							
Biological monitoring and implementation of AMM's		Hours	0	$0		12	$1,440	2	$180	0	$0		$0		100	$0	1	$1,620	5	0.2	$324	$9,257	Assumes implementation of AMMs is required every 5 years.
VI. Adaptive Management (Actions would occur under Individual Elements Above)																							
VII. Transfer, Replacement, Amendments and Notices (No Action)																							
VIII. Funding and Task Prioritization (No Action)																							
Administration and Operations[3]																							These are not in the LTMP as a task, but added since likely needed.
Admin Operations (invoicing, oversight, management)			4	$700		4	$480		$0		$0	12	$900					$2,080		1	$2,080	$59,429	Includes various administrative costs not limited to but including contracting and management of the grazing lessee.
Meetings (additional with agencies or landowners)			8	$1,400		4	$480		$0		$0		$0		100	$58	2	$1,880		1	$1,880	$53,714	This assumed 2 meetings per year. 2 mileage trips at 100 miles per trip.
Changed Circumstances[4]																							All these contingecies for changed circmustances are assuming some additional intervention every 20 years, which is likley overly conservative.
Non-native management response		Hours	8	$1,400		8	$960		$0	10	$750		$0	$500	100	$58	1	$3,168		0.05	$158	$4,526	Assumes 1 field day every 20 years to respond to non-native species issues not covered under Element A4.
Wildfire response		Hours	8	$1,400			$0		$0	10	$750		$0	$500	100	$58	1	$2,208		0.05	$110	$3,154	Assumes 1 field day every 20 years to respond to wildfire.
Earthquake response		Hours	8	$1,400		8	$960		$0	10	$750		$0	$500	100	$58	1	$3,168		0.05	$158	$4,526	Assumes 1 field day every 20 years to respond to flooding issues.
Drought response		Hours	8	$1,400		8	$960		$0	10	$750		$0	$500	100	$58	1	$3,168		0.05	$158	$4,526	Assumes 1 field day every 20 years to respond to drought issues.
Subtotal[4]																					$14,069	$401,977	
Contingency (15%)																						$60,296	
Subtotal with Contingency																						$462,273.06	
Capitalization (SPEND) Rate																					3.50%		
One time costs (Baseline tasks completed once early in the management period)																						$15,776	Initial costs for one time management actions before long-term management begins.
Total Endowment Amount																						**$478,049**	

[1] The level of effort assumes tasks would be completed by staff with different levels of education and experience depending on the task. A higher cost rate corresponds with higher levels of education and/or experience.

[2] Frequency Definitions

One time	0
Every year	1
Every other year	0.5
Every 3 years	0.3
Every 5 years	0.2
Every 10 years	0.1
Every 20 years	0.05
Every 28.5 years	0.035

[3] These line items are not sections of the LTMP, but are included in the HCP and planned for here.

[4] The total endowment cost excludes rows 68-71. These amounts are shown for informational purposes to demonstrate that their sum is less than the contingency amount.

Appendix F

Section 7 Compensation Site Review Criteria

Appendix F

Section 7 Compensation Site Review Criteria

Sacramento Fish and Wildlife Office
Review Criteria for Section 7 Compensation
Revised January 30, 2014

Property Assurances and Conservation Easement

- ☐ Title Report [*preliminary at proposal, and Final Title Insurance at recordation*]; no older than six months;
- ☐ Property Assessment and Warranty;
- ☐ Subordination Agreement [*include if any outstanding debts or liens on the property; may be needed for existing easements*];
- ☐ Legal Description and Parcel Map;
- ☐ Conservation Easement [*use the current SFWO standardized CE template*]; or
- ☐ Non-Template Conservation Easement [*this requires additional review*]

Site Assessment and Development

- ☐ Phase I Environmental Site Assessment;
- ☐ Habitat Development Plan [*include if habitat will be constructed, restored, or enhanced*];
- ☐ Construction Security Analysis *[applicable if habitat is being constructed/enhanced/restored]*;
- ☐ Performance Security Analysis [*applicable if there are performance standards*];

Site Management

- ☐ Interim Management Plan;
- ☐ Interim Management Security Analysis and Schedule;
- ☐ Long-Term Management Plan;
- ☐ Endowment Fund Analysis and Schedule;

☐ Endowment Funding Agreement or Trust Agreement or Declaration of Trust
[*DFW calls this a "mitigation agreement"*]

Guidelines

Real Estate Assurances and Conservation Easement (CE)

Title Report

1. Who holds fee title to property?
2. Exceptions to title. Are there any liens or encumbrances (existing debts, leases, or easements) on the property? Note that any existing exceptions to title will have priority over a conservation easement for the mitigation project.
    a. Review Preliminary Title Report to evaluate liens and encumbrances (see Property Assessment and Warranty, below).
    b. Could any of these exceptions to title potentially interfere with either biological habitat values or ownership? If existing easements can potentially interfere with the conservation values/habitat of the property, those portions of the land should be deducted from the total compensation acreage available on the site.
    c. Split estates. Have the water or mineral rights been severed from title? If so, property owner should be encouraged to re-acquire those rights, or at least to acquire the surface-entry rights to remove or limit access for mineral exploration/development.

Property Assessment and Warranty

1. Property owner should submit a Property Assessment and Warranty, which discusses every exception to title listed on the Preliminary Title Report and Final Title Insurance Policy, evaluating any potential impacts to the conservation values that could result from the exceptions to title (see below).
2. The Property Assessment and Warranty should include a summary and full explanation of all exceptions remaining on the title, with a statement that the owner/Grantor accepts responsibility for all lands being placed under the CE as available for the primary purposes of the easement, as stated in the easement, and assures that these lands have a free and clear title and are available to be placed under the CE.

Subordination Agreement

1. A Subordination Agreement is necessary if there is any outstanding debt on the property; it could also be used to subordinate liens or easements. Review Subordination Agreement language for adequacy—the lending bank or other lien or rights holder must agree to fully subordinate each lien, encumbrance, or easement under the CE.

Legal Description and Parcel Map

1. Ensure accuracy of map, and location and acreage protected under the CE.
2. Both the map and the legal description should explain the boundaries of the individual project compensation site. The site should *not* have 'leftover' areas for later use.

3. Ask for an easement map to be prepared (if applicable), showing all easements on the property.

Conservation Easement from Template

1. Who will hold the easement?
   a. Conservation easements require third-party oversight by a qualified non-profit or government agency (=easement holder or Grantee). Minimum qualifications for an easement holder include:
      i. Maintaining accreditation by the Land Trust Accreditation Commission http://www.landtrustaccreditation.org/home.
      ii. Organized under IRS 501(c)(3);
      iii. Qualified under CA Civil Code § 815;
      iv. Bylaws, Articles of Incorporation, and biographies of Boards of Directors on file at;
         1. Must meet requirements of SFWO, including 51% disinterested parties on the Board of Directors;
      v. Approved by SFWO
2. Project Applicant should submit a redline version showing all of their proposed revisions in track changes or other editable electronic format, along with an explanation of all deviations from the template.

10.2.1 Non-Template Conservation Easement

1. If not using the CE template, the Project Applicant should specify objections they have to the template. This may substantially delay processing as the non-template CE will require review by the Solicitor's Office. Alternate CEs are subject to SFWO approval prior to being granted and recorded.
2. The Project Applicant must either 1) add SFWO as a third-party beneficiary, or 2) add language throughout the document, in all appropriate places, that will assure SFWO the right to enforce, inspect, and approve any and all uses and/or changes under the CE prior to occurrence (including land use, biological management or ownership).
3. Include, at a minimum, language to:
   a. Reserve all mineral, air, and water rights under the CE as necessary to maintain and operate the site in perpetuity;
   b. Ensure all future development rights are forfeited;
   c. Ensure all prohibited uses contained in the CE template are addressed; and
   d. Link the CE, Management Plan, and the Endowment Fund within the document (e.g., note that each exists to support the others, and where each of the documents can be located if a copy is required).
4. Insert necessary language, particularly, but not exclusively, per: (can compare to CE template):
   a. Rights of Grantee
   b. Grantee's Duties
   c. Reserved Rights
   d. Enforcement
   e. Remedies
   f. Access
   g. Costs and Liabilities

h. Assignment and Transfer
i. Merger
j. Notices

5. Include a signature block for USFWS to sign "approved as to form".

Site Assessment and Development

Phase I Environmental Site Assessment

1. The Phase I ESA must show that the compensation site is not subject to any recognized environmental conditions as defined by the American Society for Testing and Materials (ASTM) Standard E1527-05 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, available at http://www.astm.org/Standards/E1527.htm, (i.e., the presence or likely presence of any Hazardous Substances or petroleum products).
2. If the Phase I ESA identifies any recognized environmental conditions, the Project Applicant must represent and warrant to the SFWO that all appropriate assessment, clean-up, remediation, or removal action has been completed.
3. If the Phase I ESA identifies any recognized environmental conditions, a Phase II ESA may be needed for sampling and laboratory analysis.

Restoration or Habitat Development Plan [*not required if the site is preservation only*]

1. The overall plan governing construction and habitat establishment activities required to be conducted on the Property, including, without limitation, creation, restoration, and enhancement of habitat.
   a. This plan should include the baseline conditions of the Property including biological resources, geographic location and features, topography, hydrology, vegetation, past, present, and adjacent land uses, species and habitats occurring on the property, a description of the activities and methodologies for creating, restoring, or enhancing habitat types, a map of the approved modifications, overall habitat establishment goals, objectives and Performance Standards, monitoring methodologies required to evaluate and meet the Performance Standards, an approved schedule for reporting monitoring results, a discussion of possible remedial actions, and any other information deemed necessary by the SFWO.
2. Any permits and other authorizations needed to construct and maintain the site shall be included and in place prior to the start of construction of the habitat.
3. Full construction plans for any habitat construction are subject to SFWO approval and must be *SFWO-approved prior* to the start of construction of the habitat.

Construction Security

1. Construction Security in the amount of 100% of a reasonable third party estimate or contract to create, restore, or enhance habitats on the property in accordance with the Restoration or Habitat Development Plan.
2. Construction Security can be drawn on should the project proponent default.
3. The Construction Security should be in the form of an irrevocable standby letter of credit or a cashier's check.

a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
b. Beneficiary: a third party subject to approval by the SFWO.
c. Language in a draft letter of credit subject to approval by the SFWO.

Performance Security *[only necessary if habitat performance standards have been identified]*

1. Performance Security in the amount of 20% of the Construction Security.
2. Performance Security can be drawn on should the Performance Standards not be met, if remedial action becomes necessary.
3. The Performance Security in the form of an irrevocable standby letter of credit or a cashier's check.
   a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
   b. Beneficiary: a third party who is subject to approval by the SFWO.
   c. Language in a draft letter of credit is subject to SFWO approval.

Site Management

Interim Management Plan

1. The Interim Management Plan should identify the short-term management, monitoring, and reporting activities to be conducted from the time construction ends until the Endowment Fund has been fully funded for three years and all the Performance Standards in the Development Plan have been met. This may be the same as the Long-term Management Plan.

Interim Management Security Analysis and Schedule

The purpose of the Interim Management Security is to allow the endowment to grow for at least three years without any disbursements, and is a safeguard to ensure that there will be enough funds in the endowment to pay for future management costs. The period can be longer than three years; a 5 year period is recommended by many land trusts.

1. Interim Management Security (in the form of a standby letter of credit) in the amount equal to the estimated cost to implement the Interim Management Plan during the first three years of the Interim Management Period, as set for in the Interim Management Security Analysis and Schedule.
2. The Interim Management Security Analysis and Schedule should be in the form of a table and/or spreadsheet that shows all of the tasks (management, monitoring, reporting), task descriptions, labor (hours), cost per unit, cost frequency, timing or scheduling of the tasks, the total annual funding necessary for each task, and any associated assumptions for each task required by the Interim Management Plan. The total annual expenses should include administration and contingency costs.
3. The Interim Management Security:

a. Held by a qualified, non-profit organization or government agency, subject to SFWO approval [see requirements under CE above], and
b. Held according to minimum standards for assuring maximum success in earning potential, and will include assurances to safeguard against loss of principle.
c. Instructions for disbursements or releases from the fund must be outlined in the Endowment Management Agreement/Trust Agreement/Declaration of Trust.

Long-Term Management Plan (LTMP)

1. The LTMP template identifies the long-term management, monitoring and reporting activities to be conducted.
2. The LTMP should include at minimum:
   a. Purpose of the Project and purpose of the LTMP;
   b. A baseline description of the setting, location, history, and types of land use activities, geology, soils, climate, hydrology, habitats present (once project meets Performance Standards), and species descriptions;
   c. Overall management, maintenance and monitoring goals; specific tasks and timing of implementation; and discussion of any constraints, which may affect goals;
   d. The Endowment Fund Analysis and Schedule (see below);
   e. Discussion of Adaptive Management actions for reasonably foreseeable events and possible thresholds for evaluating and implementing Adaptive Management;
   f. Rights of access to the Property and prohibited uses of the Property as provided in the CE; and
   g. Procedures for Property transfer, land manager replacement, amendments, and notices.
3. The LTMP must be incorporated by reference in the CE.
4. The LTMP is considered a living document and may be revised as necessary upon agreement of the land manager, easement holder, and SFWO.

Endowment Fund Analysis and Schedule

1. Can use a PAR or PAR-like analysis and must be based upon the final LTMP, subject to SFWO approval.
   - The analysis should be developed with input by the land manager and conservation easement holder.
2. The analysis and schedule should be in the form of a table and/or spreadsheet that shows, at a minimum:
   - all of the tasks (management, monitoring, reporting)
   - task descriptions, with tasks numbers cross-referenced in management plan(s)
   - labor (hours)
   - materials
   - cost per unit (hr., linear ft., each, etc.).
   - cost frequency
   - timing or scheduling of the tasks,
   - the total annual funding necessary for each task, and
   - the assumptions required for each task by the Management Plan.
3. The total annual expenses should include administration and contingency costs (contingency can be included on each line item – identify the percentage). Unless there

is a separate endowment for the purpose of monitoring and reporting on the CE conditions, then, the analysis should also include costs of

- Monitoring and reporting CE conditions;
- Defending the CE; and
- Liability insurance.

4. The Endowment Fund::
   - Held by a qualified, SFWO-approved, non-profit organization or government agency [see requirements under CE above],
   - Held according to minimum standards for assuring maximum success in earning potential, and should include assurances for no loss of principle.
   - Disbursements or releases from the fund must be for documented expenditures, as they occur.

<u>Endowment Funding Agreement</u>

1. This is the agreement between the endowment holder and the Project Applicant, as to how the endowment is to be funded, held and disbursed;
2. USFWS is not signatory to this agreement, but there should be a signature block on the agreement for SFWO to sign "approved as to form";
3. USFWS has approval authority over the language in the document, and it must state that modifications or transfer of the endowment to another holder are subject to USFWS approval;
4. This agreement can also be called: "Trust Agreement", "Declaration of Trust"
5. When the CA Dept. of Fish and Wildlife is involved, this is called "Mitigation Agreement".

Appendix B
References Cited

Appendix B
References Cited

Chapter 1—Purpose and Need

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Chapter 3—Affected Environment and Environmental Consequences

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Appendix C
Figures

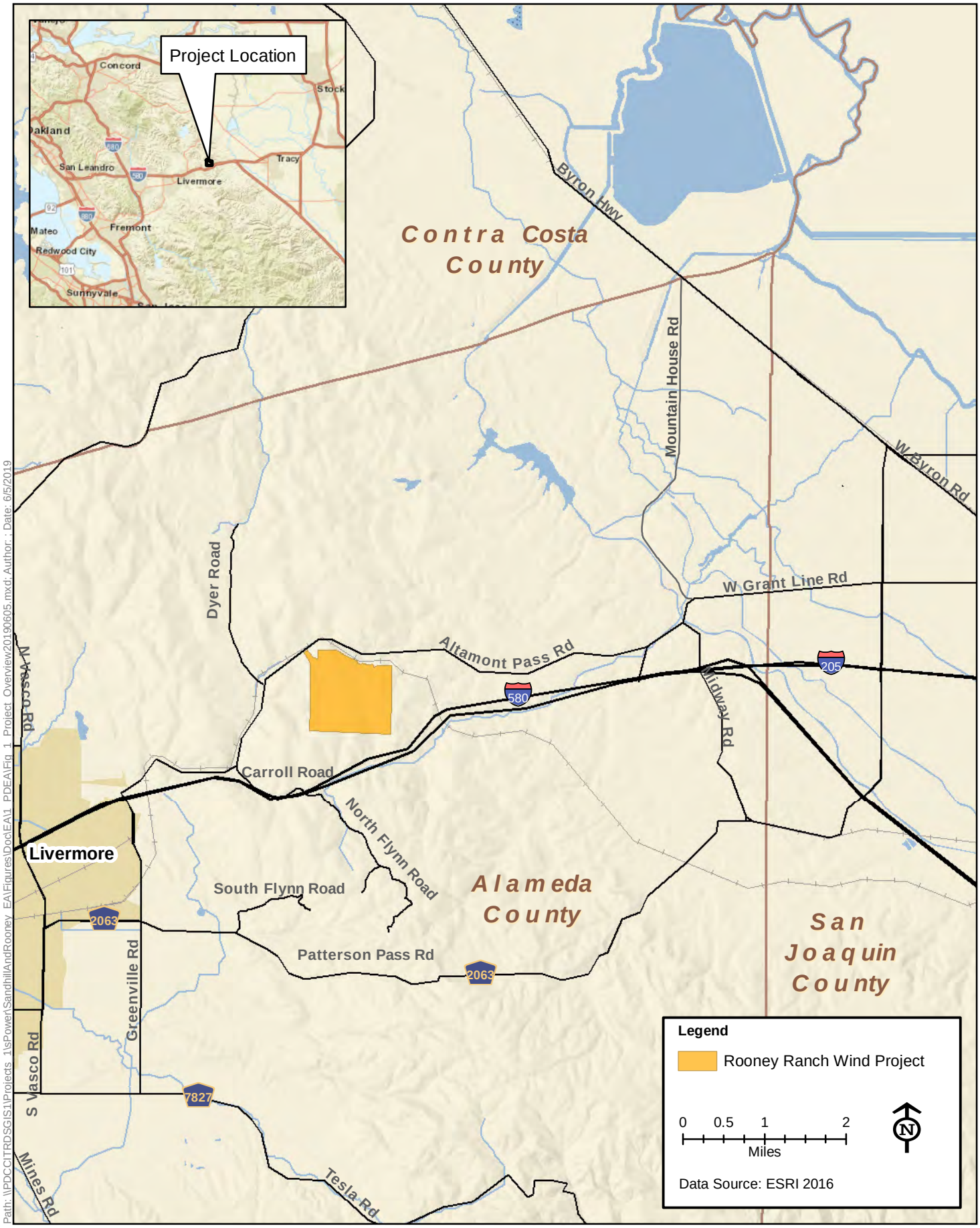

Figure 1
Project Location

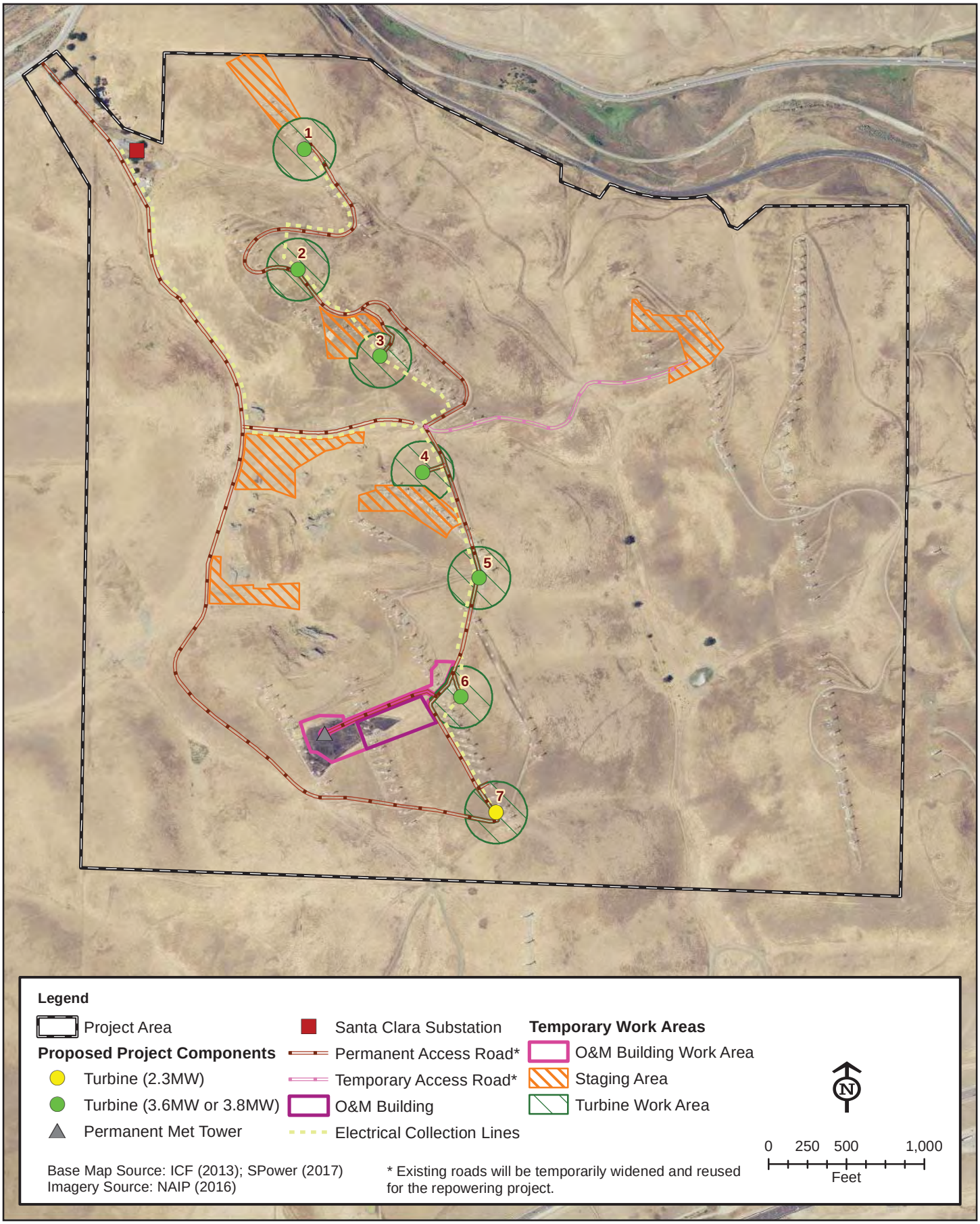

Figure 2a
Rooney Ranch Wind Project Layout 1

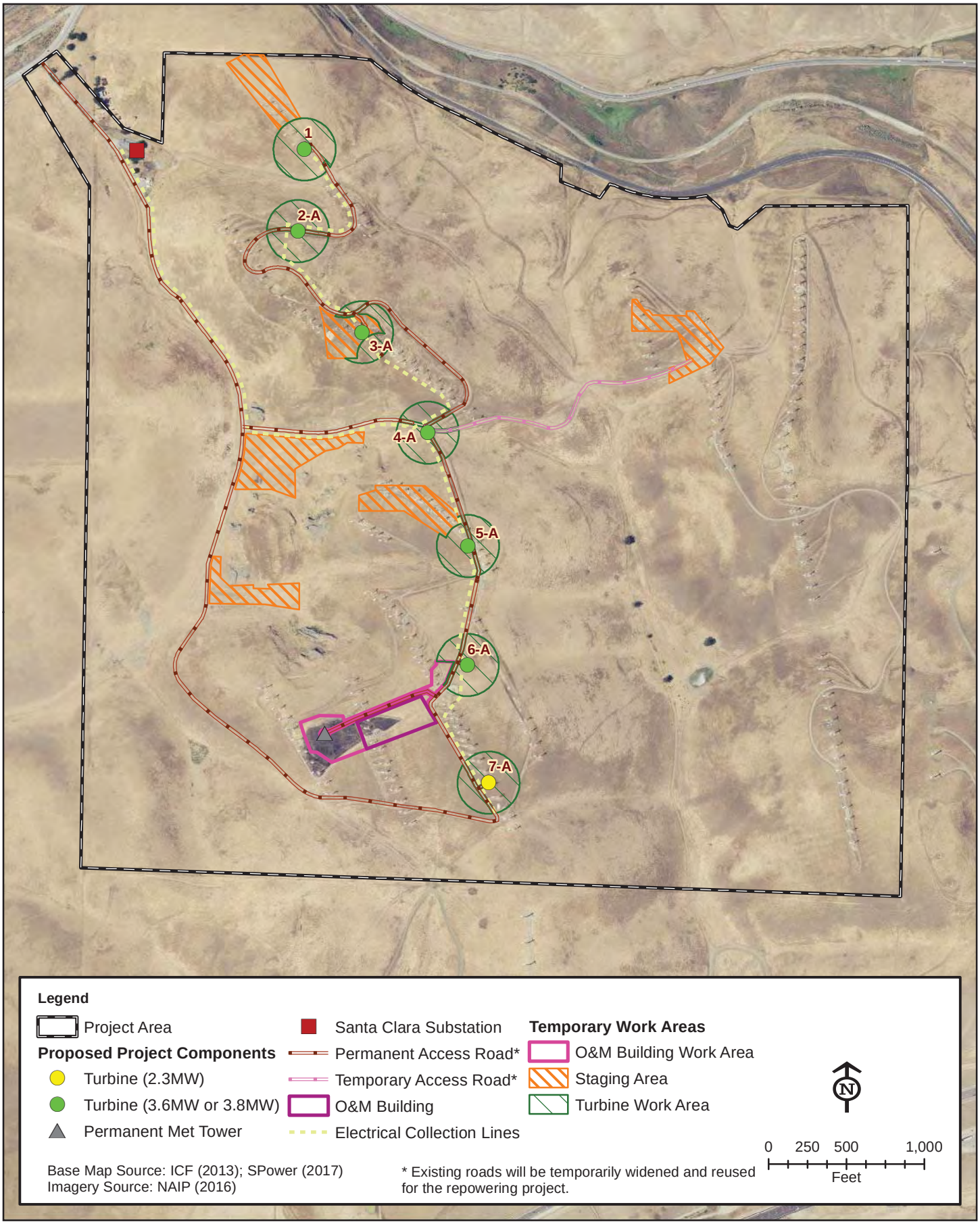

Figure 2b
Rooney Ranch Wind Project Layout 2

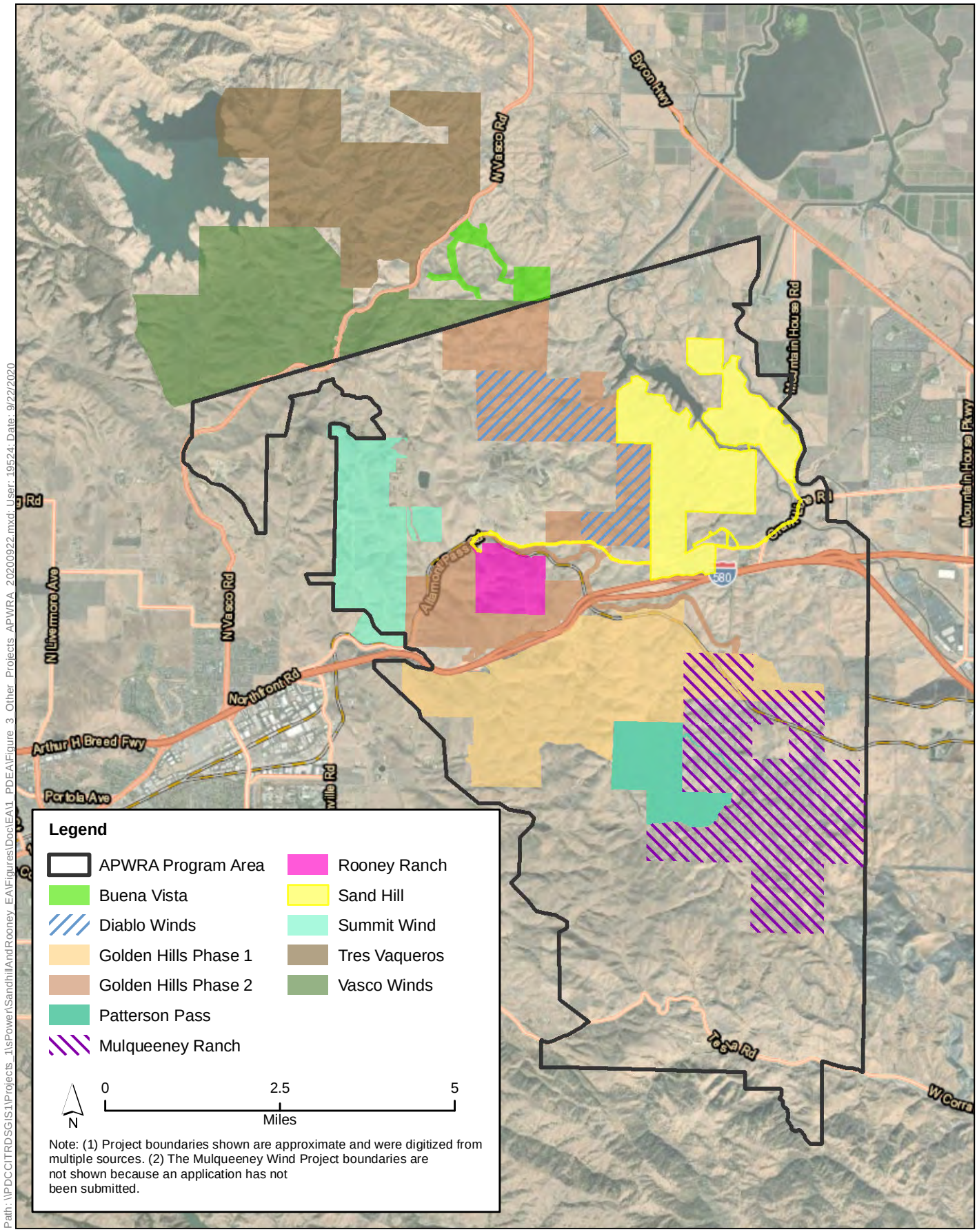

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Figure 3
Operational, Approved, and Foreseeable Projects in the APWRA

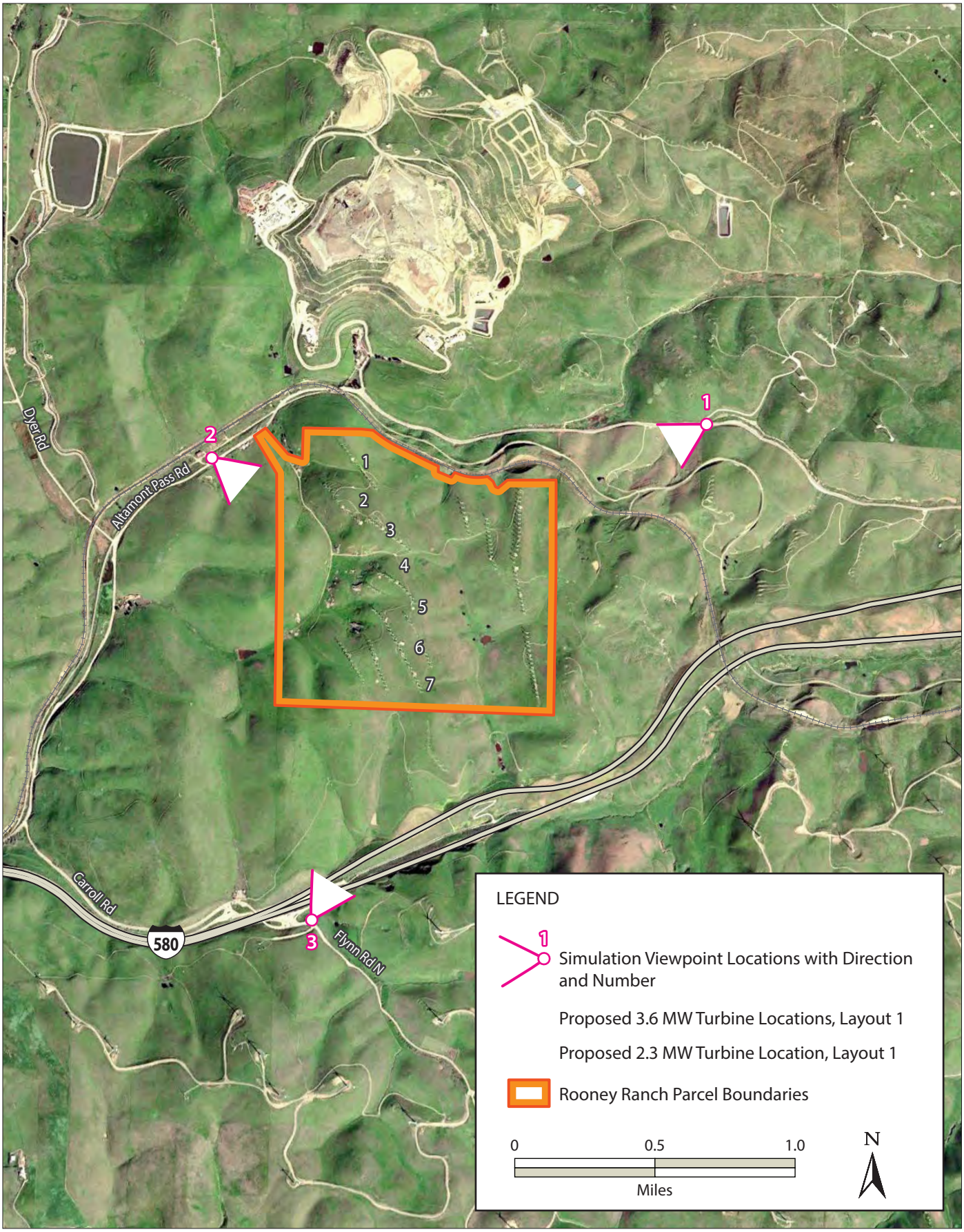


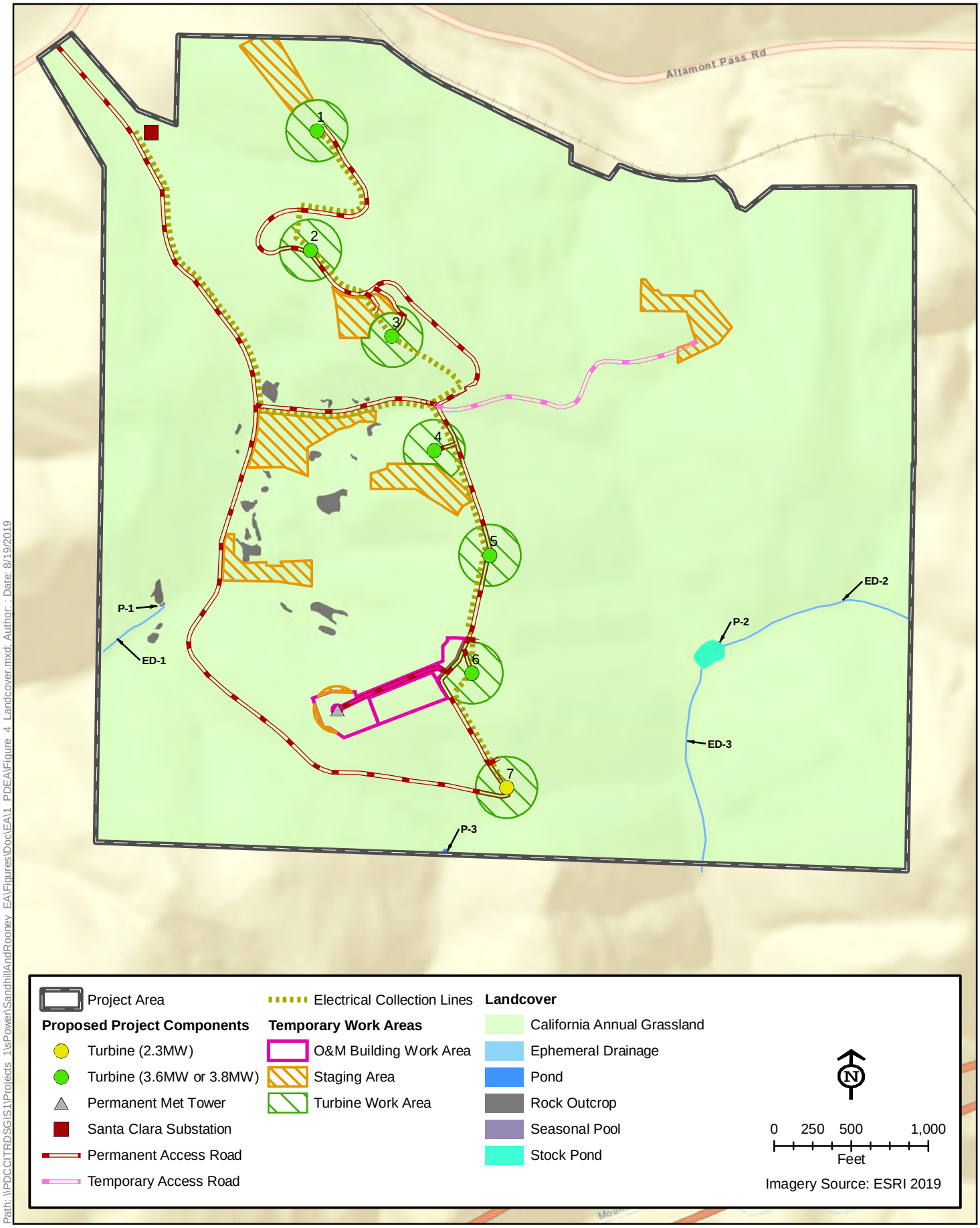
Figure 4a
Visual Simulation Viewpoint Locations

Figure 4b
Viewpoint 1—Looking Southwest along Altamont Pass Road

Image source: Google Inc. 2018. Google Earth Pro, Version 7.1. Mountain View, CA. Accessed: 5 June 2018.

Figure 4c
Viewpoint 2—Looking Southeast along Altamont Pass Road

Figure 4d
Viewpoint 3—Looking Northeast near the intersection of Flynn Road and Interstate 580



Path: \\PDCCITRDSGIS1\Projects_1\sPower\SandhillAndRooney_EA\Figures\Doc\EA\1_PDEA\Figure_4_Landcover.mxd; Author: ; Date: 8/19/2019

Figure 5
Landcover Types within the Project Permit Area

Appendix D
Related Local, State, and Federal Regulations

Aesthetics

Federal

The federal government does not explicitly regulate visual quality but recognizes its importance and preserves aesthetic values through the National Park, National Wildlife Refuge, National Monument, and National Scenic Byway Systems.

State

Interstate (I-) 580 from the San Joaquin County line to State Route (SR) 205 (Post Miles 0.0 to 0.393), a 0.4-mile-long segment, is a state-designated scenic highway (California Department of Transportation 2019). The I-580 intersection with SR 205 falls just within the eastern border of the Altamont Pass Wind Resource Area (APWRA) program area, but does not pass through the project permit area.

Local

Alameda County General Plan

Scenic Route Element

The Scenic Route Element of the Alameda County General Plan identifies a continuous, countywide scenic route system and is intended to serve as a guide for local jurisdictions for development of city-scale scenic route systems and as a guide for development to protect and enhance the scenic values along designated scenic routes (Alameda County 1966).

Scenic routes are defined to consist of three elements: the right-of-way, the scenic corridor, and areas extending beyond the corridor. The corridor includes properties, along and up to 1,000 feet beyond the right-of-way, that either (1) should be acquired for protection, or (2) for which development controls should be applied to preserve and enhance nearby views or maintain unobstructed distant views along the route in rural areas with high scenic qualities. For the areas extending beyond scenic corridors (i.e., beyond 1,000 feet from the right-of-way), the Scenic Route Element also requires basic development controls: in the undeveloped parts of the county, project review should address grading, removal of vegetation, streambeds, landscaping, utility and communication towers, poles and lines, and outdoor advertising signs or structures (Alameda County 1966).

Two designated scenic routes pass near the Rooney Ranch project permit area; no designated scenic routes pass through the project permit area. I-580, which passes south of the Rooney Ranch project permit area, is the only state-designated scenic route in the APWRA and also is categorized as one of Alameda County's Scenic Freeways and Expressways. Altamont Pass Road, north of the project permit area, is a County-designated scenic route (see Figure 1 in Appendix C). Most of the other roads and highways that traverse the APWRA are categorized as Scenic Rural-Recreation Routes (or as mapped Major Rural Roads) (Alameda County 1966).

The Scenic Route Element identifies several "principles" for Scenic Route Corridors that may apply to the Proposed Action. These principles guide development to preserve panoramic views while providing for normally permitted uses of land in scenic corridors. The principles are as follows.

- Locate new overhead transmission towers and lines outside of scenic route corridors when feasible.
- Place new, relocated, or existing utility distribution lines underground whenever feasible or locate them to be inconspicuous from scenic routes.
- Use landscaping to increase scenic qualities of scenic route corridors.
- Avoid removing mature trees without the local jurisdiction's approval.
- Control alteration of streambeds and bodies of water to preserve their natural scenic quality.
- Preserve and enhance natural scenic qualities in areas beyond the scenic corridor by retaining the general character of natural slopes and natural formations, and through preservation and enhancement of water areas, watercourses, vegetation, and wildlife habitats.
- Provide for normal uses of land but limit overhead utilities and outdoor advertising structures (Alameda County 1966).

Lastly, the Scenic Route Element establishes development standards that govern the alteration of land contours through grading to preserve natural ridge skylines, minimize the grading for access roads and slopes over 10%, and restore previously altered land contours.

Open Space Element

The Open Space Element of the Alameda County General Plan includes the following relevant principles: leave natural ridgelines and slopes in excess of 25% in grade as open space to eliminate mass grading, consolidate and locate utility lines to avoid scenic areas, and permanently protect natural resources within open space areas.

East County Area Plan

The project permit area falls within Alameda County's *East County Area Plan* (Alameda County 2000). This plan contains goals and policies intended to protect sensitive viewsheds and scenic corridors through the type and siting of development allowed, while maximizing the production of wind-generated energy within the limits of environmental constraints.

Air Quality and Climate Change

The federal Clean Air Act (CAA) and its subsequent amendments form the basis for the nation's air pollution control effort. The U.S. Environmental Protection Agency (USEPA) is responsible for implementing most aspects of the CAA. A key element of the CAA is the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The CAA delegates enforcement of the NAAQS to the states. In California, the California Air Resources Board (CARB) is responsible for enforcing air pollution regulations and ensuring the NAAQS and California Ambient Air Quality Standards (CAAQS) are met.

Federal

Clean Air Act and National Ambient Air Quality Standards

The CAA was first enacted in 1963 and has been amended numerous times in subsequent years (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as NAAQS, for six criteria pollutants and specifies future dates for achieving compliance. The CAA also mandates that the states submit

and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. Table D-1 shows the NAAQS currently in effect for each criteria pollutant, as well as the CAAQS.

Table D-1. National and State Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	California Standards	National Standards[a] Primary	National Standards[a] Secondary
Ozone	1-hour	0.09 ppm	None[b]	None[b]
	8–hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate matter (PM_{10})	24-hour	50 μg/m^3	150 μg/m^3	150 μg/m^3
	Annual mean	20 μg/m^3	None	None
Fine particulate matter ($PM_{2.5}$)	24-hour	None	35 μg/m^3	35 μg/m^3
	Annual mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
Carbon monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
	8-hour (Lake Tahoe)	6 ppm	None	None
Nitrogen dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur dioxide	Annual mean	None	0.030 ppm[c]	None
	24-hour	0.04 ppm	0.14 ppm[c]	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day average	1.5 μg/m^3	None	None
	Calendar quarter	None	1.5 μg/m^3	1.5 μg/m^3
	3-month average	None	0.15 μg/m^3	0.15 μg/m^3
Sulfates	24-hour	25 μg/m^3	None	None
Visibility-reducing particles	8-hour	–[d]	None	None
Hydrogen sulfide	1-hour	0.03 ppm	None	None
Vinyl chloride	24-hour	0.01 ppm	None	None

Source: California Air Resources Board 2016.

μg/m^3 = micrograms per cubic meter

ppm = parts per million

NAAQS = national ambient air quality standards

CAAQS = California ambient air quality standards

[a] National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

[b] The federal 1-hour standard of 12 parts per 100 million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for state implementation plans.

[c] The annual and 24-hour NAAQS for SO2 apply only for 1 year after designation of the new 1-hour standard to those areas that were previously nonattainment for 24-hour and annual NAAQS.

[d] CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more because of particles when relative humidity is less than 70%.

Clean Air Nonroad Diesel Rule

- USEPA has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and locomotives. New equipment used for activities within the Rooney Ranch plan area, including heavy-duty trucks and off-road construction equipment, would be required to comply with these emission standards.

Federal Greenhouse Gas Regulation

There is currently no federal overarching law specifically related to climate change or the reduction of greenhouse gas (GHG) emissions. During the Obama Administration, the USEPA had been developing regulations under the CAA pursuant to USEPA's authority. There have also been settlement agreements between USEPA, several states, and nongovernmental organizations to address GHG emissions from electric generating units and refineries, as well as USEPA's issuance of an "Endangerment Finding" and a "Cause or Contribute Finding." USEPA has also adopted a Mandatory Reporting Rule and Clean Power Plan. Under the Clean Power Plan, USEPA issued regulations to control carbon dioxide (CO_2) emissions from new and existing coal-fired power plants. However, on February 9, 2016, the Supreme Court issued a stay of these regulations pending litigation. Former USEPA Administrator Scott Pruitt also signed a measure to repeal the Clean Power Plan. The fate of the proposed regulations is uncertain given the change in federal administrations and the pending deliberations in federal courts.

State

California Clean Air Act and California Ambient Air Quality Standards

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table D-1.

CARB and local air districts bear responsibility for meeting the CAAQS, which are to be achieved through district-level air quality management plans incorporated into the SIP. In California, USEPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. CARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

Statewide Truck and Bus Regulation

Originally adopted in 2005, the on-road truck and bus regulation requires heavy trucks to be retrofitted with particulate matter filters. The regulation applies to privately and federally owned diesel-fueled trucks with a gross vehicle weight rating greater than 14,000 pounds. Compliance with the regulation can be reached through

one of two paths: (1) vehicle retrofits according to engine year or (2) phase-in schedule. Compliance paths ensure that by January 2023, nearly all trucks and buses will have 2010 model year engines or newer.

State Tailpipe Emission Standards

Like USEPA at the federal level, CARB has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft operating in California. New equipment used for construction and operation activities would be required to comply with the standards.

Toxic Air Containment Regulation

California regulates toxic air contaminants primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Hot Spots Act). In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California's program to reduce exposure to air toxics. The Hot Spots Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

CARB has identified diesel particulate matter as a toxic air contaminant and has approved a comprehensive *Diesel Risk Reduction Plan* to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel particulate matter emissions and the associated health risk by 75% by 2010 and by 85% by 2020. The plan identifies 14 measures that CARB will implement over the next several years. The Proposed Action would be required to comply with any applicable diesel control measures from the *Diesel Risk Reduction Plan*.

State Greenhouse Gas Regulation

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The governor has also issued several executive orders (EOs) related to the state's evolving climate change policy. Of particular importance are Assembly Bill (AB) 32 and Senate Bill (SB) 32, which outline the state's GHG reduction goals of achieving 1990 emissions levels by 2020 and a 40% reduction below 1990 emissions levels by 2030.

In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans. Summaries of key policies, legal cases, regulations, and legislation at the state levels that are relevant to the Proposed Action are identified below.

Executive Order S-3-05 (2005)

EO S-3-05 asserted that California is vulnerable to the effects of climate change. To combat this concern, the order established the following GHG emissions reduction targets.

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

EOs are legally binding only on state agencies. Accordingly, EO S-3-05 guides state agencies' efforts to control and regulate GHG emissions but has no direct, binding effect on local government or private actions. The

secretary of the California Environmental Protection Agency is required to report to the governor and state legislature biannually regarding the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions to meet the targets established in this EO.

Assembly Bill 32—California Global Warming Solutions Act (2006)

AB 32 codified the state's GHG emissions target by requiring that the state's global warming emissions be reduced to 1990 levels by 2020. Since AB 32 was adopted, CARB, the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and the Building Standards Commission have been developing regulations that will help meet the goals of AB 32. The AB 32 Scoping Plan identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires CARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHGs. Specifically, the AB 32 Scoping Plan articulates a key role for local governments, recommending they establish GHG reduction goals for both their municipal operations and the community consistent with those of the state.

Assembly Bill 1493—Pavley Rules (2002, Amendments 2009, 2012 rulemaking)

Known as *Pavley I*, AB 1493 standards were the nation's first GHG standards for automobiles. AB 1493 requires CARB to adopt vehicle standards that will lower GHG emissions from new light-duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (referred to previously as *Pavley II*, now referred to as the *Advanced Clean Cars* measure) has been proposed for vehicle model years 2017–2025. Together, the two standards are expected to increase average fuel economy to roughly 54.5 miles per gallon by 2025.

Executive Order S-01-07—Low Carbon Fuel Standard (2007)

EO S-01-07 essentially mandates: (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020 and (2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California. CARB approved the LCFS on April 23, 2009, and the regulation became effective on January 12, 2010. The U.S. District Court for the Eastern District of California ruled in December 2011 that the LCFS violates the Commerce Clause of the U.S. Constitution. CARB appealed this ruling in 2012 and on September 18, 2013, the Ninth U.S. Circuit Court of Appeals upheld the LCFS, ruling that the program does not violate the Commerce Clause and remanding the case to the Eastern District.

Senate Bills 1078, 107, and 2—Renewables Portfolio Standard (2011)

SBs 1078 (2002), 107 (2006) and 2 (2011), California's Renewables Portfolio Standard (RPS), obligates investor-owned utilities, energy service providers, and community choice aggregators to procure additional retail sales per year from eligible renewable sources with the target of procuring 33% of retail sales from renewable resources by 2020. The CPUC and CEC are jointly responsible for implementing the program.

Senate Bill 32 (2016)

SB 32 (2016) requires CARB to ensure that statewide GHG emissions are reduced to at least 40% below the 1990 level by 2030, consistent with the target set forth in EO B-30-15. CARB adopted the *2017 Climate Change Scoping Plan* in November 2017 to meet the GHG reduction requirement set forth in SB 32. It proposes continuing the major programs of the previous Scoping Plan, including cap-and-trade regulation; LFCS; more efficient cars, trucks, and freight movement; RPS; and reducing methane emissions from agricultural and other wastes. The 2017 Scoping Plan also addresses for the first time the GHG emissions from natural and working lands in California (California Air Resources Board 2017).

Assembly Bill 197 (2016)

The companion bill to SB 32, AB 197, creates requirements to form a Joint Legislative Committee on Climate Change Policies, requires CARB to prioritize direct emission reductions and consider social costs when adopting regulations to reduce GHG emissions beyond the 2020 statewide limit, requires CARB to prepare reports on sources of GHGs and other pollutants, establishes 6-year terms for voting members of CARB, and adds two legislators as non-voting members of CARB.

Senate Bill 100—The 100 Percent Clean Energy Act of 2018 (2018)

SB 100 builds on SB 350, the Clean Energy and Pollution Reduction Act of 2015, which required the following by 2030: (1) an RPS of 50% and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. SB 100 increases the 2030 RPS target set in SB 350 to 60% and requires an RPS of 100% by 2045.

Executive Order B-55-18 (2018)

EO B-55-18 establishes a statewide goal to achieve carbon neutrality by 2045 and to achieve and maintain net negative emissions thereafter. This goal is in addition to the statewide targets for reducing GHGs set in EO S-3-05 and SB 32.

Biological Resources

Federal

Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA), the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service have authority over projects that may result in take of a species listed as threatened or endangered under the act. *Take* is defined under the ESA, in part, as killing, harming, or harassing. Under federal regulations, *take* is further defined to include habitat modification or degradation that results in, or is reasonably expected to result in, death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. If a likelihood exists that a project would result in take of a federally listed species, either an incidental take permit, under Section 10(a) of the ESA, or a federal interagency consultation, under Section 7 of the ESA, is required. Several federally listed species—vernal pool fairy shrimp (*Branchinecta lynchi*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), and San Joaquin kit fox (*Vulpes macrotis mutica*)—have the potential to be affected by activities associated with the Golden Hills and Patterson Pass projects as well as subsequent repowering projects, including the Rooney Ranch project. Accordingly, such projects would require consultation with USFWS as described above.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in 1964, was enacted to protect fish and wildlife when federal actions result in the control or modification of a natural stream or body of water. The statute requires federal agencies to take into consideration the effect that water-related projects would have on fish and wildlife resources. Consultation and coordination with USFWS and the California Department of Fish and Wildlife

(CDFW) are required to address ways to prevent loss of and damage to fish and wildlife resources, and to further develop and improve these resources.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) domestically implements a series of international treaties that provide for migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act further provides that it is unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird…" (16 U.S. Code [USC] 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA can be found in the November 1, 2013 *Federal Register* (78 FR 65844–65864). This list comprises several hundred species, including essentially all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and of personal property. Take of nongame migratory birds cannot be authorized through the MBTA for the Proposed Action. USFWS publishes a list of birds of conservation concern to identify migratory nongame birds that are likely to become candidates for listing under ESA without additional conservation actions. The birds of conservation concern list is intended to stimulate coordinated and collaborative conservation efforts among federal, state, tribal, and private parties.

The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668) prohibits take and disturbance of individuals and nests. Take permits for birds or body parts are limited to religious, scientific, or falconry pursuits. However, the BGEPA was amended in 1978 to allow mining developers to apply to USFWS for permits to remove inactive golden eagle (*Aquila chrysaetos*) nests in the course of "resource development or recovery" operations. With the 2007 removal of bald eagle from the ESA list of threatened and endangered species, USFWS issued new regulations to authorize the limited take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles under the BGEPA, where the take to be authorized is associated with otherwise lawful activities. A final Eagle Permit Rule was published on September 11, 2009 (74 FR 46836–46879; 50 Code of Federal Regulations [CFR] 22.26).

A permit authorizes limited, non-purposeful take of bald eagles and golden eagles and can be applied for by individuals, companies, government agencies (including tribal governments), and other organizations to allow disturbance of or otherwise take eagles in the course of conducting lawful activities, such as operating utilities and airports. Under BGEPA, *take* is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest or disturb." *Disturb* is defined in the regulations as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." Most permits issued under the new regulations authorize disturbance. In limited cases, a permit may authorize the physical take of eagles, but only if every precaution is first taken to avoid physical take.

USFWS issued the *Eagle Conservation Plan Guidance* intended to assist parties to avoid, minimize, and mitigate adverse effects on bald and golden eagles (U.S. Fish and Wildlife Service 2013a). This guidance calls for scientifically rigorous surveys, monitoring, assessment, and research designs proportionate to the risk to eagles. It describes a process by which wind energy developers can collect and analyze information that could lead to a programmatic permit to authorize unintentional take of eagles at wind energy facilities. USFWS recommends that eagle conservation plans be developed in five stages. Each stage builds on the prior stage, such that together the process is a progressive, increasingly intensive look at likely effects on eagles of the development and operation of a particular site and configuration. Additional refinements to the *Eagle Conservation Plan Guidance*

are expected in the future. To date, one programmatic eagle take permit has been issued by USFWS on June 31, 2014 (http://www.fws.gov/cno/conservation/migratorybirds.html).

Clean Water Act

Wetlands and other waters of the United States are protected under Section 404 of the Clean Water Act (CWA). Any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands, is subject to regulation by the U.S. Army Corps of Engineers. *Waters of the United States* is defined to encompass navigable waters of the United States; interstate waters; all other waters where their use, degradation, or destruction could affect interstate or foreign commerce; tributaries of any of these waters; and wetlands that meet any of these criteria or are adjacent to any of these waters or their tributaries. Wetlands are defined under Section 404 as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support—and that under normal circumstances do support—a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria.

- They support hydrophytic vegetation (i.e., plants that grow in saturated soil).
- They have hydric soil types (i.e., soils that are wet or moist enough to develop anaerobic conditions).
- They have wetland hydrology (i.e., conditions of flooding, inundation, or saturation that support wetland communities).

Executive Order 11990: Protection of Wetlands

EO 11990 (May 24, 1977) established the protection of wetlands and riparian systems as the official policy of the federal government. The EO requires all federal agencies to consider wetland protection as an important part of their policies; take action to minimize the destruction, loss, or degradation of wetlands; and preserve and enhance the natural and beneficial values of wetlands.

Federal Noxious Weed Act and Code of Federal Regulations (Title 7, Part 360)

These laws and regulations are primarily concerned with the introduction of federally designated noxious weed plants or seeds across the United States' international borders. The Federal Noxious Weed Act (7 USC 2801–2813) also regulates the interstate movement of designated noxious weeds under the U.S. Department of Agriculture's permit system.

Executive Order 11312: Invasive Species

EO 11312 (February 3, 1999) directs all federal agencies to prevent and control the introduction and spread of invasive nonnative species in a cost-effective and environmentally sound manner to minimize their effects on economic, ecological, and human health. The EO was intended to build upon existing laws, such as the National Environmental Policy Act (NEPA), the Nonindigenous Aquatic Nuisance Prevention and Control Act, the Lacey Act, the Plant Pest Act, the Federal Noxious Weed Act, and ESA. The EO established a national Invasive Species Council composed of federal agencies and departments, as well as a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The council and advisory committee oversee and facilitate implementation of the EO, including preparation of the *National Invasive Species Management Plan*. Federal activities addressing invasive aquatic species are now coordinated through this council and through the National Aquatic Nuisance Species Task Force.

State

California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code Sections 2050–2116) states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants and their habitats that are threatened with extinction and those experiencing a significant decline that, if not halted, would lead to a threatened or endangered designation will be protected or preserved.

Under Section 2081 of the California Fish and Game Code, an incidental take permit from CDFW is required for projects that could result in the take of a species that is state-listed as threatened or endangered. Under CESA, *take* is defined as an activity that would directly or indirectly kill an individual of a species. The definition does not include *harm* or *harass*, as does the definition of take under ESA. Consequently, the threshold for take under CESA is higher than that under ESA. For example, habitat modification is not necessarily considered take under CESA.

Fully Protected Species

Sections 3511, 3513, 4700, and 5050 of the California Fish and Game Code pertain to fully protected wildlife species (birds in Sections 3511 and 3513, mammals in Section 4700, and reptiles and amphibians in Section 5050) and strictly prohibit the take of these species. CDFW cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock or if a natural community conservation plan has been adopted.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 gave the California Fish and Game Commission the authority to list plant species as rare or endangered and authorized them to adopt regulations prohibiting importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. The California Native Plant Protection Act prohibits take, possession, transportation, exportation, importation, or sale of rare and threatened plants, except as a result of agricultural practices, fire control measures, timber operations, mining, or actions of public agencies or private utilities. Private landowners are also exempt from the prohibition against removing rare and endangered plants, although they must provide 10-day notice to CDFW before removing the plants. The California Native Plant Protection Act has mostly been superseded by CESA.

California Rare Plant Rankings

CDFW maintains lists of plants of special concern in California, in addition to those listed as threatened or endangered. These species have no formal protection under CESA, but the values and importance of these lists are widely recognized. Plants with a California Rare Plant Rank of 1A, 1B, and 2 meet the definitions of Section 1901 of the California Fish and Game Code and may qualify for state listing. Accordingly, for purposes of analysis, such plant species are considered rare plants pursuant to Section 15380 of CEQA.

Protection of Birds and Raptors

Section 3503 of the California Fish and Game Code prohibits the killing of birds and/or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and/or the destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal, and failure of nesting attempts (loss of eggs and/or young) as a result of disturbance of nesting pairs caused by nearby human activity.

Section 3513 prohibits any take or possession of birds designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations pursuant to the MBTA. CDFW cannot issue permits under MBTA for the take of birds by the project that are part of the APWRA program.

Section 1600 of the California Fish and Game Code

Sections 1600–1603 of the California Fish and Game Code state that it is unlawful for any person or agency to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources, or to use any material from the streambeds, without first notifying CDFW. A Lake and Streambed Alteration Agreement must be obtained if effects are expected to occur. The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports wildlife, fish, or other aquatic life. This definition includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Act, waters of the state fall under jurisdiction of the nine Regional Water Quality Control Boards (RWQCBs). Under this act, each RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution. Projects that affect wetlands or waters must meet the waste discharge requirements of the RWQCB. Pursuant to CWA Sections 401, an applicant for a Section 404 permit to conduct any activity that may result in discharge into navigable waters must provide a certification from the RWQCB that such discharge will comply with state water quality standards. As part of the wetlands permitting process under Section 404, a project applicant would be required to obtain a water quality certification from the applicable RWQCB.

Section 13050 of the Porter-Cologne Act (California Water Code, Division 7) authorizes the State Water Resources Control Board (State Water Board) and the relevant RWQCB (in the case of the APWRA, the Central Valley and San Francisco Bay Water Boards) to regulate biological pollutants. The California Water Code generally regulates more substances contained in discharges and defines *discharges to receiving waters* more broadly than does the CWA.

California Wetlands Conservation Policy

The goals of the California Wetlands Conservation Policy, adopted in 1993 (EO W-59-93), are "to ensure no overall net loss, and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California, in a manner that fosters creativity, stewardship, and respect for private property"; to reduce procedural complexity in the administration of state and federal wetlands conservation programs; and to make restoration, landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation.

Local

East Alameda County Conservation Strategy

The East Alameda County Conservation Strategy (EACCS) is a collaborative effort among several local, state, and federal agencies intended to provide an effective voluntary framework to protect, enhance, and restore natural resources in eastern Alameda County, while improving and streamlining the environmental permitting process

for impacts resulting from infrastructure and development projects (ICF 2010). The EACCS is intended to focus on impacts on biological resources such as endangered species and other special-status species and sensitive habitat types. The Proposed Action is located in the EACCS area.

On May 31, 2012, USFWS issued the EACCS programmatic biological opinion. For projects where Section 10 consultation is required, consistency with the EACCS programmatic biological opinion enables USFWS to streamline individual ESA consultations by utilizing preapproved mitigation standards and focusing mitigation in conservation priority areas.

Cultural Resources

Federal

Archaeological and architectural resources (buildings and structures) are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470f), and its implementing regulations: Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979.

Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies (e.g., U.S. Army Corps of Engineers, National Park Service) to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing on the National Register of Historic Places (NRHP). NHPA Section 101(d)(6)(A) allows properties of traditional religious and cultural importance to a tribe to be determined eligible for inclusion in the National Register. Under the NHPA, a find is significant if it meets the National Register listing criteria under 36 CFR 60.4, as stated below.

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:
>
> a) That are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> b) That are associated with the lives of persons significant in our past, or
>
> c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> d) That have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the Section 106 process. The Section 106 process normally involves step-by-step procedures that are described in detail in the implementing regulations (36 CFR Part 800) and summarized here.

- Establish a federal undertaking.
- Delineate the Area of Potential Effects.
- Identify and evaluate historic properties in consultation with the SHPO and interested parties.
- Assess the effects of the undertaking on properties that are eligible for inclusion in the National Register.

- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation.
- Proceed with the project according to the conditions of the agreement.

The cultural resources study for the project area was conducted in compliance with Section 106 of the NHPA of 1966 and its implementing regulations (36 CFR 800, as amended in 1999). Although compliance with Section 106 is the responsibility of the lead federal agency, others can conduct the work necessary to comply.

State

The State of California implements the NHPA through its statewide comprehensive cultural resource preservation programs. The California Office of Historic Preservation, an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The California Office of Historic Preservation also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the State's jurisdiction.

Local

The Alameda County General Plan consists of several documents that discuss specific geographic areas in detail in the western part of the county, as well as general goals, policies, and actions for house, safety, conservation, open space, noise, and recreation. In 2012, the Alameda County Board of Supervisors adopted a historic preservation ordinance that codified the definition and maintenance of the Alameda County Register of Historic Resources, how properties can be added or removed from the county register, and what activities may be subject to review. The ordinance also provides incentives for the preservation of historic resources.

Geology, Seismicity, Soils, and Paleontological Resources

Federal

International Building Code

The design and construction of engineered facilities in California must comply with the requirements of the International Building Code (International Code Council 2011) and the adoptions of that code by the State of California (see *2010 California Building Standards Code* below).

U.S. Geological Survey Landslide Hazard Program

To fulfill the requirements of Public Law 106-113, the U.S. Geological Survey created the National Landslide Hazards Program to reduce long-term losses from landslide hazards by improving understanding of the causes of ground failure and suggesting mitigation strategies. The Federal Emergency Management Agency is the responsible agency for the long-term management of natural hazards.

Clean Water Act Section 402 (National Pollutant Discharge Elimination System Program)

Section 402 of the CWA mandates that certain types of construction activity comply with the requirements of EPA's National Pollutant Discharge Elimination System (NPDES) program. EPA has delegated to the State Water Board the authority for the NPDES program in California, where it is implemented by the state's nine RWQCBs.

Construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2010-0014-DWQ). (See *Construction Activities Storm Water Construction General Permit [2010-0014-DWQ Permit]*).

Additional details of the CWA are described in Section 3.1.7, *Hydrology and Water Quality*.

State

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Section [PRC] Section 2621 et seq.) is intended to reduce risks to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy[1] across the traces of active faults and strictly regulates construction in the corridors along active faults capable of surface rupture or fault creep (earthquake fault zones). Generally the required setback is 50 feet from an active fault trace. The act also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are *sufficiently active* and *well defined*. A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered well-defined if its trace can be identified clearly by a trained geologist at the ground surface, or in the shallow subsurface using standard professional techniques, criteria, and judgment (Bryant and Hart 2007).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act—the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards; and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans. Geotechnical investigations conducted within seismic hazard zones must incorporate standards specified by California Geological Survey Special Publication 117a, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (California Geological Survey 2008).

[1] With reference to the Alquist-Priolo Act, a *structure for human occupancy* is defined as one "used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year" (California Code of Regulations, Title 14, Div. 2, Section 3601[e]).

Construction Activities Storm Water Construction General Permit (2010-0014-DWQ Permit)

Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the General Permit Order 2010-0014-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

Coverage under the General Permit is obtained by submitting permit registration documents to the State Water Board that include a risk level assessment and a site-specific stormwater pollution prevention plan (SWPPP) identifying an effective combination of erosion control, sediment control, and non-stormwater best management practices (BMPs). The General Permit requires that the SWPPP define a program of regular inspections of the BMPs and, in some cases, sampling of water quality parameters. The San Francisco Bay RWQCB administers the NPDES stormwater permit program in Alameda County. The 14 cities, the unincorporated area, and the two flood control districts of Alameda County share one NPDES permit that is managed through a consortium of agencies called the Alameda Countywide Clean Water Program.

2010 California Building Standards Code

The California Building Standards Code (CBSC) (24 California Code of Regulations) provides the minimum standards for structural design and construction. The CBSC is based on the International Building Code, which is used widely throughout United States (generally adopted on a state-by-state or district-by-district basis) and has been modified for California conditions with numerous, more detailed or more stringent regulations. The CBSC requires that "classification of the soil at each building site will be determined when required by the building official" and that "the classification will be based on observation and any necessary test of the materials disclosed by borings or excavations." In addition, the CBSC states that "the soil classification and design-bearing capacity will be shown on the (building) plans, unless the foundation conforms to specified requirements." The CBSC provides standards for various aspects of construction, including (i.e., not limited to) excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In accordance with California law, certain aspects of the program would be required to comply with all provisions of the CBSC.

The CBSC requires extensive geotechnical analysis and engineering for grading, foundations, retaining walls, and other structures, including criteria for seismic design.

California Surface Mining and Reclamation Act of 1975

The principal legislation addressing mineral resources in California is the Surface Mining and Reclamation Act of 1975 (SMARA) (PRC Sections 2710–2719), which was enacted in response to land use conflicts between urban growth and essential mineral production. The stated purpose of SMARA is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources while ensuring that adverse environmental effects of mining are prevented or minimized; to ensure that mined lands are reclaimed and residual hazards to public health and safety are eliminated; and to give consideration to recreation, watershed, wildlife, aesthetic, and other related values. SMARA governs the use and conservation of a wide variety of mineral resources, although some resources and activities are exempt from its provisions, including excavation and grading conducted for farming, construction, or recovery from flooding or other natural disaster.

SMARA provides for the evaluation of an area's mineral resources using a system of Mineral Resource Zone (MRZ) classifications that reflect the known or inferred presence and significance of a given mineral resource. The MRZ classifications are based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data, and on socioeconomic factors such as market conditions and urban development patterns. The MRZ classifications are defined as follows.

- **MRZ-1**—areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2**—areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- **MRZ-3**—areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- **MRZ-4**—areas where available information is inadequate for assignment into any other MRZ.

Although the State of California is responsible for identifying areas containing mineral resources, the county or city is responsible for SMARA implementation and enforcement by providing annual mining inspection reports and coordinating with the California Geological Survey.

Mining activities that disturb more than 1 acre or involve excavation of at least 1,000 cubic yards of material require a SMARA permit from the lead agency, which is the county, city, or board that is responsible for ensuring that adverse environmental effects of mining are prevented or minimized. The lead agency establishes its own local regulations and requires a mining applicant to obtain a surface mining permit, submit a reclamation plan, and provide financial assurances pursuant to SMARA.

Certain land-disturbing activities do not require a permit, such as excavation related to farming, grading related to restoring the site of a natural disaster, and grading related to construction.

California Public Resources Code

Several sections of the California PRC protect paleontological resources. Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands.

Local

Alameda County General Plan

The Safety Element of the Alameda County General Plan specifies numerous policies and action to meet its relevant goal, which is, "To minimize risks to lives and property due to seismic and geologic hazards." These policies and actions are listed below (Alameda County Community Development Agency 2013).

Policies

P1. To the extent possible, projects should be designed to accommodate seismic shaking and should be sited away from areas subject to hazards induced by seismic shaking (landsliding, liquefaction, lurking, etc.) where design measures to mitigate the hazards will be uneconomic or will not achieve a satisfactory degree of risk reduction.

P2. Structures should be located at an adequate distance away from active fault traces, such that surface faulting is not an unreasonable hazard.

P3. Aspects of all development in hillside areas, including grading, vegetation removal and drainage, should be carefully controlled in order to minimize erosion, disruption to natural slope stability, and landslide hazards.

P4. Within areas of demonstrated or potential slope instability, development should be undertaken with caution and only after existing geological and soil conditions are known and considered. In areas subject to possible widespread major landsliding, only very low density development should be permitted, consistent with site investigations; grading in these areas should be restricted to minimal amounts required to provide access.

P5. All existing structures or features of structures which are hazardous in terms of damage, threat to life or loss of critical and essential function in the event of an earthquake should be, to the extent feasible, brought into conformance with applicable seismic and related safety (fire, toxic materials storage and use) standards through rehabilitation, reconstruction, demolition, or the reduction in occupancy levels or change in use.

P6. The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk caused by seismic and geologic activity.

P7. The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.

P8. The County shall ensure that new major public facilities, including emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment and communications facilities, are sited in areas of low geologic risk.

P9. Site specific geologic hazard assessments, conducted by a licensed geologist 21, shall be completed prior to development approval in areas with landslide and liquefaction hazards as indicated in Figures S-2 and S-4 and for development proposals submitted in Alquist-Priolo Zones as indicated in Figure S-1, hazards to be mapped include:

- Seismic features
- Landslide potential
- Liquefaction potential

Mitigation measures needed to reduce the risk to life and property from earthquake induced hazards should be included.

P10. Buildings shall be designed and constructed to withstand ground shaking forces of a minor earthquake (1–4 magnitude) without damage, of a moderate (5 magnitude) earthquake without structural damage, and of a major earthquake (6–8 magnitude) without collapse of the structure. The County shall require that critical facilities and structures (e.g., hospitals, emergency operations centers) be designed and constructed to remain standing and functional following an earthquake.

P11. All construction in unincorporated areas shall conform to the Alameda County Building Ordinance, which specifies requirements for the structural design of foundations and other building elements within seismic hazard areas.

P12. To the extent feasible, major infrastructure including transportation, pipelines, and water and natural gas mains, shall be designed to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term service disruptions.

P13. The County shall encourage the retrofitting of existing structures and other seismically unsafe buildings and structures to withstand earthquake ground-shaking.

P14. In order to minimize off-site impacts of hillside development, new construction on landslide-prone or potentially unstable slopes shall be required to implement drainage and erosion control provisions to avoid slope failure and mitigate potential hazards.

Actions

A1. Require all new construction to meet the most current, applicable, lateral force requirements.

A2. Require applications for development within Alquist-Priolo Study Zones to include geological data that the subject property is not traversed by an active or potentially active fault, or that an adequate setback can be maintained between the fault trace and the proposed new construction.

A3. Require sites to be developed in accordance with recommendations contained in the soil and geologic investigations reports.

A4. Establish standards for areas previously in Alquist-Priolo Study Zones, and eliminated in the last update.

A5. Regulate, with collaboration from utility owners, the extension of utility lines in fault zones.

A6. Establish (with collaboration from utility owners) and enforce design standards for transportation facilities and underground utility lines to be located in fault zones.

A7. Require soils and/or geologic reports for development proposed in areas of erodible soils and potential slope instability.

A8. Pursue programs to identify and correct existing structural hazards, with priority given to hazards in critical, essential and high occupancy structures and in structures built prior to the enactment of applicable local or state earthquake design standards.

A9. Support regional or statewide programs providing funding or technical assistance to local governments to allow identification of existing structural hazards in private development and providing assistance to public and private sectors to facilitate and to minimize the social and economic costs of hazards abatement.

A10. Continue to require the upgrading of buildings and facilities to achieve compliance with current earthquake bracing requirements as a condition of granting building permits for major additions and repairs.

A11. Continue, and as required, expand programs to provide the public information regarding seismic hazards and related structural hazards.

A12. Require geotechnical studies prior to development approval in geologic and/or seismic hazard areas as identified by future studies by federal, state, and regional agencies. Require or undertake comprehensive geologic and engineering studies for critical structures regardless of location.

A13. Adopt and amend as needed the most current version of the California Building Code (CBC) to ensure that new construction and renovation projects incorporate Earthquake-resistant design and materials that meet or exceed the current seismic engineering standards of the CBC.

A14. Periodically update detailed guidelines for preparation of site-specific geologic hazard assessments. These guidelines shall be prepared in consultation with the County Building Official, County Engineer, County Counsel and the County Risk Manager and shall ensure that site-specific assessments for development requiring discretionary permits are prepared according to consistent criteria.

A15. Develop and implement an earthquake retrofit plan to reduce hazards from earthquakes. The plan should identify and tally the seismically unsafe buildings and structures, including unreinforced masonry, unreinforced concrete and soft-story buildings, and require inspection for these structures. It should also identify sources of funding to help reconstruct or replace inadequate structures and assist homeowners with earthquake retrofitting.

A16. On sites with slopes greater than 30 percent, require all development to be clustered outside of the 30 percent slope area, with the exception that development upon any area outside of the Urban Growth Boundary where the slope exceeds 25% shall not be permitted.

A17. Aspects of all development in hillside areas, including grading, vegetation removal and drainage, should be carefully controlled in order to minimize erosion, disruption to natural slope stability, and landslide hazards. The County's development standards and guidelines, permit application review process, Section 15.08.240 of its Building Ordinance, the Grading Erosion and Sediment Control Ordinance (Chapter 15.36 of the Alameda County General Ordinance Code), the Stormwater Management and Discharge Control Ordinance (Chapter 13.08), and Subdivision Ordinance (Title 16) shall serve to implement this policy.

Alameda County Code of Ordinances

In the Code of Ordinances, Chapter 15.08, *Building Code*, the County sets forth requirements for new construction in areas affected by seismic and geologic hazards. The code requires that the project proponent submit soil and geotechnical reports before the County will permit construction of a foundation. In addition, Chapter 15.36, *Grading Erosion and Sediment Control*, known as the grading ordinance, sets forth requirements for grading, construction, and the control of erosion and sediments in order to safeguard human health and property, protect waterways, and ensure that the graded site is prepared in accordance with the Alameda County General Plan.

Alameda County East County Area Plan

The East County Area Plan sets forth goals, policies, and implementation programs to minimize the risks related to seismic hazards (Alameda County 2000) and open space. These address hazard zones, environmental hazards including soil and slope stability, seismic and geologic hazards, and the protection of open space.

Hazard Zones

Goal: To minimize the risks to lives and property due to environmental hazards.

Policy 134: The County shall not approve new development in areas with potential **natural hazards** (flooding, geologic, wildland fire, or other environmental hazards) unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis.

Policy 135: The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a **natural disaster**.

Environmental Hazards

Soil and Slope Stability

Goal: To minimize the risks to lives and property due to soil and slope instability hazards.

Policy 307: The County shall encourage Zone 7, cities, and agricultural groundwater users to limit the withdrawal of groundwater in order to minimize the potential for **land subsidence**.

Policy 308: The County shall not permit development within any area outside the Urban Growth Boundary exceeding 25 percent slopes to minimize hazards associated with slope instability.

Seismic and Geologic Hazards

Goal: To minimize the risks to lives and property due to seismic and geologic hazards.

Policy 309: The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk caused by seismic and geologic activity.

Policy 310: The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a **natural disaster.**

Policy 311: The County shall ensure that new major public facilities, including emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment and communications facilities, are sited in areas of low geologic risk.

Policy 312: The County shall ensure that major transportation facilities and pipelines are designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service.

Policy 313: The County shall require development in **hilly areas** to minimize potential erosion and disruption of natural slope stability which could result from grading, vegetation removal, irrigation, and drainage.

Policy 314: The County shall prohibit the construction of any structure intended for human occupancy within 50 feet on either side of the Calaveras, Greenville, or Verona earthquake fault zones as defined by the Alquist-Priolo Earthquake Fault Zoning Act.

Policy 315: The County shall require that buildings be designed and constructed to withstand groundshaking forces of a minor earthquake without damage, of a moderate earthquake without structural damage, and of a major earthquake without collapse of the structure. The County shall require that critical facilities and structures (e.g., hospitals, emergency operations centers) be designed and constructed to remain standing and functional following an earthquake.

Program 111: The County shall delineate areas within East County where the potential for geologic hazards (including seismic hazards, landslides, and liquefaction) warrants preparation of detailed site specific geologic hazard assessments. Areas shall be delineated based upon data from published sources and field investigations. Maps shall be maintained and updated as new data become available. These maps shall not be used by the County to determine where hazardous conditions exist, but instead to identify the presence of conditions which warrant further study.

Program 112: The County shall develop detailed guidelines for preparation of site-specific geologic hazard assessments. These guidelines shall be prepared in consultation with the County Building Official, the County Engineer, County Geologist, County Counsel, and the County Risk Manager, and shall ensure that site-specific assessments for development requiring discretionary permits are prepared according to consistent criteria.

General Open Space

Goal: To protect regionally significant open space and agricultural land from development

Policy 52: The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.

Hazardous Materials and Public Safety Hazards

Federal

Resource Conservation and Recovery Act

The federal Resource Conservation and Recovery Act of 1976 (RCRA) established a "cradle-to-grave" regulatory program governing the generation, transportation, treatment, storage, and disposal of hazardous waste. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements. In California, the Department of Toxic Substances Control regulates the generation, transportation, treatment, storage, and disposal of hazardous material waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. These regulations also require hazardous materials users to prepare written plans, such as a hazardous materials business plan, that describe hazardous materials inventory information, storage and secondary containment facilities, emergency response and evacuation procedures, and employee hazardous materials training programs. A number of agencies participate in enforcing hazardous materials management requirements, including the Department of Toxic Substances Control, the RWQCBs, and the Alameda County Department of Environmental Health's Hazardous Materials/Waste Program.

Transportation of Hazardous Materials and Oversized Loads

The U.S. Department of Transportation regulates hazardous materials transportation on all interstate roads. Within California, the state agencies with primary responsibility for enforcing federal and state regulations and for responding to transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, federal and state agencies determine driver-training requirements, load-labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Caltrans has the discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles contained in Division 15 of the California

Vehicle Code. Requests for such special permits require the completion and application for a Transportation Permit.

Aviation Hazards

Federal Aviation Administration (FAA) Regulations (14 CFR 77) establish standards for what constitutes an obstruction to navigable airspace. Obstructions include any object if it is: (1) 500 feet above ground level; (2) 200 feet above ground level or above the established airport elevation, whichever is higher, within 3 nautical miles of an airport; and (3) above a height within a terminal obstacle clearance area or en route obstacle clearance area. In addition, California Public Utilities Code section 21659 prohibits hazards near airports (as defined by 14 CFR 77) unless a permit allowing the construction is issued by the Caltrans Division of Aeronautics. FAA requires a developer to file a Notice of Proposed Construction (Form 7460) for any structure greater than 200 feet above ground level. The form requires a proposal for marking and lighting of wind turbines and towers. FAA determines if the proposed project would create a hazard to navigable airspace and issues either a Determination of No Hazard or a Notice of Presumed Hazard.

The Proposed Action would be subject to these notification and review requirements. FAA reviews the notifications to complete the following.

- Evaluate the effect of proposed construction on the safety of air commerce and the efficient use and preservation of navigable airspace.
- Determine whether the proposed construction is a hazard to air navigation.
- Determine appropriate marking and lighting recommendations, using FAA Advisory Circular 70/7460-1, "Obstruction Marking and Lighting."
- Determine other appropriate measures to ensure continued air navigation safety.
- Notify the aviation community of proposed construction that affects navigable airspace, including the charting of new objects.

Entities failing to comply with the provisions of 14 CFR Part 77 are subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended, and pursuant to 49 USC Section 46301(a) (Solano County Department of Resource Management 2011).

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund, was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, Superfund was amended by Title III of the Superfund Amendment and Reauthorization Act (community right-to-know laws), also called the Emergency Planning and Community Right-to-Know Act, which states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup even if the material was dumped illegally when the property was under different ownership. These regulations also establish reporting requirements that provide the public with important information on hazardous chemicals in their communities to enhance community awareness of chemical hazards and facilitate development of state and local emergency response plans.

State

California hazardous materials and wastes regulations are equal to or more stringent than federal regulations. EPA has granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous materials

are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous materials and wastes are discussed below.

Worker Safety

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health and the federal Occupational Safety and Health Administration are the agencies responsible for assuring worker safety in the workplace.

The California Division of Occupational Safety and Health assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices within the state. At sites known to be contaminated, a site safety plan must be prepared to protect workers. The site safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

Fire Protection

The California PRC (Section 4101 et seq.) includes fire safety requirements for which the Department of Forestry and Fire Protection (CAL FIRE) has adopted regulations (for example, Chapters 6 and 7 of Chapter 1.5 of 14 CCR) that apply to state responsibility areas (SRAs). As the name implies, SRAs are areas where CAL FIRE has primary responsibility for fire protection. During the fire hazard season, these regulations (a) restrict the use of equipment that may produce a spark, flame, or fire; (b) require the use of spark arrestors[2] on equipment that has an internal combustion engine; (c) specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and (d) specify fire-suppression equipment that must be provided onsite for various types of work in fire-prone areas.

SRAs include much of the wildlands in unincorporated Alameda County. According to CAL FIRE's hazards area mapping, the program area is located in a zone that has a moderate to high risk for wildland fire hazards within the SRA (California Department of Forestry and Fire Protection 2007).

Hydrology and Water Quality

Federal

Clean Water Act

The following are potentially applicable sections of the CWA (33 USC 1251–13176).

Section 303 and 305—Total Maximum Daily Load Program

The State of California adopts water quality standards to protect beneficial uses of state waters as required by CWA 303 Total Maximum Daily Load Program and the State's Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act). CWA 303(d) established the total maximum daily load process to guide the application of state water quality standards (see the discussion of state water quality standards below). To identify candidate water bodies for total maximum daily load analysis, a list of water-quality–limited streams is generated. Such

[2] A spark arrestor is a device that prohibits exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap commonly is used to retain carbon particles from the exhaust.

streams are considered to be impaired by the presence of pollutants, including sediments, and to have no additional assimilative capacity for these pollutants.

In addition to the impaired waterbody list required by CWA Section 303(d), CWA Section 305(b) requires states to develop a report assessing statewide surface water quality. Both CWA requirements are being addressed through the development of a 303(d)/305(b) Integrated Report, which will address both an update to the 303(d) list and a 305(b) assessment of statewide water quality. The State Water Board developed a statewide 2010 California Integrated Report based on the Integrated Reports from each of the nine RWQCBs. The 2010 California Integrated Report was approved by the State Water Board at a public hearing on August 4, 2010, and the report was submitted to the USEPA for final approval. Although updates to the 303(d) list must be finalized by the USEPA before becoming effective, this updated 303(d) list will be used for this analysis in order to have the most up-to-date information available.

Section 401—Water Quality Certification

CWA Section 401 requires that an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant obtain a water quality certification (or waiver). Water quality certifications are issued by the RWQCBs in California. (The San Francisco Bay RWQCB is responsible for the Bay Area and the Central Valley Water Board is responsible for the Central Valley.) Because the program area contains watersheds draining to the Central Valley as well as to San Francisco Bay, it is under the jurisdiction of both the Central Valley RWQCB and the San Francisco Bay RWQCB. Under CWA, the state (as implemented by the relevant RWQCB) must issue or waive CWA Section 401 water quality certification for a project to be permitted under CWA Section 404. Water quality certification requires the evaluation of water quality considerations associated with dredging or the placement of fill materials into waters of the United States. Construction of the proposed project would require CWA 401 certification for the project if CWA Section 404 requirements are triggered.

Section 402—National Pollutant Discharge Elimination System Program

The 1972 amendments to the federal Water Pollution Control Act established the NPDES permit program to control discharges of pollutants from point sources (CWA Section 402). The 1987 amendments to the CWA created a new section of CWA devoted to stormwater permitting (CWA 402[p]). USEPA has granted the State of California primacy in administering and enforcing the provisions of CWA and the NPDES permit program. The NPDES permit program is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States.

The State Water Board issues both general and individual permits for certain activities. Although implemented at the state and local level, relevant general and individual NPDES permits are discussed below.

Construction Activities

Dischargers whose projects disturb 1 or more acres of soil or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres are required to file a notice of intent to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ) (Construction General Permit). Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the preparation and implementation of a SWPPP, which must be completed before construction begins. The SWPPP should contain a site map that shows the construction site perimeter; existing and proposed buildings, lots, roadways, and stormwater collection and discharge points;

general topography both before and after construction; and drainage patterns across the project site. The SWPPP must list BMPs the discharger will use to manage stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a monitoring program for pollutants that are not visible to be implemented if there is a failure of BMPs; and a pH and turbidity monitoring program if the site discharges to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP.

Postconstruction Stormwater Management

The individual NPDES permit (under Provision C.3, San Francisco Bay RWQCB areas only) requires that permanent water quality control devices treat all stormwater to the maximum extent practicable and result in no additional runoff. Runoff from new impervious surfaces of 10,000 square feet or more must be sized according to the volume or rate criteria identified in the permit. After treatment devices are installed, owners must enter into a maintenance agreement with the County to ensure the treatment devices are maintained, inspected, and reported on annually. Low impact development (LID) facilities are required for the project unless the project is eligible for LID reduction credit. LID includes rainwater harvesting, infiltration and bio treatment.

Section 404—Permits for Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the U.S. Army Corps of Engineers for all discharges of dredged or fill material into waters of the United States before proceeding with a proposed activity. Before any actions that may affect surface waters are implemented, a delineation of jurisdictional waters of the United States must be completed, following U.S. Army Corps of Engineers protocols, to determine whether the study area contains wetlands or other waters of the United States that qualify for CWA protection. These areas include the following.

- Sections within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Section 404 permits may be issued for only the least environmentally damaging practical alternative (i.e., authorization of a proposed discharge is prohibited if there is a practical alternative that would have fewer significant effects and lacks other significant consequences). Section 404 might apply if construction would occur within waters of the United States.

State

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Act established the State Water Board and divided the state into nine regional basins, each with an RWQCB. The State Water Board is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, while the regional boards are responsible for developing and enforcing water quality objectives and implementation plans. As mentioned, the San Francisco Bay RWQCB is responsible for the Bay Area region, and the Central Valley Water Board is responsible for the Central Valley area of the program which is the majority of the program area.

The Porter-Cologne Act authorizes the State Water Board to enact state policies regarding water quality in accordance with CWA 303. In addition, the act authorizes the State Water Board to issue waste discharge requirements for projects that would discharge to state waters. The Porter-Cologne Act requires that the State

Water Board or the RWQCB adopt water quality control plans (basin plans) for the protection of water quality. A basin plan must perform the following functions.

- Identify beneficial uses of water to be protected.
- Establish water quality objectives for the reasonable protection of the beneficial uses.
- Establish a program of implementation for achieving the water quality objectives.

Basin plans also provide the technical basis for determining Waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. Basin plans are updated and reviewed every 3 years in accordance with Article 3 of Porter-Cologne Act and CWA 303(c) (San Francisco Bay Regional Water Quality Control Board 2011; Central Valley Regional Water Quality Control Board 2011).

California Regional Water Quality Control Board, San Francisco Bay Region, and Central Valley Region—Basin Plans

Water quality in streams and aquifers of the region is guided and regulated by the San Francisco Bay RWQCB Basin Plan (San Francisco Bay Regional Water Quality Control Board 2011). State policy for water quality control is directed at achieving the highest water quality consistent with the maximum benefit to the people of the state. To develop water quality standards consistent with the uses of a water body, the RWQCBs classify historical, present, and potential future beneficial uses for San Francisco Bay Area/Central Valley waters as part of the basin plans.

In general, beneficial uses can be classified to include municipal supply, cold freshwater habitat, groundwater recharge, fish migration, water contact recreation, noncontact water recreation, fish spawning, warm freshwater habitat, rare species habitat, and wildlife habitat (San Francisco Bay Regional Water Quality Control Board 2011; Central Valley Regional Water Quality Control Board 2011).

Noise

Federal

Federal, state, and local agencies regulate different aspects of environmental noise. Generally, the federal government sets noise standards for transportation-related noise sources closely linked to interstate commerce. These include aircraft, locomotives, and trucks. The state government sets noise standards for transportation noise sources such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies. Local general plans identify general principles intended to guide and influence development plans.

State

Part 2, Title 24 of the California Code of Regulations “California Noise Insulation Standards” establishes minimum noise insulation standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and dwellings other than single-family residences. Under this regulation, interior noise levels attributable to exterior noise sources cannot exceed 45 L_{dn} in any habitable room. Where such residences are located in an environment where exterior noise is 60 L_{dn} or greater, an acoustical analysis is required to ensure that interior levels do not exceed the 45 L_{dn} interior standard.

The *State of California General Plan Guidelines* (Governor's Office of Planning and Research 2003) identifies guidelines for the noise elements of local general plans, including a sound level/land use compatibility chart that categorizes, by land use, outdoor L_{dn} ranges in up to four categories (normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable). For many land uses, the chart shows overlapping L_{dn} ranges for two or more compatibility categories.

The noise element guideline chart identifies the normally acceptable range of L_{dn} values for low-density residential uses as less than 60 dB and the conditionally acceptable range as 55–70 dB. The normally acceptable range for high-density residential uses is identified as L_{dn} values of less than 65 dB, and the conditionally acceptable range is identified as 60–70 dB. For educational and medical facilities, L_{dn} values of less than 70 dB are considered normally acceptable, and L_{dn} values of 60–70 dB are considered conditionally acceptable. For office and commercial land uses, L_{dn} values of less than 70 dB are considered normally acceptable, and L_{dn} values of 67.5–77.5 are categorized as conditionally acceptable. When noise levels are in the conditionally acceptable range new construction should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation requirements are included in the design.

These overlapping L_{dn} ranges are intended to indicate that local conditions (existing sound levels and community attitudes toward dominant sound sources) should be considered in evaluating land use compatibility at specific locations.

Local

Noise Ordinance

Alameda County's noise ordinance (County General Code, Chapter 6.60) allows higher noise exposure levels for commercial properties than for residential uses, schools, hospitals, churches, or libraries. These standards augment the state-mandated requirements of the Alameda County Building Code, which establishes standards for interior noise levels consistent with the noise insulation standards in the California State Building Code. Table D-2 shows the number of cumulative minutes that a particular external noise level is permitted, as well as the maximum noise allowed under the Alameda County General Code.

Table D-2. Alameda County Exterior Noise Standards

Cumulative Number of Minutes in Any 1-Hour Time Period Daytime	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Residential uses, schools, hospitals, churches, and libraries		
30	50 dBA	45 dBA
15	55 dBA	50 dBA
5	60 dBA	55 dBA
1	65 dBA	60 dBA
Maximum	70 dBA	65 dBA
Commercial uses		
30	65 dBA	60 dBA
15	70 dBA	65 dBA
5	75 dBA	70 dBA
1	80 dBA	75 dBA
Maximum	85 dBA	80 dBA

Source: Alameda County General Code, Chapter 6.60.
Alameda County has expressed sound level limits in terms of the day/night average sound level (Ldn) metric. The Ldn is a 24-hour average that includes a 10 A-weighted decibels (dBA) nighttime (10 p.m. to 7 a.m.) penalty. For a continuous sound over a 24 hour period, the Ldn will always be 6.4 dBA greater than the steady sound level. That is, a steady sound level of 58.6 dBA over a 24-hour period would yield an Ldn of 65 dBA.

The provisions of the ordinance do not apply to noise sources associated with construction, provided the activities do not take place before 7 a.m. or after 7 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday.

Conditional Use Permits

The County's conditional use permits for the continued operation of windfarms after 2005, regulated by Resolution Number R-2005-463, identified the following specific condition regarding noise levels.

> Noise Standards: Wind turbines shall be operated so as to not exceed the County's noise standard of 55 dBA (L_{dn}) or 70 dBC (L_{dn}) as measured in both cases at the exterior of any dwelling unit. If the dwelling unit is on land under lease from the Permittee, the applicable standard shall be 65 dBA (L_{dn}) and 70 dBC (L_{dn}).

Traffic and Transportation

Federal

Federal Aviation Administration

FAA is responsible for ensuring the safe and efficient use and preservation of navigable airspace. FAA regulates and determines potential for obstructions to navigable airspace, such as the Proposed Action's proposed wind turbines and meteorological towers, through implementation of notification and obstruction review standards (14 CFR Part 77). The Proposed Action would be subject to these notification and review requirements. FAA reviews the notifications to complete the following.

- Evaluate the effect of proposed construction on the safety of air commerce and the efficient use and preservation of navigable airspace.
- Determine whether the proposed construction is a hazard to air navigation.
- Determine appropriate marking and lighting recommendations, using FAA Advisory Circular 70/7460-1, "Obstruction Marking and Lighting."
- Determine other appropriate measures to ensure continued air navigation safety.
- Notify the aviation community of proposed construction that affects navigable airspace, including the charting of new objects.

Entities failing to comply with the provisions of 14 CFR Part 77 are subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended, and pursuant to 49 USC Section 46301(a). (Solano County Department of Resource Management 2011).

State

Caltrans is responsible for operating and maintaining all State-owned roadways and interstate highways in California. The California Vehicle Code Division 15 gives Caltrans discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles. A special permit issued by Caltrans is required to authorize the operation of oversize or overweight trucks, both of which would be required for implementation of the repower program and the subject projects.

California State Aeronautics Act / Caltrans Division of Aeronautics

The California State Aeronautics Act (California Public Utilities Code Section 21001 et seq.) promotes the understanding of air transportation issues including aviation safety, planning, airport noise, and airport development and management. Caltrans Division of Aeronautics administers the act and publishes the California Airport Land Use Planning Handbook, a guide to inform airport land use commissions, airports, cities, counties, and the public about airport land use compatibility planning issues. Section 21656 of the act requires entities proposing to build or add to the height of any structure in the state more than 500 feet above ground level at the site to obtain a permit from the Caltrans Division of Aeronautics. This section of the act also requires entities proposing the construction of any structure that exceeds the obstruction standards set forth by the FAA in 14 CFR Part 77 to obtain a permit from the Division of Aeronautics unless the FAA has determined that the proposed construction does not constitute a hazard to, or create unsafe conditions for, air navigation.

California Department of Transportation

Caltrans District 4 has jurisdiction over state highways in Solano County. Caltrans requires that a traffic impact study be conducted for a project if it meets one or more of the following conditions.

- Generates over 100 peak hour trips on a state highway facility.
- Generates 50–100 peak-hour trips on a state highway facility experiencing noticeable delay.
- Approaching unstable traffic flow conditions (level of service C or D conditions).
- Generates 1–49 peak-hour trips on a state highway facility experiencing significant delay and unstable traffic flow conditions (level of service E or F conditions), or that significantly increase the potential risk for a traffic accident, or that change local circulation networks that impact a state highway facility. (Solano County Department of Resource Management 2011).

Caltrans also issues permits and sets safety requirements for oversized delivery loads and vehicles that exceed the maximum vehicle length, width, height, and weight limits established by the California Vehicle Code.

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Appendix E
Information Supporting the Environmental Analysis

E.1 Air Quality and Climate Change

Air Quality and GHG Modeling Assumptions

Table. E.1-1 Construction Schedule

Phase	Start	End	Working Days
Laydown, Substations, and Switch Yards	5/1/2021	6/30/2021	7
Road Construction	5/8/2021	7/31/2021	10
Turbine Foundations	6/3/2021	7/15/2021	15
Turbine Delivery and Installation	7/1/2021	8/15/2021	21
Utility Collector Line Installation	6/15/2021	8/1/2021	6
O&M Building Construction	6/1/2021	6/4/2021	2
O&M Building Construction	6/5/2021	6/6/2021	2
O&M Building Construction	6/7/2021	8/27/2021	58
O&M Building Construction	8/28/2021	8/31/2021	4
Restoration and Cleanup	8/1/2021	11/30/2021	11

Table E.1-2. Construction Equipment

Phase	Equipment Name	Number/Day	Hours/Day
Laydown, Substations, and Switch Yards	1 Ton Crew Cab 4x4	2	8
Laydown, Substations, and Switch Yards	Road Grader	1	8
Laydown, Substations, and Switch Yards	Track Type Dozer	1	8
Laydown, Substations, and Switch Yards	Drum Type Compactor	1	8
Laydown, Substations, and Switch Yards	Water Truck	1	6
Laydown, Substations, and Switch Yards	Lowboy/Truck/Trailer	2	8
Laydown, Substations, and Switch Yards	Backhoe/Front Loader	1	8
Road Construction	1 Ton Crew Cab 4x4	2	8
Road Construction	Road Grader	2	8
Road Construction	Track Type Dozer	2	8
Road Construction	Drum Type Compactor	2	8
Road Construction	Water Truck	2	6
Road Construction	Lowboy/Truck/Trailer	2	8
Road Construction	Backhoe/Front Loader	1	8
Road Construction	Excavator	1	8
Road Construction	Rock Crusher	1	8
Turbine Foundations	1 Ton Crew Cab 4x4	2	8
Turbine Foundations	Road Grader	3	8
Turbine Foundations	Track Type Dozer	3	8
Turbine Foundations	Drum Type Compactor	3	8

Phase	Equipment Name	Number/Day	Hours/Day
Turbine Foundations	Water Truck	3	6
Turbine Foundations	Lowboy/Truck/Trailer	3	8
Turbine Foundations	Backhoe/Front Loader	3	8
Turbine Foundations	Excavator	2	8
Turbine Foundations	Rock Crusher	1	8
Turbine Foundations	Cement Trucks	3	8
Turbine Delivery and Installation	Crane	2	8
Turbine Delivery and Installation	Lowboy/Truck/Trailer	2	8
Turbine Delivery and Installation	Excavator	2	8
Utility Collector Line Installation	1 Ton Crew Cab 4x4	1	8
Utility Collector Line Installation	Water Truck	1	6
Utility Collector Line Installation	Backhoe/Front Loader	1	8
Utility Collector Line Installation	Trencher	1	8
Utility Collector Line Installation	HDD Bore Machine	1	8
O&M Building Construction	Graders	1	8
O&M Building Construction	Tractors/Loaders/Backhoes	1	8
O&M Building Construction	Concrete/Industrial Saws	1	8
O&M Building Construction	Rubber Tired Dozers	1	1
O&M Building Construction	Tractors/Loaders/Backhoes	2	6
O&M Building Construction	Cranes	1	4
O&M Building Construction	Forklifts	2	6
O&M Building Construction	Tractors/Loaders/Backhoes	2	8
O&M Building Construction	Vendor Truck	1	8
O&M Building Construction	Air Compressors	1	6
Restoration and Cleanup	Road Grader	3	8
Restoration and Cleanup	Excavator	3	8

Table E.1-3. Construction Vehicles

Phase	Vehicle Type	Miles/Trip	Total Trips
WTG Machines, Pads, and Substation Materials	Light Duty	1	90
WTG Machines, Pads, and Substation Materials	Light Duty	1	90
WTG Machines, Pads, and Substation Materials	Light Duty	23	90
WTG Machines, Pads, and Substation Materials	Heavy Duty	5	150
WTG Machines, Pads, and Substation Materials	Heavy Duty	1	150
WTG Machines, Pads, and Substation Materials	Heavy Duty	29	150
WTG Machines, Pads, and Substation Materials	Heavy Duty	6	357
WTG Machines, Pads, and Substation Materials	Heavy Duty	1	357
WTG Machines, Pads, and Substation Materials	Heavy Duty	19	357
Roads, WTG Foundations and Aggregate	Light Duty	1	1,080
Roads, WTG Foundations and Aggregate	Light Duty	1	1,080
Roads, WTG Foundations and Aggregate	Light Duty	23	1,080
Roads, WTG Foundations and Aggregate	Heavy Duty	5	1,668

Phase	Vehicle Type	Miles/Trip	Total Trips
Roads, WTG Foundations and Aggregate	Heavy Duty	1	1,668
Roads, WTG Foundations and Aggregate	Heavy Duty	29	1,668
Roads, WTG Foundations and Aggregate	Heavy Duty	6	237
Roads, WTG Foundations and Aggregate	Heavy Duty	1	237
Roads, WTG Foundations and Aggregate	Heavy Duty	19	237
WTG Machines, Pads, and Substation Materials	Heavy Duty	56	91
WTG Machines, Pads, and Substation Materials	Heavy Duty	16	59
Roads, WTG Foundations and Aggregate	Heavy Duty	56	1,010
Roads, WTG Foundations and Aggregate	Heavy Duty	16	658
Worker Trips	Light Duty	25	3,935

Table E.1-4. Construction Site Disturbance Quantities

Phase	Total Acres
Laydown, Substations, and Switch Yards	15
Road Construction	8
Turbine Foundations	18
Utility Collector Line Installation	3
Restoration and Cleanup	46

Table E.1-5. O&M Assumptions

Equipment Name	Number/ Day	Hours/ Day	HP	Days per Year	Daily Miles	Acres
1 Ton Crew Cab 4x4	2	4	300	262	21	--
Road Grader	1	8	350	1	--	1.00
Crane	1	8	500	1	--	--
Lowboy/Truck/Trailer	1	2	500	10	5	--
Generator	1	2	100	262	--	--
Employee Vehicles	2	--	--	262	37	--

E.2 Biological Resources

Field Studies Conducted

- **General Vegetation**: ICF verified general vegetation conditions within the project permit area during site visits in 2017 and 2018.
- **Listed Species Habitat**: Habitat surveys of the biological study area were conducted in July 2018, and a site assessment was performed for California tiger salamander and California red-legged frog for both the project permit area and an additional 1.24-mile buffer, to account for California tiger salamander dispersal distances (ICF 2018a).
- **Aquatic Resources/ Waters of the U.S.**: ICF botanists/wetland ecologists conducted aquatic resource delineation surveys on March 3 and 14, 2017. These were formal delineations undertaken with the purpose of characterizing potential waters of the United States, including wetlands, in the project permit area.

- **Special-Status Wildlife**: Formal habitat assessments for special-status species were conducted within the project permit area on April 4, 2017.
- **Avian and Bats (includes Raptors and Golden and Bald Eagles)**: Formal habitat assessments for special-status species, including avian and bat species, were conducted within the project permit area on April 4, 2017. No focused surveys were conducted for avian or bat species. Existing data for all avian and bat species included in the PEIR were reviewed in preparation for habitat assessments.
- **Special-Status Plants**: Formal habitat assessments for special-status plant species were conducted within the project permit area on April 4, 2017.

E.3 Cultural Resources

E.3.1 Environmental Setting

Prehistoric Context

The earliest evidence of widespread occupation of the Central Valley appears at archaeological deposits assigned to the Paleo-Indian period, dated between 11,550 and 8500 B.C. Basally thinned and fluted projectile points, found at scattered surface locations primarily in the southern portion of the Central Valley, provide the earliest accepted evidence of human occupation in the region (Rosenthal et al. 2007:151). No such finds have been reported in the project permit area or vicinity.

The succeeding Lower Archaic period, dated between 8500 and 5550 B.C., is not well represented in eastern Alameda County. Lower Archaic sites identified in the Central Valley are characterized by mostly isolated finds, including stemmed points, chipped-stone crescents, and early concave base points, primarily on the ancient shore of Tulare Lake (Fenenga 1992; Wallace and Riddell 1991). No Lower Archaic sites are recorded within the project permit area or its vicinity.

The Middle Archaic period follows the Lower Archaic period, from about 5550 to 550 B.C. During the Middle Archaic, significant climate changes spurred two distinct settlement-subsistence adaptations in central California: one centered on the foothills and the other on the valley floor (Fredrickson 1984:102–103). Middle Archaic sites appear to have been increasingly sedentary, as indicated by refined and specialized tool assemblages and features, a wide range of nonutilitarian artifacts, abundant trade objects, and plant and animal remains indicative of year-round occupation (Moratto 1984; Ragir 1972; White 2003).

The Upper Archaic period, dated between 550 B.C. and A.D. 1100, is characterized by another change in climate conditions, to a cooler, wetter, and more stable climate. New technologies were developed during this period, which included new types of bone tools and implements and widespread manufactured goods, such as Haliotis ornaments and ceremonial blades (Bennyhoff and Fredrickson 1994; Fredrickson 1974; Moratto 1984). Sites including human remains displaying extended burial postures have been identified along the sidestreams and axial marshes of San Joaquin and Merced Counties (Rosenthal et al. 2007:156).

The archaeological record for the Emergent Occupation period, from A.D. 1000 to the historic period (c. 1500 A.D.–present), is more substantial and comprehensive than those of earlier periods in the Central Valley, and the artifact assemblages are the most diverse (Bennyhoff 1977; Fredrickson 1974; Kowta 1988). The Emergent Period is associated with the use of the bow and arrow, over the dart and atlatl (Bennyhoff 1994), and increased variation in burial types and furnishings suggesting more complex social developments (Atchley 1994; Bennyhoff and Fredrickson 1994).

Historical Context

As early as 1769, the Spanish explorer José Francisco Ortega led an expedition through present-day Alameda County. Seven years later, Juan Bautista de Anza and Pedro Font traveled through the region. By 1797, Spain established the Misión del Gloriosísimo Patriarca Señor San José, currently referred to as Mission San Jose, 15 miles northeast of the present-day city of San Jose and approximately 20 miles southwest of the project location (Kyle et al. 2002).Under the direction of Father Fermín Lausén, Mission San Jose prospered as an agricultural center, grazing sheep and cattle on the land now known as Livermore Valley (Kyle et al. 2002).

With Mexico's independence from Spain in 1822, missions in California were secularized and settlement in Alta California was facilitated through land grants. Between 1841 and 1846, land grant ranchos were established in what would become the San Joaquin Valley, including Rancho Pescadero, located in San Joaquin County, near present-day Tracy, and Rancho Las Positas, located in the eastern portion of what would become the Livermore Valley (Kyle et al. 2002).

After the end of the Mexican-American War in 1848, Mexico surrendered its Alta California land through the Treaty of Guadalupe Hidalgo. That same year, the Gold Rush brought hundreds of immigrants to Alameda County on their way to the California gold fields. Attracted by the fertile land and mild climate of the East Bay, many chose to stay and start new lives. The area quickly became one of the leading agricultural hubs of California, with crop farming, dairy farming, and livestock grazing serving as the principal industries of the period (Livermore Heritage Guild 2000).

The region continued to grow slowly during the late nineteenth and early twentieth centuries. The surrounding area remained primarily an agricultural community, populated with ranches and farms. Early settlers grazed sheep on the unfenced hills and valleys. As livestock became more varied with the introduction of cattle, horses, and mules, fencing enclosures became a common feature on the landscape. Cattle ranches began to dominate around World War I, and between 1910 and 1920, Portuguese immigrants settled in the area, launching what would become a robust dairy industry (Tracy Historical Museum 2017; Tracy Historical Society 2004:19, 32).

In 1913, transportation improved with the construction of the Lincoln Highway, which later became known as Highway 50/Altamont Pass Road (William Self Associates 2002:4).

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E.4 Hazardous Materials and Public Safety Hazards

E.4.1 Best Management Practices

Typical construction erosion control BMPs are as follows:

- Perform clearing and earth moving activities only during dry weather;
- Limit construction access routes and stabilize designated access points;
- Prohibit cleaning, fueling, and maintaining vehicles onsite, except in a designated area where washwater is contained and treated;
- Properly store, handle, and dispose of construction materials/wastes to prevent contact with stormwater;
- Train and provide instruction to all employees/subcontractors on construction BMPs; and
- Control and prevent discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, washwater or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.
- of California Code of Regulations [CCR]). Clear signage will be provided for construction workers at all access points.

E.5 Noise

E.5.1 Terminology

Noise may be defined as unwanted sound. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. Zero on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Definitions of terms commonly used in noise analyses are listed below.

Decibel, dB. A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

Frequency, Hz. The number of complete pressure fluctuations per second above and below atmospheric pressure.

A-Weighted Sound Level, dBA. The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network, which de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.

C-Weighted Sound Level, dBC. The sound pressure level in decibels as measured using the C-weighting filter network, which is very close to an unweighted or "flat" response. C-weighting is only used in special cases, when low frequency noise is of particular importance.

L01, L10, L50, L90. The A-weighted noise levels that are exceeded 1, 10, 50, and 90 percent of the time during the measurement period.

Equivalent Noise Level, Leq. The average A-weighted noise level during the measurement period.

Community Noise Equivalent Level, CNEL. The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.

Day/Night Noise Level, Ldn. The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.

Lmax, Lmin. The maximum and minimum A-weighted noise level during the measurement period.

Ambient Noise Level. The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.

Intrusive. That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

E.6 Cumulative Effects

E.6.1 Cumulative Development Projects Considered

Table E.6-1. Projects Considered in the Cumulative Analysis [A]

Project Title	Owner/Operator	Status	Potential Cumulative Effect Areas	Estimated Construction Schedule	Approximate location relative to the Proposed Action (miles)	Potential Conflicts between Proposed Action and Cumulative Project?
Buena Vista	Babcock& Brown Group, and General Electric	Operational	*Construction*: Not applicable *Operation*: Aesthetics, Biological Resources, Noise, Transportation and Traffic	Completed in 2005	3.80 miles north of the Project Site	None
Diablo Winds	NextEra	Operational	*Construction*: Not applicable *Operation*: Aesthetics, Biological Resources, Noise, Transportation and Traffic	Completed in 2004	0.75 miles northeast of the Project Site	None
Golden Hills Phase I	NextEra	Operational	*Construction*: Not applicable *Operation*: Aesthetics, Biological Resources, Noise, Transportation and Traffic	Completed in 2015	0.5 miles south of Project Site	None
Golden Hills Phase II	NextEra	Operational	*Construction*: Not applicable *Operation*: Aesthetics, Biological Resources, Noise, Transportation and Traffic	Completed in 2017	Adjacent to Project Site	None
Patterson Pass	EDF	Approved (PEIR)	*Construction*: Aesthetics, Noise, Biological Resources, Public Safety Hazards and Hazardous Materials, Transportation and Traffic *Operation*: Aesthetics, Biological Resources, Noise, Public Safety Hazards and Hazardous Materials, Transportation and Traffic	Unknown	2.5 miles southeast of the Project Site	None

Project Title	Owner/Operator	Status	Potential Cumulative Effect Areas	Estimated Construction Schedule	Approximate location relative to the Proposed Action (miles)	Potential Conflicts between Proposed Action and Cumulative Project?
Mulqueeney Ranch	Brookfield	Foreseeable (PEIR)	*Construction*: Aesthetics, Biological Resources, Cultural Resources, Geology, Soils, and Paleontological Resources, Greenhouse Gas Emissions, Public Safety Hazards and Hazardous Materials, and Hydrology and Water Quality *Operation*: Aesthetics, Biological Resources, and Greenhouse Gas Emissions	Unknown	2.75 miles southeast of the Project Site	None
Sand Hill	sPower	Foreseeable (PEIR), subsequent Environmental Impact Report in preparation	*Construction*: Aesthetics, Biological Resources, Cultural Resources, Geology, Soils, and Paleontological Resources, Greenhouse Gas Emissions, Public Safety Hazards and Hazardous Materials, and Hydrology and Water Quality, Noise, Traffic and Transportation *Operation*: Aesthetics, Biological Resources, and Greenhouse Gas Emissions, Traffic and Transportation	Unknown	2.0 miles east of the Project Site	None
Summit Wind	AWI (now Salka, LLC)	Approved	*Construction*: Aesthetics, Biological Resources, Cultural Resources, Geology, Soils, and Paleontological Resources, Greenhouse Gas Emissions, Public Safety Hazards and Hazardous Materials, Hydrology and Water Quality *Operation*: Aesthetics, Biological Resources, Greenhouse Gas Emissions	Starting July 2019	1.25 miles west of the Project Site	None
Tres Vaqueros	Tres Vaqueros Wind Farms LLC	Approved	*Construction*: Aesthetics, Biological Resources, Cultural Resources, Geology, Soils, and Paleontological Resources, Greenhouse Gas Emissions,	Unknown	4.0 miles north of the Project Site	None

Project Title	Owner/Operator	Status	Potential Cumulative Effect Areas	Estimated Construction Schedule	Approximate location relative to the Proposed Action (miles)	Potential Conflicts between Proposed Action and Cumulative Project?
			Public Safety Hazards and Hazardous Materials, Hydrology and Water Quality *Operation*: Aesthetics, Biological Resources, Greenhouse Gas Emissions			
Vasco Winds	NextEra	Operational	*Construction*: Not applicable *Operation*: Aesthetics, Biological Resources, Noise, Transportation and Traffic	Completed in 2011	3.30 miles north of the Project Site	None

[A] County planning staff has received information from two additional companies, DunoAir-Altamont and NRG, indicating they are developing projects in the APWRA. Review of these projects under the PEIR, if ultimately proposed, would occur at a later date (Alameda County Community Development Agency 2018).
PEIR = *Altamont Pass Wind Resource Area Repowering Program Environmental Impact Report*; APWRA = Altamont Pass Wind Resource Area

Appendix F

Summary of Mitigation Measures from Previous Documents Referenced in the EA

Appendix F

Summary of Mitigation Measures from Previous Documents Referenced in the EA

Resource Category	Number	Mitigation Measure	Source
Aesthetics	**AES-1**	Limit construction to daylight hours	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Aesthetics	**AES-2b**	Maintain site free of debris and restore abandoned roadways	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Aesthetics	**AES-2c**	Screen surplus parts and materials	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Aesthetics	**AES-5**	Analyze shadow flicker distance and mitigate effects or incorporate changes into project design to address shadow flicker	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Air Quality and Climate Change	**AQ-2a**	Reduce construction-related air pollutant emissions by implementing applicable BAAQMD Basic Construction Mitigation Measures	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Air Quality and Climate Change	**AQ-2b**	Reduce construction-related air pollutant emissions by implementing measures based on BAAQMD's Additional Construction Mitigation Measures	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
General	**GEN-14**	Grading will be restricted to the minimum area necessary	East Alameda County Conservation Strategy (ICF International 2010)
Biological Resources	**INV-1**	If vernal pools, clay flats, alkaline pools, ephemeral stock tanks, or sandstone pools, or roadside ditches are present, a qualified biologist will stake and flag an exclusion zone prior to activities.	East Alameda County Conservation Strategy (ICF International 2010)
Biological Resources	**MAMM-1**	San Joaquin kit fox avoidance	East Alameda County Conservation Strategy (ICF International 2010)

Resource Category	Number	Mitigation Measure	Source
Biological Resources	**ADD-8**	Biological Monitor for Dust	Rooney Ranch Wind Repowering Project Draft Habitat Conservation Plan
Biological Resources	**ADD-9**	Watering of Loose Soil	Rooney Ranch Wind Repowering Project Draft Habitat Conservation Plan
Biological Resources	**ADD-10**	Hydrologist Analysis of Design Plans	Rooney Ranch Wind Repowering Project Draft Habitat Conservation Plan
Biological Resources	**BIO-1b**	Implement best management practices to avoid and minimize impacts on special-status species	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-1e**	Retain a biological monitor during ground-disturbing activities in environmentally sensitive areas	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-2**	Prevent introduction, spread, and establishment of invasive plant species	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-3a**	Conduct preconstruction surveys for habitat for special-status wildlife species	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-3b**	Implement measures to avoid, minimize, and mitigate impacts on vernal pool branchiopods and curved-footed hygrotus diving beetle	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-5a**	Implement best management practices to avoid and minimize effects on special-status amphibians	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-5c**	Restore disturbed annual grasslands	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-8a**	Implement measures to avoid and minimize potential impacts on special-status and non-special-status nesting birds	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-8b**	Implement measures to avoid and minimize potential impacts on western burrowing owl	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)

Resource Category	Number	Mitigation Measure	Source
Biological Resources	**BIO-10a**	Implement measures to avoid and minimize potential impacts on San Joaquin kit fox and American badger	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-10b**	Compensate for loss of suitable habitat for San Joaquin kit fox and American badger	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11a**	Prepare a project-specific avian protection plan	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11b**	Site turbines to minimize potential mortality of birds	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11c**	Use turbine designs that reduce avian impacts	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11d**	Incorporate avian-safe practices into design of turbine related infrastructure	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO 11e**	Retrofit existing infrastructure to minimize risk to raptors	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11f**	Discourage prey for raptors	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11g**	Implement postconstruction avian fatality monitoring for all repowering projects	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11h**	Compensate for the loss of raptors, including golden eagles, by contributing to conservation efforts	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-11i**	Implement an avian adaptive management program	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)

Resource Category	Number	Mitigation Measure	Source
Biological Resources	**BIO-14a**	Site and select turbines to minimize potential mortality of bats	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-14b**	Implement postconstruction bat fatality monitoring program for all repowering projects	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-14c**	Prepare and publish annual monitoring reports on the findings of bat use of the project area and fatality monitoring results	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-14d**	Develop and implement a bat adaptive management plan	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Biological Resources	**BIO-14e**	Compensate for expenses incurred by rehabilitating injured bats	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Cultural Resources	**CUL-1a**	Avoid historic resources	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Cultural Resources	**CUL-1b**	Appropriate recordation of historic resources	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Cultural Resources	**CUL-2b**	Develop a treatment plan for any identified significant cultural resources	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Cultural Resources	**CUL-2c**	Conduct worker awareness training for archaeological resources prior to construction	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Cultural Resources	**CUL-2d**	Stop work if cultural resources are encountered during ground-disturbing activities	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Geology, Seismicity, Soils, and Paleontological Resources	**GEO-1**	Conduct site-specific geotechnical investigation and implement design recommendations in subsequent geotechnical report	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)

Resource Category	Number	Mitigation Measure	Source
Geology, Seismicity, Soils, and Paleontological Resources	**GEO-7a**	Retain a qualified professional paleontologist to monitor significant ground-disturbing activities	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Geology, Seismicity, Soils, and Paleontological Resources	**GEO-7b**	Educate construction personnel in recognizing fossil material	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Geology, Seismicity, Soils, and Paleontological Resources	**GEO-7c**	Stop work if substantial fossil remains are encountered during construction	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Hydrology and Water Quality	**WQ-1**	Comply with NPDES requirements	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Noise	**NOI-2**	Employ noise-reducing practices during decommissioning and new turbine construction	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)
Traffic and Transportation	**TRA-1**	Develop and implement a construction traffic control plan	Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (Alameda County Community Development Agency 2014)

Appendix G

Hydrological Analysis for the Rooney Ranch Wind Repowering Project

Appendix G

Rooney Ranch Hydrological Analysis

To: Korina Cassidy
From: Brendan Belby, Professional Hydrologist
Date: April 10, 2019

Introduction

Rooney Ranch, LLC (Rooney Ranch) is proposing to repower an existing wind energy facility within the Altamont Pass Wind Resource Area (APWRA). The Rooney Ranch Wind Repowering Project (Project) will involve the removal of 199 old wind turbines and replacement with 7 new wind turbines. Existing roads will be used where possible, and temporary widening and some new roads would be necessary. The Project would also involve the installation of new underground power collection lines, a meteorological tower, and several staging areas to facilitate construction.

During development of a Habitat Conservation Plan in early 2019, prepared pursuant to Section 10 of the Federal Endangered Species Act, the U.S. Fish and Wildlife Service (USFWS) requested a hydrological analysis to evaluate potential direct or indirect effects that project construction could have on the aquatic habitats on the project site. The purpose of this memorandum is to describe the methods used to review the hydrological factors on the project site, and to summarize the type and extent of any potential changes in hydrology (i.e., changes in the water regime), or the type and extent of any potential sedimentation that could result from construction activities on the project site. The proposed project is located on approximately 578 acres of rolling, treeless annual grassland. Of this land, approximately 572 acres consists of annual grassland, 3 acres is developed with roads and other infrastructure, 2.3 acres are rock outcrops, 0.2 acres are ephemeral drainages, and 0.6 acres are ponds (Figure 1).

Methods

After reviewing site conditions and topographic information, and using my experience as a professional hydrologist, I prepared this summary memorandum. My assessment factored in soils, drainage patterns (i.e., topography) and likely flow paths, seasonality of construction, distance from construction area, extent of Best Management Practices (BMPs) anticipated, and potential for sedimentation. Additionally, my assessment considers the extent of proposed restoration; the majority of proposed ground disturbance is temporary and would be restored following construction through the implementation of a grassland restoration plan.

Evaluation

Soils throughout the project area are primarily one of three Altamont clay soils units, all of which are not hydric but have inclusions that are hydric (Natural Resources Conservation Service 2009). All are well drained clay units, with slopes that range substantially. If managed correctly, these soils can be disturbed and restored without substantial erosion.

The site's steep slopes allow for use of LiDAR topography to determine overall drainage patterns. Watercourses are ephemeral, and with the exception of a stock pond maintained for cattle watering, most on-site hydrology is direct percolation with some overland sheet flow. Sheet flow is not likely to move far except during prolonged, heavy rainfall or from more moderate rainfall events on compacted surfaces such as roads or rock given the density of the vegetation.

Project construction will generally be limited to the dry season from April 15 until October 31. Ground disturbing work is not expected to occur between November 1 and April 14, however; the USFWS has noted that ground disturbing work within this period may be allowable, provided that work does not occur during rain events[1] or within 24 hours following a rain event. Constraining the ground disturbing activities of the project to the dry season, and/or periods of dry weather, will reduce the potential for large-scale erosion events. Restoration planting and hydroseeding is required to occur immediately following construction, which should help to further minimize the potential for erosion.

As required under the Altamont Pass Wind Resource Area Repowering Program Environmental Impact Report (PEIR), preparation of a Stormwater Pollution Prevention Plan (SWPPP) is required under Mitigation Measure WQ-1. This mitigation measure outlines Best Management Practices (BMP's) to be implemented as part of the SWPPP, which may include the following practices:

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Use a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater), designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sediments, excessive vegetation, and debris that may clog basin inlets and outlets.
- Cover or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
- Ensure that no earth or organic material will be deposited or placed where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.
- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.
- Ensure that grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.

Additionally, Mitigation Measure WQ-1 requires the selection of a combination of BMPs that is expected to minimize runoff and remove contaminants from stormwater discharges.

The wetland features on site and the distance to nearest construction work areas are summarized in Table 1.

[1] Rain events will be defined as 0.25 inch in a 24-hour period.

Table 1. Aquatic Resources in the Project Area

Feature Type	Feature ID	Drainage Average Width (feet)	Acreage	Distance to Nearest Construction Area	Type of Nearest Construction
Pond (ephemeral)	P-1	–	0.01	225 feet	Temporary access road expansion.
Pond (permanent)	P-2	–	0.58	1,200 feet	Temporary work areas for turbine construction.
Pond (ephemeral)	P-3	–	0.03	430 feet	Temporary work areas for turbine construction.
Ephemeral Drainage	ED-1	3	0.02	225 feet	Temporary access road expansion.
Ephemeral Drainage	ED-2	1	0.06	1,600 feet	Temporary work areas for turbine construction.
Ephemeral Drainage	ED-3	2	0.09	960 feet	Temporary work areas for turbine construction.
Total			0.80		

Ephemeral drainages are seasonally wet features. Three ephemeral drainages exist within the project area. This community occupies approximately 0.2 acre in the south western and south eastern section of the plan area (Figure 1). The drainages are located in low lying areas, draining water from surrounding hillsides and likely carry water only following storm events. Two of the drainages (ED-2 and ED-3) are 1,600 and 960 feet, respectively, from any project activities. One ephemeral drainage (ED-1) is approximately 225 feet away from project activities and separated by an existing road. The two drainages that are at least 960 feet away from the project (ED-2 and ED-3) will be unaffected by the project given the soils, on-site restoration, and lack of connection between the disturbance area and the wetland feature. The ephemeral drainage that is 225 feet away is unlikely to be affected by project construction given flow paths from the nearby proposed road will be restored, would directly percolate, and would carry flow along the road perpendicular to the feature.

There are three ponds within the project area. Two are small ephemeral ponds and one is larger and permanent. The two small ephemeral ponds (P-1 and P-3) on the south and south west side of the project area and are 225 feet and 430 feet away from project construction, respectively. The surface area of the ponds varies, depending on the time of year. The wetland ecologist conducting the delineation noted that it appears this area ponds shallowly based on overland flow from nearby areas. One of the stock ponds (P-2) appears to be a small permanent body of water constructed to retain runoff water for livestock use and is over 1,600 feet from project construction.

Wetland features in the rock outcrops were not included in the wetland delineation but were included in the biological resources report because of their potential to provide habitat for listed shrimp species. The density of rock outcrop pools varied from 1-10 pools per outcrop. The nearest pools are approximately 50 feet away from proposed staging areas. Installing exclusion fencing to ensure crews do not encroach on the rock outcrops and maintaining dust control within the staging area will help ensure there are not significant deposits of fugitive dust in the rock pools. As required under the PEIR, Mitigation Measure AQ-2 requires implementation of applicable Bay Area Air Quality Management District basic construction measures to reduce construction-related air pollutants, including dust. These measures require the following:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered as needed to maintain dust control onsite—approximately two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite will be covered.

- All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads will be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage will be provided for construction workers at all access points.
- All construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment will be checked by a certified visible emissions evaluator.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The air district's phone number will also be visible to ensure compliance with applicable regulations.

Vegetation in the ephemeral drainages is composed of hydrophytic plant species adapted to wetland conditions. Vegetation typically associated with this feature include generalists such as hyssop loosestrife (*Lithium hyssopifolia*), cocklebur (*Xanthium strumarium*), Mediterranean barley, and Italian ryegrass. Upland species such as black mustard (*Brassica nigra*), redstem filaree, common tarweed (*Holocarpha virgata*), and soft chess brome can also occur. The ponds are unvegetated but may sometimes support a narrow fringe of cattail (*Typha* spp.) or scattered cattail plants. These plant communities are well established and help contain runoff.

Temporary impacts will be restored via hydroseeding and permanent impacts are localized and distant from wetland features. Therefore, they are expected to have a minimal contribution to the overall sedimentation throughout the watersheds and no direct or indirect impacts on wetland features.

Conclusions and Recommendations

The primary risk to wetland features would be from redirected or concentrated runoff that could lead to erosion and sedimentation. However, this appears unlikely to occur given the location of the work in relation to the wetland features. Facilities are primarily being constructed on ridgelines and temporary impact areas will be restored. Construction of the turbines and staging areas on the ridge lines is important for minimizing potential hydrology impacts because it is uncommon for concentrated overland flow to occur at the tops of the sub-watersheds. The greater risk to hydrologic patterns is from roads constructed at lower sub-watershed elevations since the roads could intersect concentrated flow in existing drainages. This risk is low given the distance of the roads from the mapped drainages (Figure 1).

Based on the soils, drainage patterns and likely flow paths, seasonality of construction, distance from construction area, extent of proposed restoration, extent of BMPs anticipated, and low potential for sedimentation with necessary BMPs in place and functioning as intended, I conclude that direct and indirect effects on wetland features are unlikely to occur. However, to further minimize project risks, I recommend implementing the following measure:

To ensure that potential indirect effects on aquatic habitats are minimized, a hydrologist will assist with design of project components, including access roads that are constructed within 250 feet of aquatic habitats. The intent of this measure is for the hydrologist to ensure that the project components are constructed in a site-specific way that would not obstruct natural drainage patterns that could potentially redirect flow away from the aquatic features or

concentrate flow that could cause erosion and sediment delivery to the features. A description of the methods and results of this work will be provided to USFWS prior to construction of project components within 250 feet of aquatic habitats.

Thank you and please don't hesitate to contact me if you need additional clarification on the information in this memorandum.

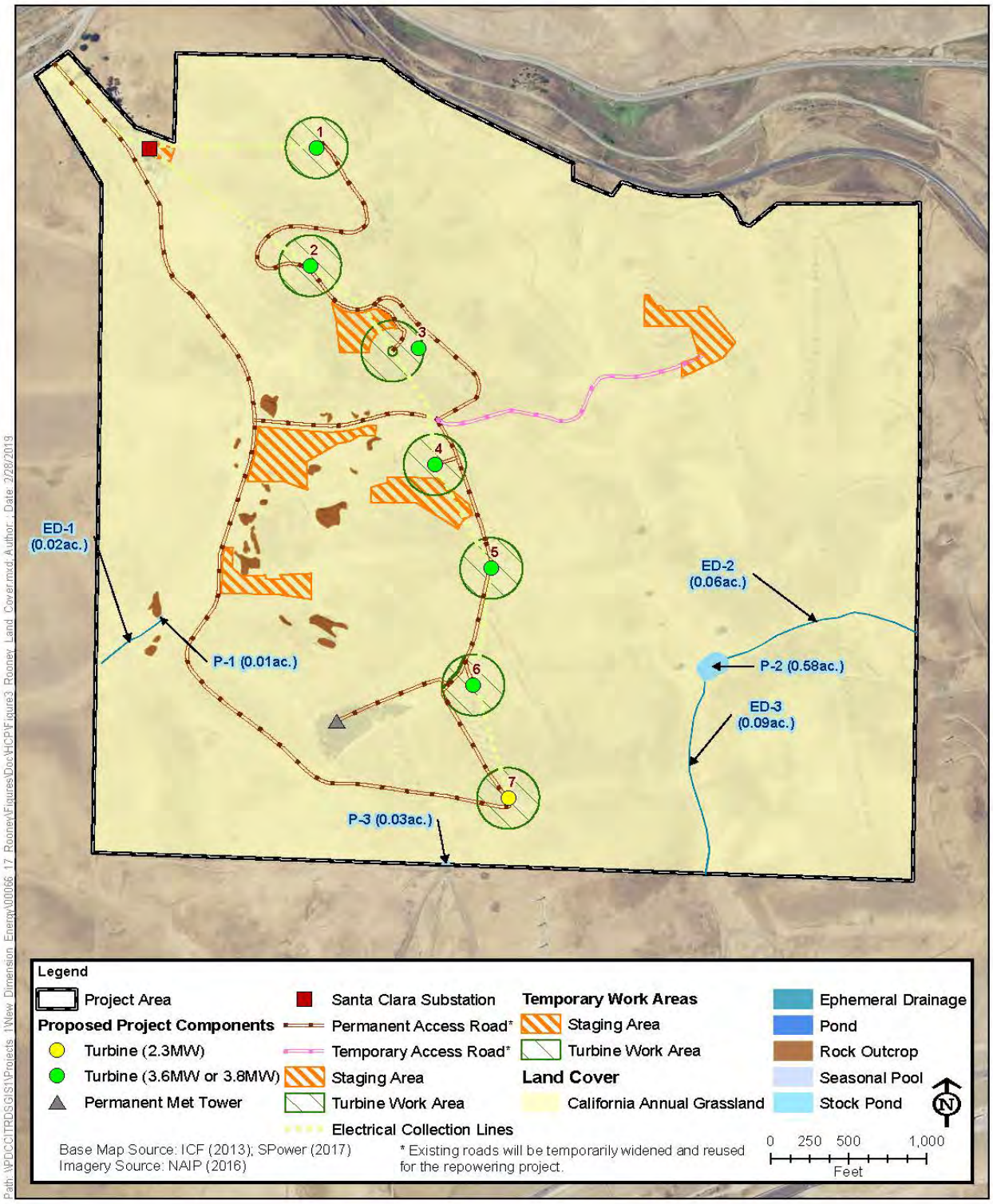

Figure 1
Land Cover in Rooney Ranch Wind Project Area Layout

Appendix H

Avian and Bat Mortality Technical Memorandum

Appendix H

Avian and Bat Mortality Technical Memorandum

To: Claudia Funari/USFWS
From: Chris Earle and Rachel Gardiner/ICF
Date: September 2, 2020

This memorandum evaluates avian and bat mortality at the Rooney Ranch Wind Energy Facility (Project), located in the Altamont Pass Wind Resource Area (APWRA) in Alameda County, California, and proposed for repowering. It updates information originally provided in the Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report (PEIR) (Alameda County Community Development Agency 2014) with subsequent monitoring information reported by existing wind energy facilities.

Rooney Ranch Wind, LLC has applied for an eagle incidental take permit under the Bald and Golden Eagle Protection Act. As we process the application, we will calculate our eagle take risk prediction using our Collision Risk Model as required by our updated 2016 eagle permit regulations (81 FR 91494) for incidental take permits using methods described in our Eagle Conservation Plan Guidance (U. S. Fish and Wildlife Service 2013). Our impact assessment presented in this document is for the purposes of our current NEPA analysis. Our methods and resulting risk estimate for eagles will differ when we process the eagle take permit, which will have its own NEPA analysis.

This analysis concludes that based on forecast fatalities, estimated population numbers and trends, and species habitat and demography, fatalities associated with the proposed Project would not alter the known population status of affected bird or bat species.

Environmental Setting

This section discusses bird and bat species use of the APWRA and presents a background of the measures used to minimize turbine-related mortality in the APWRA. It also presents a summary of mortality monitoring data we used to estimate project impacts to birds and bats.

Background

Located approximately 90-kilometers (km) east of San Francisco, California, the Altamont Pass Wind Resource Area (APWRA) supports a broad diversity of resident, migratory, and wintering hawks and eagles (Orloff and Flannery 1992). The APWRA supports a broad diversity of resident, migratory, and wintering bird species that regularly move through the area (Orloff and Flannery 1992). In particular, diurnal raptors (eagles and hawks) use the prevailing winds and updrafts for soaring and gliding during daily travel, foraging, and migration. Birds passing through the rotor plane of operating wind turbines are at risk of being injured or killed. Multiple studies of avian mortality in the APWRA show that substantial numbers of golden eagles, red-tailed hawks, American kestrels, burrowing owls, barn owls, and a diverse mix of non-raptor species are killed each year in turbine-related incidents (Howell and DiDonato 1991; Orloff and Flannery 1992; Howell 1997; Smallwood and Thelander 2004; ICF 2016).

The numbers of birds killed annually in the APWRA in turbine-related incidents led to a series of efforts to reduce impacts that began with conditions for wind operators aimed at reducing impacts as required by Alameda County (County) in 2005.

In 2007, Audubon, Californians for Renewable Energy (CARE), and multiple wind energy companies (NextEra, Wind Power Partners, Forebay, and EnXco) entered into a Settlement Agreement to resolve litigation regarding the County's 2005 issuance of Conditional Use Permits (CUP) approvals for continued wind energy operations. In particular, the 2007 Settlement Agreement committed the participating wind companies to achieve a 50% reduction in avian fatalities from an estimated baseline of annual fatalities of golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), American kestrel (*Falco sparverius*), and red-tailed hawk (*Buteo jamaicensis*). The goal was to implement measures to reduce impacts to avian species and to evaluate the effectiveness of those measures at reducing impacts to birds using these four focal species. This work was central to evaluation of progress toward achieving the 50% reduction goal established by the 2007 Settlement Agreement. The goal of achieving a 50% reduction was not achieved.

As a result, in December 2010, Audubon, CARE, NextEra, the People of the State of California, and the Attorney General entered into a settlement agreement with NextEra Energy, the company operating the majority of turbines in the APWRA. The 2010 Settlement Agreement required multiple measures aimed at reducing impacts to the four focal species. This agreement also required robust post-construction monitoring studies be implemented for each phase of repowering, and in consultation with the either Contra Costa County's or Alameda County's Technical Advisory Committee (TAC) or Scientific Review Committee (SRC). This Service was not a party to this Settlement Agreement, although we do participate in the TACs for each County as requested.

Bird Species Considered

The list of Birds of Conservation Concern (BCC) identifies migratory and nonmigratory birds of conservation concern within each BCR of the United States and its territories (U. S. Fish and Wildlife Service 2008). The conservation concern may be the result of population declines, constrained distribution, anthropogenic threats to habitat, or other factors. Several BCC species occur in the APWRA and, potentially, within the proposed project area. The 1988 amendment to the Fish and Wildlife Conservation Act requires us to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." Birds of Conservation Concern 2008 (U. S. Fish and Wildlife Service 2008) reflects the most recent effort to carry out this mandate. As outlined in Table H-1, 46 taxa are included on the 2008 BCC list for Bird Conservation Region (BCR) 32, the Coastal California region. Our review of the available preconstruction and postconstruction survey reports for the APWRA indicate that seven species on this list have been documented in the APWRA. Of these species, four have had documented mortalities at wind projects near the proposed project, and three species have been observed within the APWRA but have not had documented fatalities to date.

Table H-1. Birds of Conservation Concern for BCR 32 (Coastal California)

Species	Observed in the APWRA[a]	Potential Habitat in the Project Area[b]	Documented Fatalities in the APWRA[a]
Allen's Hummingbird	No	No	No
Ashy Storm-Petrel	No	No	No
Bald Eagle	Yes	Yes	No
Black Oystercatcher	No	No	No
Black Rail	No	No	No
Black Skimmer	No	No	No
Black Swift	No	No	No
Black-chinned Sparrow	No	No	No
Black-footed Albatross	No	No	No
Black-vented Shearwater	No	No	No

Species	Observed in the APWRA[a]	Potential Habitat in the Project Area[b]	Documented Fatalities in the APWRA[a]
Burrowing Owl	Yes	Yes	Yes
Cactus Wren	No	No	No
Cassin's Auklet	No	No	No
Common Yellowthroat (*sinuosa ssp*.)	No	No	No
Costa's Hummingbird	No	No	No
Flammulated Owl	No	No	No
Gull-billed Tern	No	No	No
Island Scrub-Jay	No	No	No
Lawrence's Goldfinch	No	No	No
LeConte's Thrasher	No	No	No
Lewis's Woodpecker	No	No	No
Loggerhead Shrike	Yes	Yes	Yes
Long-billed Curlew	Yes	Yes	No
Marbled Godwit	No	Yes	No
Mountain Plover	No	No	No
Nuttall's Woodpecker	No	Yes	No
Oak Titmouse	No	Yes	No
Peregrine Falcon	Yes	Yes	Yes
Pink-footed Shearwater	No	No	No
Red Knot (*roselaari ssp*.)	No	No	No
Short-billed Dowitcher	No	No	No
Snowy Plover	No	Yes	No
Song Sparrow (*graminea ssp.*)	No	No	No
Song Sparrow (*maxillaris ssp.*)	No	No	No
Song Sparrow (*pusillula ssp*.)	No	Yes	No
Song Sparrow (*samuelis ssp.*)	No	No	No
Spotted Owl (*occidentalis ssp.*)	No	No	No
Spotted Towhee (*clementae ssp*.)	No	No	No
Tricolored Blackbird	Yes	Yes	Yes
Whimbrel	No	Yes	No
White-headed Woodpecker	No	No	No
Xantus's Murrelet	No	No	No
Yellow Rail	No	Yes	No
Yellow Warbler (*brewsteri ssp*.)	No	Yes	No
Yellow-billed Cuckoo (w. US DPS)	No	No	No
Yellow-billed Magpie	Yes	Yes	No

[a] Source: ICF (2016).
[b] For the purposes of this table, "potential habitat" includes breeding, foraging, roosting, and/or migration areas.

In addition to the BCC-listed species, certain other raptors known to forage in the APWRA were addressed due to known appreciable risks of mortality as documented by past mortality surveys in the APWRA (ICF 2016). Due to the risk of mortality in these species, there is a potential for wind turbine-caused mortality to affect the

population status of these species. They include the American kestrel, barn owl, golden eagle, prairie falcon, peregrine falcon, Swainson's hawk, tricolored blackbird, and red-tailed hawk.

Bird Studies

Quantitative impact studies to evaluate wind turbine effects on birds in the area have been ongoing for many years. A continuous APWRA-wide mortality monitoring study was conducted from 2005-2013 (ICF 2016). Additional project specific impact studies have been conducted at three repowered sites; Buena Vista Wind (Insignia Environmental 2012), Vasco Winds (Brown et al. 2016), and Golden Hills Wind (H. T. Harvey & Associates 2018a, 2018b). Currently another mortality study is under way at the recently repowered Golden Hills North Wind project. Collectively these studies provide a quantitative record of mortality of estimated impacts to birds and bats since 2005. Methods and protocols used to estimate bird and bat mortality from collision with wind turbines have been refined over the years. The history, methods, and protocols are summarized in Alameda County's 2014 APWRA Repowering Final Program Environmental Impact Report (PEIR) (Alameda County Community Development Agency 2014). More recent studies and analysis are available for the Vasco Wind and Golden Hills Wind projects (Brown et al. 2016; H. T. Harvey & Associates 2018a, 2018b).

Birds passing through the rotor plane of operating wind turbines are at risk of being injured or killed. Multiple studies of bird mortality in the APWRA show that substantial numbers of golden eagles, red-tailed hawks, American kestrels, burrowing owls, barn owls, and a diverse mix of non-raptor species are killed each year in turbine-related incidents (Howell and DiDonato 1991; Orloff and Flannery 1992; Howell 1997; Smallwood and Thelander 2004; ICF 2016, Brown et al. 2016; H. T. Harvey & Associates 2018a, 2018b).

Until 2014, attempts to reduce bird fatalities in the APWRA focused primarily on two management actions: the shutdown of turbines during the winter period, when use and raptor mortality rates of the area by red-tailed hawks, golden eagles, and American kestrels is highest; and removal of turbines thought to pose high collision risk based on history of fatalities, topographic position of the turbine, and other factors (Smallwood and Spiegel 2005a, 2005b, 2005c; ICF 2016). The Scientific Review Committee, established by the County to oversee the take reduction measures and related studies, produced guidelines for siting wind turbines to minimize bird fatalities in the APWRA. The SRC evaluated topographic, wind pattern, bird behavior, and turbine siting variables related to hazardous conditions to provide guidance to the wind companies to reduce bird collision hazards (Alameda County Community Development Agency 2014).

In its PEIR (Alameda County Community Development Agency 2014), Alameda County cited some evidence from three repowered project's mortality studies, Diablo Winds (ICF International 2013), Buena Vista (Insignia Environmental 2012), and preliminary results from the Vasco Wind study (Brown et al. 2013). The PEIR analysis suggested that the larger modern turbines may substantially reduce turbine-related avian fatalities compared to the older generation turbines (Brown et al. 2013; ICF International 2013), although they pointed out that two of the three sites (Diablo Winds and Buena Vista) had much smaller turbines than those proposed as the next generation of repowered projects in the APWRA.

The proposed Rooney Ranch Wind turbine's blade lengths are longer, and the per-turbine capacity is greater, compared to turbines in other recent repowered projects (Vasco Winds and Golden Hills). As a result, the proposed Project's associated per turbine rotor swept area is greater than those of the projects used to estimate impacts. The Alameda County Final Report-Altamont Pass WRA Bird Fatality Study for monitoring Years 2005-2014 concluded that fatality rates increased with increasing rotor swept area (ICF 2016). This finding is consistent with the Service's assessment that risk is associated with eagle use and a wind project's total rotor swept area (U. S. Fish and Wildlife Service 2013). Therefore, we focus our quantitative impact analysis using the most comparable data from the Vasco Winds and Golden Hills impact studies.

While turbine-related mortality has occurred since the 1980's, effects on bird populations from wind turbine facilities in the APWRA have not been studied, with the exception of golden eagle (Hunt 2002, Hunt and Hunt 2002, Wiens et al. 2018). To address this problem, research is currently underway by the U.S. Geological Survey (USGS). The project is funded in large part by the California Energy Commission, to evaluate renewable energy impacts to California's wildlife, including birds and bats. The USGS lead research is focused on three central challenges to mitigating the impacts to wildlife of renewable energy generation: (1) analysis of observed wildlife fatalities and habitat loss to determine the significance of these impacts to population persistence of sensitive species; (2) comparison of pre-construction predicted affects and post-construction actual affects to sensitive species as a foundation for improving predictive accuracy; and (3) comparison of predicted and actual benefits of mitigation to sensitive species, as a foundation for improving predictive accuracy. The project uses a combination of stable isotope analysis (to determine which population of birds or bats is actually impacted by mortality), demographic modeling (to determine the significance of those fatalities to the growth or decline of that population), and information-theoretic statistical approaches (to determine best practices for conducting risk assessments and predicting mitigation outcomes). Publication of the final report, and several related publications in peer reviewed scientific journals, are pending (personal communication, T. Conkling, USGS).

Bat Studies

The APWRA supports habitat types suitable for maternity, foraging, and migration for special-status and common bats. Several of these species are susceptible to direct mortality through collision or other interactions with wind turbines. Seven species of bat have been documented as fatalities in the APWRA: big brown bat, little brown bat, California myotis, western red bat, hoary bat, silver-haired bat, and Mexican free-tailed bat (Insignia Environmental 2012:47–48; ICF International 2013; ICF 2019:18). In all monitoring studies performed to date, hoary bats and Mexican free-tailed bats have made up the majority of documented fatalities. Other than fatality records, occurrence data for bat species in the APWRA are limited, and expectations of presence are generally based on known ranges and habitat associations. However, pre- and postconstruction acoustic survey data from the recently repowered Vasco Winds facility in the Contra Costa County portion of the APWRA indicated bat activity in all three seasons in which surveys were conducted, with sharply increased activity in the fall (Pandion Systems 2010; Szewczak 2013). Mexican free-tailed bat and hoary bat composed the majority of the acoustic detections (Pandion Systems 2010).

Relatively little is known about bat biology as it relates to fatality risk at wind energy facilities. Limited knowledge of such factors as migration, mating behavior, behavior around turbines, and seasonal movements impede efforts to predict risk of turbine collision. Studies at wind energy facilities in North America generally show strong seasonal and species-composition patterns in bat fatalities, with the bulk of fatalities consisting of migratory species and occurring in late summer to mid-autumn. As in other parts of North America, the majority of documented fatalities in the APWRA have occurred during the fall migration season and have consisted of migratory bat species.

Historically, the number of bat fatalities detected as part of the bird fatality monitoring program at old-generation turbines in the APWRA was extremely low, due at least in part to the monitoring program's design, which has focused on bird mortality. As previous study methods were not designed to generate defensible bat fatality rates, and as new generation turbines may pose novel threats to bats, assumptions of species vulnerability based on extrapolation from the older turbine technologies present in the APWRA are not necessarily valid (Alameda County Community Development Agency 2014).

Data collected from 2005–2011 at old-technology turbine projects identified a total of 22 fatalities over a 7-year period within the APWRA, resulting in an average rate of between zero and six bat fatalities per year (ICF International 2013). During 2012 surveys conducted by Smallwood (2013) for the Avian Validation Study, only one bat fatality, a Mexican free-tailed bat, was detected within the Project area. The recent monitoring reports

for the repowered Golden Hills project (H. T. Harvey & Associates 2018a, 2018b), however, provide much additional information regarding bat fatality rates following repowering. It is worth noting that the Golden Hills fatality monitoring results for the first 2 years represent the first use of scent-detection dogs for an extended period to conduct fatality searches in the APWRA (H. T. Harvey & Associates 2018a:xii; Smallwood 2018[1]). This approach yielded data on 271 bat mortalities during 2017–2018. The authors of the studies note that the use of scent-detection dogs, as well as shorter search intervals,

> clearly resulted in our detecting far greater numbers of bat fatalities than previously reported in the APWRA; however, similar estimates of per megawatt (MW) fatality rates in this study and the post-repowering Vasco Winds study suggest that repowering with larger, taller turbines also may have contributed to a higher fatality rate for bats" (H. T. Harvey & Associates 2018a:xiii).

Approach and Methods

Bird Fatality Analysis Methods

Fatality Rates

Our analysis estimates fatality rates likely to result from the proposed Project for selected bird species. We use this data to estimate potential project effects upon those species and their populations. Commonly used estimators of bird fatalities at wind development projects calculate the *rate* at which birds are killed. Historically, the most commonly used metric had been the number of birds killed per megawatt (MW) per year, where MWs are measured as the rated nameplate capacities of the turbines—the amount of power it can generate under its ideal conditions (different turbines are designed to operate most efficiently under different conditions). The number of fatalities per MW per year has been used most often because it facilitates comparisons across a number of different turbine types with different sizes and rated nameplate capacities. To obtain the estimate of the total number of birds killed each year at the facility, the fatality rate is then multiplied by the total number of MWs in the facility.

The baseline estimate of the number of birds killed annually for each project is based on available monitoring data for each project and the total number of MWs that were installed (referred to as the *total installed capacity*) at each project. Each monitoring study presents corrected fatality estimates, i.e., estimates that have been corrected to account for the inherent problems in sampling for bird carcasses, such as the risk that a carcass may not be found, or may be removed by a predator before being located by surveyors. The correction methods vary between projects and are detailed in the monitoring reports cited herein.

Fatality rates for repowered projects were based on postconstruction monitoring results presented for Vasco Winds (Brown et al. 2016) and Golden Hills (H. T. Harvey & Associates 2018a, 2018b). Because observed fatality rates vary considerably from year to year, annual averages were used as the basis for comparison. Of these repowered projects, Golden Hills has 48 1.79-MW and 20 2.3-MW turbines, and Vasco Winds has 34 2.3-MW turbines (Insignia Environmental 2012; Brown et al. 2013; ICF 2016; H. T. Harvey & Associates 2018a). Thus, these projects are larger than the proposed Project, and use comparable or smaller turbines (the Project would install seven turbines with capacities of between 2.3 and 4.0 MW). In addition, turbines in the Project have a similar or greater blade length and rotor-swept area compared to the Golden Hills and Vasco Winds projects. The annual fatality rates (expressed as fatalities per MW per year) for these repowering projects are presented in Table H-2. However, it should be noted that the fatality rate estimates available from new-generation

[1] Smallwood (2018) conducted surveys using detection dogs at the Golden Hills and Buena Vista sites for a limited period (compared with the overall Golden Hills study described in H. T. Harvey & Associates 2018a, 2018b).

repowered turbines in the APWRA may not be representative of rates that would occur at other locations in the APWRA. This is because the existing repowered project sites each have different turbine types and are located in relatively small, distinct areas with site-specific geographic, topographic, and other ecological conditions, and because the primary species of concern are not evenly distributed throughout the APWRA.

We applied this analysis to all BCC species and species of local concern that have been identified as fatalities during prior wind turbine fatality studies in the APWRA, as inventoried by ICF (2016), or that are thought to have suitable habitat in the project area. All of these birds are protected under the Migratory Bird Treaty Act (MBTA), and the bald and golden eagles are additionally protected under the Bald and Golden Eagle Protection Act (BGEPA).

Table H-2. Annual Adjusted Fatality Rates for Repowered Projects in the APWRA

Species/Group	Golden Hills[a]	Vasco Winds[b]
American kestrel	0.17	0.30
Barn owl	0.06	0.03
Burrowing owl	0.58	0.05
Golden eagle	0.13–0.17[c]	0.016
Loggerhead shrike	0.07	--
Prairie falcon	0.01	--
Red-tailed hawk	0.64	0.25
Swainson's hawk	0[d]	0[d]
Tricolored blackbird	0.02	0.04
All raptors	1.74	0.64
All native non-raptors	5.38	1.91

Notes: Fatality rates reflect annual fatalities per MW. "–" denotes that no fatalities were detected. "0.00" signifies that, although fatalities were detected, the rate is lower than two significant digits.

[a] Average of 2 years (2017–2018).

[b] Average of 3 years (2012–2014).

[c] Preliminary adjusted rate as reported in the projects first and second year monitoring reports.

[d] Although a Swainson's hawk mortality was detected in the APWRA in 2005, none has been detected at either the Golden Hills or Vasco Winds project.

Potential Biases in the Bird Fatality Analysis Methods

The Alameda County Final Report-Altamont Pass WRA Bird Fatality Study for monitoring Years 2005-2013 concluded that fatality rates increased with increasing rotor swept area (ICF 2016). This finding is consistent with the Service's understanding that a wind project's risk is related to bird use, and the total amount of hazardous space, approximately equivalent to the rotor swept area from all turbines combined (U.S. Fish and Wildlife Service 2013, New et al. 2015). Therefore, larger turbines have greater rotor swept areas, and an overall greater hazardous space per turbine.

There is considerable variation in collision risk across the various topographies and geographies of the APWRA, presumably due in part to variations in abundance and use of these areas by different species. In addition, there is inter-annual variation in bird use and fatality rates across the APWRA (ICF 2016). As the APWRA wide fatality study's final report states,

In general, the direction and magnitude of annual changes in fatality rates among the four focal species did not correspond to one another, indicating that different factor(s) were driving changes in fatality rates or that the same factor(s) were driving changes in rates in different ways among the four species.

Accordingly, there is uncertainty whether the proposed project would result in fatality rates comparable to those reported in Table H-2. However, we have used the best available science and data on which to estimate impacts from the proposed project.

The Golden Hills mortality study has similarly reported substantial inter-annual variation for red-tailed hawk. The first-year fatality rate for red-tailed hawk (0.91 fatality/MW/year) at the Golden Hills project was more than twice that of the second-year fatality rate (0.37 fatality/MW/year) (H. T. Harvey & Associates 2018a, 2018b). The authors of the Golden Hills report, H. T. Harvey & Associates, did not offer a hypothesis for the substantial reduction in the fatality rate of red-tailed hawks observed during the second year; however, this difference illustrates the substantial variation that can occur even in a single study from year to year.

Finally, the studies vary in detection probability. *Detection probability*, as used in this Appendix, refers to the probability that a turbine-related fatality is detected. There are various ways of measuring detection probability, the most common being the use of carcass-placement trials to measure the rate at which carcasses are removed from the search area and the rate at which searchers detect carcasses, given that they are still present. Detection probability varies among searchers, habitat types, seasons, and years, and it can be influenced by other factors, as well.

Bat Fatality Analysis Methods

Fatality Rates

This analysis estimates fatality rates, likely to result from the proposed Project, for selected bat species. These estimates are used to estimate potential project effects upon those species. The assessment of bat species potentially at risk is based on a review of existing bat fatality data for the APWRA, species occurrence data in and around the program and Project areas, the current understanding of those species' susceptibility to fourth-generation turbine–related mortality, and known trends in bat fatalities at wind energy facilities in general.

Methods used to conduct the analysis were similar to those used to assess the potential impacts on birds. The analysis for fatality rate at non-repowered facilities was based on that presented by Alameda County Community Development Agency (2014), except that one source for bat fatality information used in that analysis (Brown et al. 2013) erroneously reported overall bat fatality rates. Table 10 in Brown et al. (2013) reported adjusted fatality rates for bats in several ways, including using "national means" or "national averages" and several onsite trials with different size classes. As reported in that first-year monitoring report, the highest fatality rate was reported as 1.679 bats/MW/year considering the overall detection, otherwise known as the "big D" adjustment method. The Alameda County Community Development Agency (2014) used this fatality rate and an additional fatality rate from a nearby wind resource area to calculate estimated bat fatalities. By the time a final report was prepared addressing all 3 monitoring years (Brown et al. 2016), a fatality rate of 1.679 bats/MW/year was reported in Table 30 for year 1, considering national averages.

However, the average fatality rate for 3 years using the "big D" adjustment was actually 3.207 bats/MW/year. For this analysis, the corrected fatality rates from the final Vasco Winds report were used, i.e., a 3-year average of 3.207 bats/MW/year.

Potential Biases in the Bat Fatality Analysis Methods

As noted in analysis by the Alameda County Community Development Agency (2014), although the best available evidence was used to estimate the number of bat fatalities potentially resulting from implementation of the proposed Program and projects, there was more uncertainty in these estimates than there was for bird fatality estimates. Because the Alameda County Avian Fatality Program was not designed to count bats, the baseline fatality rate was likely underestimated.

Moreover, because Vasco Winds is not representative of the entire Program area, the Alameda County Community Development Agency (2014) cautioned that extrapolation of results from this site to other areas should be interpreted with caution. Finally, the nearby Montezuma Hills Wind Resource Area, while sharing some land use characteristics (e.g., grazing), supports more dryland farming than the APWRA and has a different topographical profile.

More recent analyses identify some additional biases and issues to consider when reviewing the bat fatality analysis methods. While not specifically a bias, analysis by ICF (2019) confirms that the Alameda County Community Development Agency (2014) erroneously used a fatality rate from the Vasco Winds project first-year report that was later corrected or adjusted in the final Vasco Winds report. Although the corrected fatality rate is still lower than the second rate used from the Montezuma Hills Wind Resource Area, this change essentially results in a narrower range of estimated fatalities by the Alameda County Community Development Agency (2014). Also, the Golden Hills monitoring program used scent-detection dogs to conduct fatality searches, the first and only project to use these methods to date. The authors of the Golden Hills report (H. T. Harvey & Associates 2018b) note that the use of scent-detection dogs, as well as the shorter 7-day search interval "clearly resulted in our detecting far greater numbers of bat fatalities than previously reported in the APWRA." The authors of the Golden Hills report also conclude that "additional years of post-repowering data from different APWRA projects will be necessary before a confident assessment of the patterns and magnitudes of impacts on bats can be confidently assessed." Together, these factors and biases illustrate the continued challenges associated with estimating bat fatalities for repowering projects, including the proposed project.

Effects

Turbine-Strike Fatalities Affecting Birds

Table H-3 identifies estimated annual bird fatalities for the proposed Project, based upon observed annual fatality rates at the Vasco Winds and Golden Hills repowered projects. The PEIR (Alameda County Community Development Agency 2014) used data from these repowered projects (presented in Table H-3) for the two program alternatives and the two project-specific analyses. In this section, we present our estimated annual fatalities, followed by a discussion and summary of impacts on individual species and groups of species. The fatality rates for Vasco Winds and Golden Hills were extrapolated to the 25.1 MW capacity of the proposed Project to calculate an estimated number of fatalities for each species or species group. For each species or group of species, the number of estimated fatalities is also presented based on an average of the Vasco Winds and Golden Hills repowering projects and a weighted average[2] of the two repowering projects.

[2] The "weighted average" is calculated by considering each year of fatality monitoring for each wind energy facility in the calculations. The Vasco Winds completed 3 years of fatality monitoring, and Golden Hills completed two years. Using this method, the project with more monitoring years (Vasco Winds) is given more "weight" compared to the project with fewer monitoring years (Golden Hills).

Table H-3. Estimated Annual Bird Fatalities for Rooney Ranch Project Area

Species[a]	Vasco Winds[b]	Golden Hills[c]	Average Estimate[d]	Weighted Average Estimate[e]
American kestrel	7.53	4.27	5.90	6.22
Barn owl	0.75	1.51	1.13	1.05
Burrowing owl	1.26	14.56	7.91	6.58
Golden eagle	0.40	3.26	1.83	1.55
Loggerhead shrike	0	1.76	0.88	0.70
Prairie falcon	0	0.25	0.13	0.10
Red-tailed hawk	6.28	16.06	11.17	10.19
Swainson's hawk	0	0	0	0
Peregrine falcon	0	0	0	0
Tricolored blackbird	0.50	1.00	0.75	0.7
All raptors[f]	16.06	43.67	29.87	27.11
All native non-raptors	47.94	135.04	91.49	82.78

[a] All estimates based on a proposed capacity of 25.1 MW for the Rooney Ranch Project.

[b] Vasco Winds fatality rates extrapolated to the Rooney Ranch Project. Estimates are based on 3 years of monitoring reported by Brown et al. (2016).

[c] Golden Hills fatality rates extrapolated to the Rooney Ranch Project. Estimates are based on 2 years of monitoring as reported by H. T. Harvey & Associates (2018a, 2018b).

[d] Average of values for the two repowered projects.

[e] Average of values for the two repowered projects, weighted according to the number of years of monitoring data available for each project.

[f] "All raptors" includes birds belonging to the Accipitriformes, Falconiformes, and Strigiformes. For the Vasco Winds and Golden Hills monitoring results, this includes the Cooper's hawk, golden eagle, red-tailed hawk, ferruginous hawk, white-tailed kite, sharp-shinned hawk, rough-legged hawk, American kestrel, turkey vulture, Prairie falcon, barn owl, burrowing owl, short-eared owl, and unidentifiable raptors. This amounts to a total of 13 known species.

Analysis for Each Species or Species Group

For each bird or bat species or species group, our analysis assessed potential impacts by estimating likely fatalities and comparing them to available data on population status in the APWRA, using that information to qualitatively estimate the potential for the proposed project to alter the population status. As discussed earlier, fatality estimates for the proposed Project are presented in Table H-3 and are based upon past studies of bird and bat mortality in the APWRA. Fatality estimates are reported rounded up to the next integer (e.g. 1.2 birds would be rounded to 2 birds). Population estimates were based upon published information, cited hereafter, but with particular reference to statewide species population estimates derived from the Partners in Flight (2019) Population Estimates Database, and abundance density maps from the Cornell Lab of Ornithology (Fink et al. 2018).

American Kestrel

As shown in Table H-3, the proposed Project would be expected to result in an estimated 4–8 American kestrel fatalities per year, with 6 fatalities per year being most likely based on the average estimates.

The APWRA vicinity is an important winter foraging area and migration corridor for raptors, including American kestrels, and American kestrel fatalities have been observed throughout the period of record at the APWRA (Alameda 2014). The APWRA provides suitable foraging, breeding, overwintering, and migration habitat for the American kestrel (Smallwood and Bird 2002). Currently, the American kestrel is thought to have a California population of approximately 200,000 birds, which is about 7 percent of the total North American population

(Partners in Flight 2019). Statewide declines in American kestrel populations have been reported (USGS 2020). However, within California, the species has relatively high abundance in the APWRA, compared to the statewide average (Fink et al. 2018). The forecast of 5–8 fatalities per year would impact less than 1% of the statewide population. The forecast fatalities are not expected to alter population status statewide or cause them to be unsustainable.

Barn Owl

As shown in Table H-3, the proposed Project would be expected to result in an estimated 1–2 barn owl fatalities per year, with 1 fatality per year being most likely based on the average estimates.

The APWRA appears to provide suitable foraging and breeding habitat for barn owls (Marti et al. 2005). Currently, the barn owl is thought to have a California population of approximately 24,000 birds, which is about 18 percent of the total North American population (Partners in Flight 2019). Since barn owl fatalities have been recorded in many studies on the APWRA over the period of record (2005 to 2016), it is likely that the species is fairly abundant in the APWRA. The barn owl is also a relatively fecund species, with a modal clutch size of five eggs, high nestling survival rates, the ability to breed twice annually, and reproductive maturing at the age of one year (Marti et al. 2005). In view of the small fraction of the statewide (<1% annually) population affected by the proposed Project and the high reproductive potential of the species, the forecast fatalities are not expected to alter the population status statewide or cause the population to become unsustainable.

Burrowing Owl

As shown in Table H-3, the proposed Project would be expected to result in an estimated 1–15 (average 7–8) burrowing owl fatalities per year. There is a wide spread of potential fatalities across the APWRA as a result of risk exposure; if burrowing owls actively use habitat in the vicinity of the proposed Project, they would potentially be at high risk. The presence of active burrowing owl colonies, for example, can explain why relatively high burrowing owl fatality rates have been reported at the Diablo Winds project (Table H-2; WEST 2006). During biological surveys for the proposed Project, three burrowing owl pairs were observed at the project site, so their use of the site can be assumed (ICF 2018), and it is thus likely that the proposed Project would generate fatality rates higher than the norm for the APWRA as a whole. Other factors that may strongly influence apparent burrowing owl fatality include predation and climate variability.

The PEIR noted that "A growing body of circumstantial evidence indicates that many of the burrowing owl fatalities found during fatality surveys are due to predation rather than turbine collision." Just after the PEIR was published, the Alameda County avian monitoring team, with approval of the Scientific Review Committee, began a study of background fatality (ICF 2016). The study was prompted by the finding that substantial numbers of small bird carcasses—including burrowing owls—continued to accumulate in the search area around turbines during the period of seasonal shutdown, even though turbines were not operating (ICF 2016). The authors of the study noted that California was in the fourth year of a historic drought, and anecdotal information suggested that the burrowing owl population was rapidly declining. Additionally, as H. T. Harvey & Associates (2018b) noted in their recent monitoring report for the Golden Hills project "the fact that 84 percent of the Year 2 burrowing owl fatalities were found as feather spots or carcass remnants, mostly around burrows and along erosion-control wattles, suggests that predation was the primary cause of fatalities for this species." Thus, substantial uncertainty still remains surrounding burrowing owl fatality rates.

Owl movement and migration is irruptive by nature which makes population trends difficult to determine. However, all available data indicate the possibility of a statewide decline for the species. Studies have shown declining trends for burrowing owls within the coastal Bay Area and its interior (Wilkerson and Siegel 2010). Although Altamont has been described as one area of the state with a potentially stable population, data are

lacking on the number of breeding pairs in the area, and local trend estimates are uncertain (Townsend and Lenihan 2007; Wilkerson and Siegel 2010). However, recent declines have also been reported in Imperial Valley, where the highest concentrations of burrowing owls in the state are located (AECOM 2012) and where effects on the species would be most impactful to the statewide population. Primary threats to the species are habitat loss and degradation, and population declines have largely been linked those these factors, or to other factors that result in a decline in the small mammal prey that burrowing owls depend upon (NatureServe 2019a). Studies of wind-turbine-related fatalities in the APWRA have found numerous burrowing owls, suggesting this species has been and remains fairly common in portions of the program area (Alameda County Community Development Agency 2014).

The APWRA appears to provide suitable foraging and breeding habitat for burrowing owls and is located at the northern limits of the species' year-round site occupancy range (Poulin et al. 2011). Currently, the burrowing owl is thought to have a California population of approximately 190,000 birds, which is about 18 percent of the total North American population; however there is great uncertainty in that population estimate, with a 95 percent confidence interval of between 12,000 and 550,000 birds (Partners in Flight 2019).The forecast of 7–8 fatalities per year would impact less than 1% of the statewide population. The forecast fatalities are not expected to alter population status statewide or cause them to be unsustainable.

Golden Eagle

The draft HCP does not contain an analysis of potential effects of the proposed Project on golden eagles. As shown in Table H-3, the proposed Project would be expected to result in an estimated 1–4 golden eagle fatalities per year, with 2 fatalities per year being most likely based on the average estimates.

The Rooney Ranch Wind, LLC has applied for an eagle incidental take permit under the Bald and Golden Eagle Protection Act for operations of the turbines. As we process their application, we will calculate our eagle take risk prediction using our Collision Risk Model as required by our updated 2016 eagle permit regulations (81 FR 91494) for incidental take permits using methods described in our Eagle Conservation Plan Guidance (Service 2013). Our impact assessment presented in this document is for the purposes of our current NEPA analysis. Our analysis defers to the Service's Migratory Bird Program's eagle take permit analysis and future eagle take permit determinations of eagle allowable take, avoidance, minimization, and compensatory mitigation to prevent decline of populations within the Pacific Flyway and provide for a stable and increasing golden eagle population within the project local area population.

Through eagle incidental take permit process, we are required to evaluate and consider the effects of programmatic take permits on eagles at the eagle management unit, local-area, and project-area population scales, including cumulative effects, as part of our permit application review process (50 CFR 22.26 (f)(1) and U. S. Fish and Wildlife Service 2009). The Service will not issue an eagle incidental take permit if a project would cause the eagle populations to be unsustainable. If necessary, conditions for operation and layout may be required through the permit to ensure that fatality rates of eagles do to not exceed that which would cause the population to be unsustainable. Under the 2016 Eagle Take Permit Programmatic EIS (U.S. Fish and Wildlife Service 2016), the stable and increasing populations mitigation ratio is 1.2:1 and may take the form of power pole retrofits in the Pacific Flyway, etc. These eagle take permit mitigation measures will ensure that any impact from the project does not result in a significant effect on the LAP or regional population that would cause a decline.

Loggerhead Shrike

As shown in Table H-3, the proposed Project would be expected to result in an estimated 0–2 loggerhead shrike fatalities per year, with 1 fatality per year being most likely based on the average estimates.

The loggerhead shrike has shown a long-term, statewide decline in abundance, which seems to primarily be a consequence of habitat loss and degradation (Humple 2008). The APWRA appears to provide suitable year-round habitat for loggerhead shrike (Yosef 1996). However, within California, the species has relatively low abundance in the APWRA, compared to surrounding areas (Fink et al. 2018); thus, it seems likely that mortalities occur during migration, dispersal, or, perhaps, daily movements between areas of suitable habitat. Currently, the loggerhead shrike is thought to have a California population of approximately 410,000 birds, which is about 9 percent of the total North American population (Partners in Flight 2019). If loggerhead shrikes in the APWRA are primarily in migration or other large-scale movement, then the source population is even larger. The loggerhead shrike is also a relatively fecund species, with a typical clutch size of 5–6 eggs and reproductive maturing at the age of one year (Yosef 1996). In view of the small fraction (<0.001% per year) of the statewide population affected by the proposed Project and the high reproductive potential of the species, the proposed Project would have little potential to alter statewide population status or cause the population to become unsustainable..

Prairie Falcon

As shown in Table H-3, the proposed Project would be expected to result in an estimated 0–1 prairie falcon fatalities per year, with 1 fatality per year being most likely based on the average estimates.

The APWRA provides suitable year-round habitat for the prairie falcon (Steenhof 2013). Within California, the species has relatively high abundance in the APWRA, compared to surrounding areas (eBird data displayed in Steenhof 2013), and generally avoids habitats other than grassland or desert (Steenhof 2013), so that much of California does not constitute suitable habitat. As it is a resident species, fatalities are likely to be associated with normal daily and seasonal movements within habitat. Currently, the prairie falcon is thought to have a California population of approximately 6,500 birds, which is about 7 percent of the total North American population (Partners in Flight 2019). Only two prairie falcon fatalities are known to have occurred at any of the repowered projects, with one at Vasco Winds and one at Golden Hills. In view of the rarity of observed fatalities associated with past monitoring of repowered facilities and the forecast rarity of mortality associated with the proposed Project (approximately 1 bird every 2 years), the proposed Project would have little potential to alter statewide population status or cause it to become unsustainable.

Red-Tailed Hawk

As shown in Table H-3, the proposed Project would be expected to result in an estimated 7–17 red-tailed hawk fatalities per year, with 11–12 fatalities per year being most likely based on the average estimates.

Red-tailed hawk is among the most abundant raptors, both within the State of California and, more specifically, within the APWRA. Range wide, its population is increasing (Birdlife International 2016). Populations are large and healthy, and population declines have not been noted within the APWRA. Studies of wind-turbine-related fatalities in the APWRA have found numerous red-tailed hawks, suggesting this species is fairly common in portions of the program area and has remained so across the period of monitoring (Alameda County Community Development Agency 2014).

The APWRA provides suitable year-round habitat for the red-tailed hawk (Preston and Beane 2009). Within California, the species has a relatively high abundance in the APWRA, compared to surrounding areas (eBird data displayed in Steenhof 2013), and is somewhat of a habitat generalist, although it avoids dense forests and areas devoid of perch sites (Preston and Beane 2009). As it is a resident species, fatalities are likely to be associated with normal daily and seasonal movements within habitat. Currently, the red-tailed hawk is thought to have a California population of approximately 230,000 birds, which is about 8 percent of the total North American population (Partners in Flight 2019). Red-tailed hawks have long been recorded in mortality

monitoring studies of wind energy development in the APWRA and have consistently been the raptor species with highest mortality numbers; yet, no declines have been noted in the regional population, suggesting that factors other than wind turbine mortality represent the primary constraint on population size. The forecast of 7-17 fatalities per year would impact less than .001% of the statewide population. The forecast fatalities are not expected to alter population status statewide or cause it to become unsustainable.

Swainson's Hawk

As shown in Table H-3, the proposed Project would be expected to result in an estimated zero (0) Swainson's hawk fatalities per year. Only one Swainson's hawk fatality has ever been detected in the APWRA, in 2005, and none has been detected at the repowered Vasco Winds or Golden Hills projects.

The Swainson's hawk is a CESA-listed species that has been detected with some regularity at wind projects in the APWRA (ICF 2016) and is known to nest in and near the APWRA (California Department of Fish and Wildlife 2019). Currently, the Swainson's hawk is thought to have a California population of approximately 14,000 birds, which is about 6 percent of the total North American population (Partners in Flight 2019). In view of the rarity of the species in the APWRA and the unlikely potential for annual fatalities, the proposed Project is not expected to alter the statewide population status or cause it to become unsustainable.

Peregrine Falcon

As shown in Table H-3, the proposed Project would be expected to result in an estimated zero (0) peregrine falcon fatalities per year. Only two peregrine falcon fatalities has ever been detected in the APWRA, in 2006 and in 2012 (ICF 2016), and none has been detected at the repowered Vasco Winds or Golden Hills projects.

Peregrine falcons have been detected with some regularity at wind projects in the APWRA (ICF 2016). In view of the rarity of the species in the APWRA and the unlikely potential for annual fatalities, the proposed Project is not expected to alter the statewide population status or cause it to become unsustainable.

All Raptors

Besides the species identified above, a wide variety of other raptors are also known to use the APWRA for nesting, foraging, or migration. Among the more common ones, all of which have been recorded as fatalities during wind turbine project monitoring, are turkey vulture, northern harrier, Cooper's hawk, and common raven. Please see the list of species used in the footnote of Table H-3.

As shown in Table H-3, the proposed Project would be expected to result in an estimated 17–44 raptor fatalities per year, with 28–30 fatalities per year being most likely, based on the average estimates. These numbers include all of the raptor species described above.

The common species that would be affected by this mortality have not been identified as species of conservation concern. Given the small incremental effect of the proposed Project, relative to existing stressors at the APWRA, it appears unlikely that the fatality levels anticipated for the proposed Project would appreciably affect these raptor populations at a statewide scale.

All Birds of Conservation Concern

Besides the species identified above, 13 other species of birds of conservation concern may use the APWRA for nesting, foraging, or migration (Table H-1). Two of these, peregrine falcon and tricolored blackbird, have been recorded as fatalities during wind turbine project monitoring, but only the tricolored blackbird has been

recorded as a fatality in monitoring at the Vasco Winds or Golden Hills projects; the others[3] have never been recorded as fatalities in the APWRA, but their seasonal migrations, and possibly more local movements, are such that they may use the project area as habitat.

As most of these birds have not been recorded as fatalities in Vasco Winds or Golden Hills mortality studies, it is not possible to estimate a fatality rate for the proposed project, and no mortality or very low mortality is expected for these birds, as a result. The absence of recorded fatalities also shows it is unlikely that fatalities attributable to the proposed Project would appreciably alter their populations or cause them to be unsustainable.

The tricolored blackbird is a CESA-listed species that is known to nest in and near the APWRA (California Department of Fish and Wildlife 2019). For the tricolored blackbird, 0.5 to 1.0 fatalities may occur per year, with 0.7 to 0.75 fatalities per year being most likely, based on the average estimates (Table H-3). In view of this very low fatality rate, the proposed Project is not expected to affect tricolored blackbird populations at a statewide or regional scale or cause them to be unsustainable.

All Native Non-Raptors

Besides the species identified above, a wide variety of other birds are also known to use the APWRA for nesting, foraging, or migration. Among the more common ones recorded as fatalities during wind turbine project monitoring are horned lark and western meadowlark; in addition, an appreciable number of unidentifiable songbird carcasses are also commonly found during monitoring[4]. As shown in Table H-3, the proposed Project would be expected to result in an estimated 48–136 non-raptor fatalities per year, with 83–92 fatalities per year being most likely, based on the average estimates. Given the small incremental effect of the proposed Project relative to existing stressors at the APWRA, coupled with the healthy population status of these other birds (few of which are species of conservation concern, with only very rare fatalities observed in any of those species of concern), it appears unlikely that the fatality levels anticipated for the proposed Project would appreciably affect non-raptor populations at a statewide or regional scale or cause them to be unsustainable..

Turbine-strike fatalities affecting bats

As noted in the PEIR, resident and migratory bats flying in and through the Project area may be killed by collision with wind turbine blades or other interaction with the wind turbine generators. The analysis of potential impacts to bats is analogous to the analysis of potential impacts to birds, but substantially less

[3] Bald eagle, long-billed curlew, marbled godwit, Nuttall's woodpecker, oak titmouse, peregrine falcon, snowy plover, song sparrow (pusillula ssp.), tricolored blackbird, whimbrel, yellow rail, yellow warbler (brewsteri ssp.), and yellow-billed magpie.

[4] ICF (2016, Table 3-4) provides an inventory of birds detected and/or killed recorded in the APWRA during 2005-2013 wind farm monitoring studies. The list includes American kestrel, burrowing owl, golden eagle, red-tailed hawk, turkey vulture, osprey, white-tailed kite, bald eagle, northern harrier, sharp-shinned hawk, Cooper's hawk, Swainson's hawk, ferruginous hawk, rough-legged hawk, merlin, peregrine falcon, prairie falcon, Canada goose, gadwall, American wigeon, mallard, greater scaup, bufflehead, common goldeneye, Barrow's goldeneye, common merganser, Clark's grebe, American white pelican, double-crested cormorant, great blue heron, great egret, American coot, killdeer, black-necked stilt, American avocet, greater yellowlegs, lesser yellowlegs, long-billed curlew, ring-billed gull, western gull, California gull, unidentified gull, rock pigeon, mourning dove, greater roadrunner, white-throated swift, ruby-throated hummingbird, Anna's hummingbird, black phoebe, Say's phoebe, western kingbird, loggerhead shrike, yellow-billed magpie, American crow, common raven, horned lark, cliff swallow, barn swallow, rock wren, western bluebird, mountain bluebird, northern mockingbird, European starling, American pipit, yellow-rumped warbler, vesper sparrow, lark sparrow, Savannah sparrow, Lincoln's sparrow, white-crowned sparrow, black-headed grosbeak, red-winged blackbird, tricolored blackbird, western meadowlark, Brewer's blackbird, unidentified blackbird and house finch.

information is available, and information on bat population status is limited. Many of the reported monitoring data likely underestimate bat fatalities; as noted by H. T. Harvey & Associates (2018a),

> Although most previous studies suggested that bat fatalities were rare in the APWRA, this is the first time scent-detection dogs have been used for an extended period to conduct fatality searches in the area, and shorter 7-day search intervals also have only recently been implemented as a standard practice in the APWRA. The combination clearly resulted in detecting a far greater number of bat fatalities than ever before in the APWRA; however, similar estimates of per MW fatality rates in this study and the post-repowering Vasco Winds study suggest that repowering with larger, taller turbines might have contributed to the higher fatality rate for bats.

For this reason, this analysis considers the relatively high fatality rates calculated for the Vasco Winds (Brown et al. 2016) and Golden Hills (H. T. Harvey & Associates 2018a, 2018b) project monitoring as providing the most credible estimates of bat fatalities caused by current-generation turbines.

Data collected during 2 years of Golden Hills and 3 years of Vasco Winds project monitoring are summarized in Table H-4, along with estimated annual fatalities attributable to the proposed Project.

Table H-4. Bat Fatalities Estimation

Species	Golden Hills Fatality Rate (per MW capacity)[a]	Golden Hills Estimated Annual Fatalities for Proposed Project[b]	Vasco Winds Fatality Rate (per MW capacity)[c]	Vasco Winds Estimated Annual Fatalities for Proposed Project[b]
Hoary bat	2.31	58	1.01	25
Mexican free- tailed bat	3.11	78	1.88	47
All bats	5.64	141	3.21	81

Notes:

[a] Fatality rates based on corrected fatality rates from the Golden Hills repowering project (H. T. Harvey & Associates 2018b).

[b] Estimate of proposed Project fatalities is based a proposed Project capacity of 25.1 MW.

[c] Fatality rates based on corrected fatality rates from the Vasco Winds repowering project (Brown et al. 2016).

Extrapolating from existing fatality data, it appears likely that fatalities would occur predominantly in the late summer to mid-fall migration period; that fatalities would consist mostly of migratory bats, particularly Mexican free-tailed bat and hoary bat; that fatalities would occur sporadically at other times of year; and that fatalities of one or more other species would occur in smaller numbers.

The PEIR noted that "insufficient data are currently available to develop accurate fatality estimates for bats" (Alameda Community Development Agency 2014:3.4–18). The PEIR emphasized that there was a "high degree of uncertainty in bat fatality estimates." The PEIR described potential impacts on five species of bats, but noted that two species, Mexican free-tailed bats and hoary bats, were most vulnerable. Despite the finding that two additional species of bats were detected as fatalities at the repowered Vasco Winds project, the additional information discussed in this analysis further supports the conclusion that Mexican free-tailed bats and hoary bats constitute most of the fatalities. The PEIR noted that information available at the time indicated that bat collision risk increases substantially when old-generation turbines are replaced by newer, larger turbines. The PEIR further noted that "turbines used in future repowering projects are likely to be similar in size to Vasco Winds turbines." The capacity and physical size of the proposed Rooney Ranch turbines has not yet been finalized, but if the final design emphasizes 3.6 MW and 3.8 MW turbines, as is being considered, then these turbines are moderately larger than Vasco Winds in terms of physical dimensions and substantially larger in rated nameplate capacity. Overall, the PEIR found that "Despite the high level of uncertainty in estimates of bat fatality rates, all available data suggest that repowering would result in a substantial increase in bat fatalities." The recently available information further supports this conclusion of the PEIR.

The Mexican free-tailed bat is one of the most common bats in the western hemisphere, with a range that extends from Oregon to Patagonia. The species is assessed as "least concern" by the IUCN due to its large population, with Mexican-free-tails generally roosting in populations of millions throughout the country. There is no statewide population, nation-wide population, or long-term population trend or estimate (Barquez et al. 2015), and none was identified during literature search for this analysis. The species is highly mobile, foraging up to 50 km or more from the roost (NatureServe 2019b); thus, fatalities could occur at times other than migration. Due to its great abundance, and because fatalities would primarily occur during migration, when bats from numerous disparate populations may be in the vicinity of the proposed Project, the effects of the proposed project would accrue to a very large bat population and would thus affect only a small fraction of the Mexican free-tailed bat population. In the absence of any evidence of low or declining population status in the proposed Project's vicinity, the fatality rates anticipated under the proposed project are unlikely to have any population-level effects upon this species.

The hoary bat is another one of the most common bats in the western hemisphere, with a range that extends from the Arctic to Patagonia. The species is assessed as "least concern" by the IUCN due to its presumed large population, with the conclusion that "hoary bats are widespread and secure over much of their range" (Gonzales et al. 2016). Their habitat is focused on wooded areas and associated aquatic features, so fatalities from the proposed Project are likely limited to migration movements by hoary bats (Gonzales et al. 2016). However, there are several reasons to consider that the proposed project could affect hoary bat populations. Wind turbines in North America are known to kill large numbers of bats; Hayes (2013) estimated total mortality of 600,000 bats per year in 2012. Bats in general experience substantially increased mortality in proportion to increases in turbine size; in particular, higher mortality rates are observed at taller turbines and at turbines with greater rotor-swept area (Barclay et al. 2007). It is reasonable to expect, then, that mortality rates for the proposed project would be greater than observed for the Vasco Winds and Golden Hills projects, which were mostly equipped with smaller turbines. The bat species most consistently affected by wind turbine-caused mortality tend to be those that rely on trees as roosts and migrate long distances, and high mortality rates have particularly been documented for hoary bats at wind farms within their range all across North America (Arnett et al. 2007, Cryan and Barclay 2009). Hoary bats are known to be attracted to wind turbines, foraging on insects in the vicinity of the turbines (Horn et al. 2008, Valdez and Cryan 2013, Foo et al. 2017). Although bat populations are difficult to monitor (O'Shea and Bogan 2003), recent work has shown evidence of a widespread decline of hoary bats in the Pacific Northwest, possibly related to the rapid growth of wind as a renewable energy source in the region (Rodhouse et al. 2019). Hoary bats make long migrations, with most western North American populations migrating south to southern California and Mexico (Cryan 2003). It is not known how much of the population is potentially exposed to wind turbines in the APWRA, including the turbines of the proposed project. Bat populations have a slow intrinsic growth rate (Frick et al. 2017). Modeling of hoary bat population responses to wind turbine mortality in North America has shown that despite the species' current abundance, a population decline of as much as 90% is possible in the next 50 years, solely in response to wind turbine mortality if continued at current rates (Frick et al. 2017). Although approaches exist that could greatly reduce bat fatalities, e.g. by an increase of turbine cut-in speed (Arnett et al. 2007, Martin et al. 2017, Hayes et al. 2019), such mitigation is not a part of the proposed project.

However, due to its great abundance, and because fatalities would primarily occur during migration, when bats from numerous disparate populations may be in the vicinity of the proposed Project, the effects of the proposed project would accrue to a very large bat population and would thus affect only a small fraction of the hoary bat population (likely less than 1%). In the absence of any evidence of population status in the proposed Project's vicinity, the fatality rates anticipated under the proposed project cannot be shown to have any statewode or regional population-level effects upon this species.

Fatalities of other bats have also been observed. Affected species include western red bat, California myotis, and some bats not identifiable to species (Brown et al. 2016, H. T. Harvey & Associates 2018b). Incidental fatalities

such as these, occurring infrequently, have little potential to result in population-level effects upon the affected species.

Cumulative Effects

The proposed project would increase APWRA capacity by 25.1 MW. The PEIR (Alameda County Community Development Agency 2014) analyzed effects of an increase in total generating capacity of the APWRA ranging from 417 (low estimate) to 450 MW (high estimate). In order to understand the cumulative contribution of this project to known populations, we compared estimated impacts from the 25.1 MW to those estimated for 417 to 450 MW for the entire APWRA (Table H-5), as analyzed in the PEIR. The fatality rates for each repowered project (Table H-2, Table H-4) were extrapolated to the 417 and 450 MW capacities to calculate estimated number of fatalities for each species or group. To get the percentage range of the project's contribution to estimated APWRA-wide mortality range, we divided high and low estimates of project-related fatalities by high and low estimates of APWRA-wide mortality, Overall, the proposed Project represents approximately 6 percent of approved increases in wind power capacity in the entire APWRA.

Table H-5. Estimated Annual Bird and Bat Fatalities for APWRA and Rooney Ranch Project Area

Species[a]	APWRA Minimum Estimate (417-450 MW)[a]	APWRA Maximum Estimate (417-450 MW)[a]	Rooney Ranch Minimum Estimate (25.1 MW)[b]	Rooney Ranch Maximum Estimate (25.1 MW)[b]	Percentage Contribution of Rooney Ranch to APWRA Fatality Estimates (range[c], mean[d])
American kestrel	70.94	135.00	4.27	7.53	3–11% (6%)
Barn owl	12.46	27.07	0.75	1.51	3-12% (6%)
Burrowing owl	20.93	261.04	1.26	14.56	0–70% (6%)[e]
Golden eagle	6.65	58.45	0.40	3.26	1–49% (6%)
Loggerhead shrike	0.00	31.55	0.00	1.76	0%-NA (6%)[f]
Prairie falcon	0.00	4.48	0.00	0.25	0%–NA (6%)[f]
Red-tailed hawk	104.33	287.93	6.28	16.06	2–15% (6%)
Swainson's hawk	0.00	0.00	0.00	0.00	NA[g]
Peregrine falcon	0.00	0.00	0.00	0.00	NA[g]
Tricolored blackbird	8.31	17.93	0.50	1.00	3–12% (6%)
All raptors	266.81	782.93	16.06	43.67	2–16% (6%)
All native non-raptors	796.45	2421.04	47.94	135.04	2–17% (6%)
All bats	1338.57	2538.00	80.57	141.56	3-11% (6%)
Mexican free-tailed bat	783.96	1399.50	47.19	78.06	3–10% (6%)
Hoary Bat	421.17	1039.50	25.35	57.98	2–14% (6%)

[a] APWRA-wide fatality estimates are based on a proposed capacity of 417 and 450 MW. Estimates are not the same as the fatalities presented in the PEIR (Alameda County Community Development Agency 2014), which were calculated using older monitoring results.

[b] Ranges of estimated fatalities at Rooney Ranch are presented in Tables G-2 and G-3.

[c] Percentage range of Rooney Ranch's contribution to estimated APWRA-wide mortality range was calculated by dividing the lowest estimate of project-related fatalities by the highest estimate of APWRA-wide fatalities (to determine the low estimate), and vice-versa (to determine the high estimate).

[d] Mean percentage is the Rooney Ranch capacity divided by the APWRA-wide capacity, averaging the 417 MW and 450 MW scenarios.

[e] The minimum estimate is 0.48%, which rounds to 0%.

[f] Since the minimum fatalities for Rooney Ranch is 0, the minimum estimate is 0; since the minimum for the APWRA is 0, the maximum estimate is undefined.

[g] Since neither Vasco Winds nor Golden Hills has recorded a fatality of this species, there is no basis for an estimate.

American Kestrel

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 71 to 135 American kestrel fatalities per year (Table H-5). Despite reported statewide declines in American kestrel, the APWRA maximum fatality estimate of 135 birds a year would still only affect less than 1% of the statewide population annually. The expected 4–8 fatalities from the proposed Project would thus account for 3–11 percent, with an average of approximately 6 percent, of American kestrel fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of American kestrels in the APWRA and statewide or appreciably contribute to any decline in the species population.

Barn Owl

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 12 to 27 barn owl fatalities per year (Table H-5), thus a mean expectation of 19.5 barn owls per year. The APWRA maximum fatality estimate of 27 birds a year would affect less than 1% of the statewide population annually. The forecast of 1–2 fatalities per year would account for 6% of barn owl fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of barn owl in the APWRA and statewide.

Burrowing Owl

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 21 to 261 burrowing owl fatalities per year (Table H-5). The APWRA maximum fatality estimate of 261 birds a year would still only affect less than 1% of the statewide population annually. Although there is likely a decline in burrowing owl statewide populations, the impacts from the Rooney Ranch project are small. The expected 1–15 fatalities from the proposed Project would thus account for 0–70 percent, with an average of approximately 6 percent, of burrowing owl fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of burrowing owls in the APWRA and statewide and should not appreciably contribute to any declines that may be occurring.

Golden Eagle

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 6 to 59 golden eagle fatalities per year (Table H-5). The expected 1–4 fatalities from the proposed Project would thus account for 1–49 percent, with an average of approximately 6 percent, of golden eagle fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of golden eagles in the APWRA and statewide. The Altamont Pass Wind Resource Area (APWRA) likely constitutes a population sink for the Diablo Range golden eagle population. However, as stated previously, this project has applied for an eagle incidental take permit. The Service's eagle take permit analysis uses a Local Area Population (LAP) of 109 miles from the project site as a reference population, which includes a far larger area than just the APWRA. The Service will not issue an eagle incidental take permit if a project would cause the local, regional, or statewide population to be unsustainable. Avoidance, minimization, and compensatory mitigation measures would be developed to prevent decline of populations within the Pacific Flyway and provide for a stable and increasing golden eagle population within the project LAP. Therefore, as a result of the eagle incidental take permit process, the fatality rates of golden eagles through this project and combined with other known projects

should not cumulatively cause local, regional, statewide populations to be altered to the point at which they are unsustainable.

Loggerhead Shrike

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 0 to 32 loggerhead shrike fatalities per year (Table H-5). The APWRA maximum fatality estimate of 32 birds a year would still only affect less than 1% of the statewide population annually. The expected 0–2 fatalities from the proposed Project would thus account for an average of approximately 6 percent of loggerhead shrike fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of loggerhead shrikes in the APWRA or statewide.

Prairie Falcon

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 0 to 5 prairie falcon fatalities per year (Table H-5). The APWRA maximum fatality estimate of 5 birds a year would still only affect less than 1% of the statewide population annually. The expected 0–1 fatalities from the proposed Project would thus account for an average of approximately 6 percent of prairie falcon fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of prairie falcons in the APWRA or statewide.

Red-Tailed Hawk

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 104 to 288 red-tailed hawk fatalities per year (Table H-5). The APWRA maximum fatality estimate of 288 birds a year would still only affect less than 1% of the statewide population annually. Red-tailed hawk populations in the state are considered robust and North American Breeding Bird Survey (BBS) trends have shown an increase in the California population (USGS 2020). The expected 6–16 fatalities from the proposed Project would thus account for 2–15 percent, with an average of approximately 6 percent, of red-tailed hawk fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of red-tailed hawks in the APWRA or statewide.

Swainson's Hawk

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be zero (0) Swainson's hawk fatalities per year (Table H-5). There would also be an expected zero (0) fatalities from the proposed Project; thus the proposed project will not contribute to cumulative impacts in the form of wind turbine-related mortality of Swainson's hawks in the APWRA or statewide.

Peregrine Falcon

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be zero (0) peregrine falcon fatalities per year (Table H-5). There would also be an expected zero (0) fatalities from the proposed Project; thus the proposed project will not contribute to cumulative impacts in the form of wind turbine-related mortality of peregrine falcon in the APWRA or statewide.

Tricolored Blackbird

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 8 to 18 tricolored blackbird fatalities per year (Table H-5). The APWRA maximum fatality estimate of 18 birds a year would still only affect less than 1% of the statewide population annually. The expected 0 to 1 fatalities from the proposed Project would thus account for 3-12 percent, with an average of approximately 6 percent, of tricolored blackbird fatalities in the APWRA. As a result, the proposed project will not contribute to cumulative impacts in the form of wind turbine-related mortality of tricolored blackbird in the APWRA or statewide.

All Raptors

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 266 to 783 raptor fatalities per year (Table H-5). All species of conservation concern within this group have either not been recorded as fatalities within the APWRA, or have been addressed above and found to be at low risk of cumulative effects; the remaining species (listed in Table H-3, footnote f) includes raptors that are not of conservation concern. For these species, the APWRA maximum fatality estimate of 783 birds a year would still likely only affect a small percentage of each species' statewide population annually. The expected 16–44 fatalities from the proposed Project would thus account for 2–16 percent, with an average of approximately 6 percent, of raptor fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of raptors in the APWRA or statewide.

All Native Non-Raptors

Considering low and high fatality estimates for generating capacities of 417 to 450 MW (Alameda County Community Development Agency 2014), the APWRA-wide estimate would be 796 to 2,421 non-raptor fatalities per year (Table H-5). All species of conservation concern within this group have either not been recorded as fatalities in the APWRA, or have been addressed above and found to be at low risk of cumulative effects; the remaining species (listed earlier in footnote 5) includes birds that are not of conservation concern. For these species, the APWRA maximum fatality estimate of 2,421 birds a year would still likely only affect a small percentage of their statewide population annually. The expected 48–135 fatalities from the proposed Project would thus account for 2–17 percent, with an average of approximately 6 percent, of non-raptor fatalities in the APWRA; thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of non-raptors in the APWRA or statewide.

Bats

With regard to the hoary bat, although empirical studies of population size have not been conducted for the species, the hoary bat population has been estimated at approximately 2.5 million (Frick et al. 2017). A study in the Pacific Northwest established a high likelihood that there is a region-wide summertime decline in the probability of hoary bat occurrence (Rodhouse et al. 2019). Fatalities from the proposed Project would primarily occur during migration, when bats from numerous disparate populations may be in the vicinity of the proposed Project. However, hoary bat migration patterns are not well understood (Rodhouse et al. 2019) however a 2016 study of a small number of hoary bats tracked from their fall capture locations in coastal northern California for a month showed a wide variety of movement patterns ranging from one staying in the immediate vicinity the whole time; another making numerous flights of 30 to 45 miles and a third making a 600 mile trip that went into Oregon, Nevada and back into California where it was originally captured (Weller et al. 2016). Because of the lack of such studies on hoary bats in the area of the proposed project, it is unclear whether observed fatalities of mature individuals from the proposed Project would contribute to the observed decline in the Northwest

population, or how much of the entire hoary bat population moves through in the fall or winters in California. Although hoary bat mortalities do seem to be predominantly breeding age adults, the effects of the proposed Project would accrue to what is assumed to be a very large bat population and would thus affect potentially only a small fraction of the hoary bat population. Despite this, assumptions of low intrinsic growth rate in the bat population could lead to extinction risk in response to even low mortality rates. For example, if the potential bat population growth rate were 1.5% per year, a population of 2.5 million bats would suffer a potential 90% decline over a 50-year period, as a consequence of wind turbine mortality (Frick et al. 2017). However, this scenario depends upon range-wide declines in the hoary bat population. Although there is evidently potential for wind turbine mortality to cause appreciable population declines in the hoary bat population, the proposed project makes an immeasurably small contribution to that decline. Therefore, the fatality rates anticipated under the proposed Project are unlikely to have any population-level effects upon the hoary bat.

The analysis of cumulative effects of the proposed project on bats other than the hoary bat is analogous to the analysis of potential cumulative effects on birds, but substantially less information is available, and information on bat population status is limited. The APWRA maximum fatality estimate of 2,538 bats a year would still only affect less than 1% of the bat populations annually (with Mexican free-tails bats likely in the millions and hoary bat at 2.5 million). Estimated fatalities from the proposed Project would account for approximately 6% of all bat fatalities in the APWRA (Table H-5); thus the proposed project will not appreciably contribute to cumulative impacts in the form of wind turbine-related mortality of bats in the APWRA or population-wide.

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Appendix I
Environmental Justice Technical Memorandum

Appendix I

Environmental Justice Technical Memorandum

To: Claudia Funari/USFWS
From: Devan Atteberry/ICF
Date: October 29, 2019

This memorandum evaluates environmental justice at the Rooney Ranch Wind Energy Facility (Project), located in the Altamont Pass Wind Resource Area (APWRA) in Alameda County, California, and proposed for repowering. The issues relevant to the evaluation of environmental justice effects include race, ethnicity, and income composition.

Project Permit Area

Affected Environment

A review of the 2016 and 2017 5-year U.S. Census data was conducted that examined the ethnic racial makeup and income characteristics of Alameda County, Livermore, and Mountain House to identify and establish a baseline of comparison for determining whether low-income populations or minorities are present within the vicinity of the project permit area and if they could be affected by the Proposed Action. The project permit area is entirely within Census Tract 4511.01, as shown in Figure 1. Table 1 details the income status and ethnic profile of Alameda County, Livermore, Mountain House, and Census Tract 4511.01.

The lands surrounding the project permit area are primarily composed of undeveloped agricultural land used for periodic grazing and dryland farming. There are no residential or industrial land uses immediately adjacent to the project permit area; however, rural residences dot the landscape surrounding it. The closest residential areas or communities are Mountain House and Livermore. Mountain House, located approximately 5 miles east of the project permit area, is a community services district created in 1996. Livermore is approximately 3 miles west of the project permit area.

Environmental Setting

Minority Populations

Members of population groups of American Indian, Asian or Pacific Islander, Black, and Hispanic or Latino are considered minority individuals. Table 1 provides the percentages of minority populations within Alameda County, Livermore, Mountain House, and Census Tract 4511.01. Additionally, Table 1 details the race and ethnic composition within each of these prospective areas.

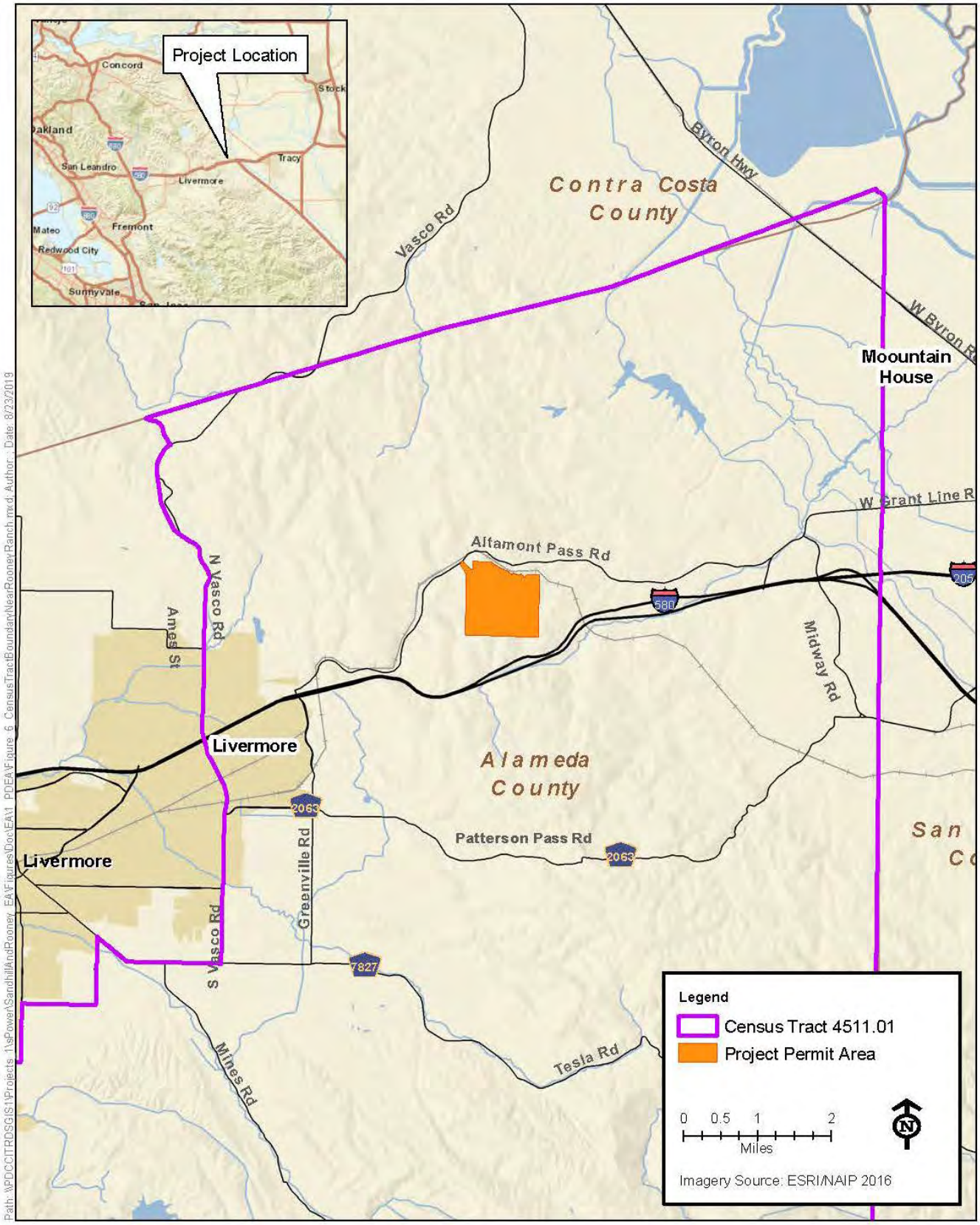

Figure 1.
Census Tract Boundary Near Rooney Ranch

Table 1. 2016 Ethnic Profile and Income Status of the Project Permit Area

Subject	Alameda County		Livermore		Mountain House		Census Tract 4511.01	
Income and Population								
Total Population	1,629,615		88,232		*15,010*		7,024	
Percent Below Poverty Level	11.3%		4.8%		*7.0%*		0.0%	
Median Household Income	$85,743		$109,084		*$120,868*		$149,203	
Employment by Industry (%)[1]								
Race/Ethnicity	*Pop.*	*%*	*Pop.*	*%*	*Pop.*	*%*	*Pop.*	*%*
Not Hispanic or Latino								
White	524,881	**32.2**	56,218	**63.7**	3,857	**25.7**	4,645	**66.1**
Asian	468,536	**28.8**	9,236	**10.5**	5,791	**38.6**	1,187	**16.9**
Black	175,063	**10.7**	1,039	**1.2**	1,306	**8.7**	164	**2.3**
Native American	5,008	**0.3**	108	**0.1**	0	**0.0**	11	**0.2**
Other	89,266	**5.5**	3,848	**4.4**	1,695	**11.3**	216	**3.1**
Hispanic or Latino	367,041	**22.5**	17,783	**20.1**	2,361	**15.7**	801	**11.4**

Source: U.S. Census Bureau 2018, 2019.
[1] The percentages may not add up to exactly 100 as the percentages are rounded to the nearest tenth.

Low-Income Populations

According to the U.S. Census Bureau and the Department of Health and Human Services for the 2018 Health and Human Services Poverty Guidelines, the poverty level is $25,100 for a family of four, and $12,228 for an individual (U.S. Department of Health and Human Services 2018; U.S. Census Bureau 2016). The median household incomes for Alameda County, Mountain House, and Census Tract 4511.01 are well above the Department of Health and Human Services Poverty Level threshold, as shown in Table 1. Therefore, the study area is not predominantly minority or low-income.

Regulatory Setting

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

In 1994, in response to growing concern that minority and/or low-income populations bear a disproportionate amount of adverse health and environmental effects, President Clinton issued EO 12898 on Environmental Justice. The issuing of this EO formally focused federal agency attention on these growing issues. Additionally, in response to EO 12898, the Interagency Working Group (IWG) on Environmental Justice was created, and overseen by EPA to implement the EO's requirements. The IWG includes representatives of a number of executive agencies and offices and has developed guidance for terms contained in the EO.

The EO itself contains a general guiding principle that states, "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

Following the issue of the EO, the EPA has defined "environmental justice" as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. Environmental Protection Agency 1998).

Furthermore, the EPA defined "fair treatment" to mean that no group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies (U.S. Environmental Protection Agency 1998).

Additionally, the EPA defined and classified "meaningful involvement" as (U.S. Environmental Protection Agency 1998):

(1) Potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health;

(2) The public's contribution can influence the regulatory agency's decision;

(3) The concerns of all participants involved will be considered in the decision-making process; and

(4) The decision-makers seek out and facilitate the involvement of those potentially affected.

Finally, EPA defined "disproportionately high and adverse effect" (or "impact") as an adverse effect or impact that:

(1) is predominantly borne by any segment of the population, including, for example, a minority population and/or a low-income population; or

(2) will be suffered by a minority population and/or low income?

Council on Environmental Quality: Environmental Justice—Guidance under NEPA

While the EPA has lead responsibility for implementation of EO 12898 as chair of the IWG on Environmental Justice, the Council on Environmental Quality (CEQ) has oversight of the federal government's compliance with this EO and NEPA. CEQ, in consultation with the USEPA and other agencies, has prepared guidance to assist federal agencies in NEPA compliance in Environmental Justice (1997). This guidance provides an overview of EO 12898, summarizes its relationship to NEPA, recommends methods for the integration of environmental justice into NEPA compliance, and incorporates the IWG's definitions of key terms and concepts contained in the EO as an appendix. Agencies are permitted to supplement CEQ's guidance with their own, more specific guidance tailored to their programs or activities or departments, insofar as is permitted by law. CEQ states that the identification of a disproportionately high and adverse human health or environmental effect on a low-income or minority population does not preclude a proposed agency action from going forward or compel a finding that a proposed action is environmentally unacceptable (Council on Environmental Quality 1997). Instead, the identification of such effects is expected to encourage agency consideration of alternatives, mitigation measures, and preferences expressed by the affected community or population.

Title VI of the Civil Rights Act of 1964

Title VI, 42 USC § 2000d et seq., was enacted as part of the Civil Rights Act of 1964. It prevents discrimination on the basis of race, color, and national origin in programs and activities which receive federal financial assistance.

The act states that "if a recipient of federal assistance is found to have discriminated and voluntary compliance cannot be achieved, the federal agency providing the assistance should either initiate fund termination proceedings or refer the matter to the Department of Justice for appropriate legal action. Aggrieved individuals may file administrative complaints with the federal agency that provides funds to a recipient, or the individuals may file suit for appropriate relief in federal court."

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in the proposed action.

Environmental Consequences

The following section evaluates both the potential beneficial and adverse effects on the overall population, including minority and low-income populations or communities associated with the topics discussed in the Habitat Conservation Plan Environmental Assessment (HCP EA). The section will cover analyses on these populations related to potential traffic, noise, dust, visual, and other effects that may be generated by the construction and operation of the windfarm facilities described in the HCP EA.

Approach, Methods, and Significance Criteria

The assessment of potential effects on socioeconomics and environmental justice was based on reviewing the preliminary siting plans for Rooney Ranch, evaluating existing conditions (i.e., existing wind projects, land uses, surrounding communities in the vicinity), and analyzing census data for Alameda County, Livermore, and Mountain House, as well as the census tract 4511.01 that encompasses the project permit area. Together these components allow for an adequate assessment and analysis of any potential effects that may bear a disproportionate amount of adverse health and environmental effects on minority and/or low-income populations surrounding the project permit area.

Effects related to environmental justice were assessed on the basis of the proposed HCP and a review of applicable documents and materials available with the state, county, and local jurisdictions.

Effects

Proposed Action

Effect EJ-1: Temporary effects on minority and low-income populations

The Proposed Action could result in temporary effects on minority and low-income populations associated with traffic, noise, dust, visual, and other environmental effect areas. These populations exist within the program area and in the vicinity of the project permit area. However, effects would be minimized to the greatest extent practicable with implementation of mitigation measures that have been made a part of the HCP, as discussed in each of the prospective effect sections of the HCP EA and listed in Appendix F of the EA. With mitigation measures in place, the Proposed Action would not have a disproportionately high and adverse effect on minority and low-income populations.

Effect EJ-2: Permanent effects on minority and low-income populations

The Proposed Action would not allow large development projects to occur in the future at the disadvantage of minority and low-income populations or communities. The Proposed Action, when implemented, would not have detrimental effects or effects on community character, would not separate existing communities, and would not result in adverse economic conditions or decrease employment opportunities, as there are no communities adjacent or in close proximity to the project permit area. Therefore, it is anticipated that the Proposed Action would not have disproportionately high and adverse effects on minority and low-income populations, in accordance with Executive Order 12898. The Proposed Action would not require any property acquisition, would not displace residences or business, and, therefore, would not cause relocation effects.

No Action

The No-Action Alternative assumes that the currently planned wind production facilities in the APWRA would continue within the vicinity of the proposed project permit area. No new effects to environmental justice near the Rooney Ranch project permit area would occur from the No-Action Alternative because the Proposed Action would not be implemented.

Mitigation Permit Area

Environmental Consequences

Management Actions

If a mitigation permit site is selected by the Applicant, management of the site would include management actions outlined in the HCP and detailed in the mitigation permit site Long-Term Management Plan (LTMP) (see Appendix D of the HCP). Management actions detailed in the long-term management plan and potentially implemented within the mitigation permit area include fencing, stock pond repair, cleanout and enhancement of ponds, mowing, cattle management, erosion repair, species monitoring, invasive species management and control, and other uses to be approved in the final long-term management plan. In addition, the conservation approach would be guided by resource-specific mitigation measures included in the EA and in the PEIR (Alameda County Community Development Agency 2014).

Implementation of compensatory mitigation through the execution of a conservation easement described in the HCP and LTMP to preserve and enhance habitat for covered species could affect the same resources and areas of environmental concern as actions in the project permit area, including environmental justice.

The significance criteria for environmental justice issues in the mitigation permit area are the same as described for the project permit area (see the discussion of *Approach, Methods and Significance Criteria* for the project permit area above.).

Environmental Justice

Management actions could result in temporary effects on minority and low-income populations associated with traffic, noise, dust, visual, and other environmental effect areas, depending on where the mitigation permit area is located and if those populations are located in the vicinity of the mitigation permit area. However, there would be no major alterations to the mitigation permit area and the site would generally be left in a natural state. Any effects would be minimized to the greatest extent practicable with implementation of mitigation measures that are discussed in each of the prospective effect sections of this document. In addition, it is unlikely that acquisition of the mitigation permit area would displace residences or business, and, therefore, cause relocation effects. The mitigation permit area, if and when acquired, would not have detrimental effects on community character, would not separate existing communities, and would not result in adverse economic conditions or decrease employment opportunities, as the mitigation permit area will be an undeveloped piece of land that would generally left in a natural state and be managed to be beneficial in nature. Therefore, management actions on the mitigation permit area would not have a disproportionate or adverse effect on minority and low-income populations.

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Appendix J
List of Preparers

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