

Appendix 3.4-1
Biological Resources Technical Report

BERKELEY SPACE CENTER AT NASA RESEARCH PARK

BIOLOGICAL RESOURCES TECHNICAL REPORT

PREPARED FOR:

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Acronyms and Abbreviations

Active Uses	complementary accessory uses that would be publicly accessible
ARC	Ames Research Center
BCDC	Bay Conservation and Development Commission
BIOS	Biogeographic Information and Observation System
CALGreen	California Green Building Standards Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Council	Council for the Conservation of Migratory Birds
CRPR	California Rare Plant Rank
CWA	Clean Water Act
Development Guidelines	Berkeley Space Center Development Guidelines
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GIS	geographic information system
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Consultation
joint EIR/EIS	joint environmental impact report/environmental impact statement
LSAA	Lake and Streambed Alteration Agreement
Master Plan	Berkeley Space Center Master Plan
MBTA	Migratory Bird Treaty Act
NADP	NASA Ames Development Plan
NASA ARC	National Aeronautics and Space Administration's Ames Research Center
NCCP	natural community conservation plans
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRP	NASA Research Park
PG&E	Pacific Gas and Electric Company

Porter-Cologne	Porter-Cologne Water Quality Control Act
proposed project/ proposed action	Berkeley Space Center at NASA Research Park
R&D	research and development
RWQCB	Regional Water Quality Control Boards
Short-Term Lodging	short-term lodging, including associated amenities
State Water Board	State Water Resources Control Board
Student/Faculty Housing	student/faculty housing, including associated amenities
UC Regents	The Regents of the University of California
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Glossary

California Environmental Quality Act – California law signed in 1970 that requires State and local government agencies to inform decision-makers and the public about the potential environmental impacts of proposed projects and reduce those environmental impacts to the extent feasible.

Candidate Species – Plants and animals for which the U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act or the California Environmental Quality Act.

Covered Species – Species or subspecies addressed in a Habitat Conservation Plan or Natural Community Conservation Plan for which conservation actions will be implemented and for which the Permittees will seek authorization for take under Section 2835 of the California Natural Community Conservation Planning Act and Section 10 of the federal Endangered Species Act.

Dormancy – The state of having normal physical functions suspended or slowed down for a period of time.

Emergent – A plant that is taller than the surrounding vegetation. In the context of wetlands, emergent vegetation is rooted below and growing above the water surface, as opposed to submergent vegetation which grows below the water surface.

Foraging – The act of going from place to place in search of food or other resources.

Fully Protected Species – The classification of fully protected was California's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Most fully protected species have also been listed as threatened or endangered species under the more recent California Endangered Species Act. Fully protected species may not be taken or possessed except with authorization from CDFW and only under specific circumstances.

Habitat – The place or environment where a plant, animal or other organisms occurs or has the potential to occur, defined by requisite physical and/or biological characteristics.

Habitat Conservation Plan (HCP) – planning documents required as part of an application for an incidental take permit, which allows otherwise lawful activities that may harm a species listed under the federal Endangered Species Act. They describe the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded.

Hydrophyte – A plant adapted to living in water or waterlogged soil.

Invasive Species – A species that is non-native (or alien) to the ecosystem under consideration and, whose introduction causes or is likely to cause economic or environmental harm, or harm to human health.

Land Cover – The surface components of land that are physically present and visible, such as vegetation, built infrastructure, water, and mineral surfaces.

Migratory – An organism characterized by migration - the regular, usually seasonal, movement of all or part of an animal population to and from a given area.

National Environmental Policy Act – Federal law signed in 1970 requiring federal agencies to analyze and disclose the environmental impacts of proposed actions before they are undertaken.

Palustrine – A wetland system which includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 parts per thousand. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) lack of active wave-formed or bedrock shoreline features; (3) water depth in the deepest part of basin less than 2 m (6.6 feet), at low water; and (4) salinity due to ocean-derived salts is less than 0.5 part per thousand.

Phytoremediation – The treatment of pollutants or waste (such as contaminated water or soil) by the use of green plants that remove, degrade, or stabilize undesirable substances.

Protocol-level Survey – A biological survey conducted by a qualified biologist following specific methodologies developed and maintained by regulatory agencies.

Qualified Biologist – An individual who meets specific qualifications, which typically include: a bachelor's degree in biological or environmental science, natural resources management, or a related discipline; sufficient field experience with special-status species and habitat types that may occur at the Project Site; and familiarity with the species (or closely related species) that may occur at the Project Site.

Range (Species Range) – The geographical area over which a species occurs, including areas of residence and migration.

Raptor – A carnivorous bird (such as a hawk, eagle, owl, or vulture) that has a hooked beak and large sharp talons and that feeds wholly or chiefly on meat taken by hunting or scavenging.

Reconnaissance-level Survey – A preliminary assessment conducted by a qualified biologist used to identify and document biological resources. This type of survey provides the context for further analysis and involves a visual evaluation of landcover and potential species habitat that may include elements of but does not strictly follow specific methodologies developed and maintained by regulatory agencies.

Riparian – Plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies (rivers, streams, lakes, or drainage ways).

Roosting – the act of a bird or bat settling or congregating for rest or sleep.

Ruderal – Plants or assemblages of plants growing where the natural vegetation has been disturbed by humans.

Sensitive Natural Community – Vegetation communities with state rarity ranks of S1, S2, and S3. Ranking is determined by CDFW and CNPS using the NatureServe Conservation Status Assessments: Rank Calculator software.

Special-Status Species – Species, subspecies, or varieties of organisms legally protected or otherwise regulated or monitored by federal, state, or local resource agencies.

Species of Special Concern – A species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria: (1) is extirpated from the state or, in the case of birds, is extirpated in its primary season or breeding role; (2)

is listed as federally, but not State, threatened or endangered and meets the State definition of threatened or endangered but has not formally been listed; (3) is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; and/or (4) has naturally small populations exhibiting high susceptibility to risk from any factor(s) that, if realized, could lead to declines that would qualify it for State threatened or endangered status.

Thermoregulation – The maintenance or regulation of a particular temperature within the body of a living organism.

Wetlands – Lands that are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. In regulatory context, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (plants specifically adapted to live in wetlands); (2) the substrate is predominantly undrained hydric (wetland) soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Executive Summary

Moffett Partners, LLC (Project Proponent), a joint venture of The Regents of the University of California (UC Regents) and SKSP NRP, LLC, is proposing a master-planned mixed-use academic and research project, referred to as the Berkeley Space Center at the National Aeronautics and Space Administration (NASA) Research Park (NRP) (proposed project/proposed action).¹ The Project Proponent will require authorization from the UC Regents to proceed with the proposed project under the California Environmental Quality Act (CEQA) and NASA's approval to proceed following analysis consistent with the National Environmental Policy Act (NEPA). NASA is the NEPA Lead Agency for the proposed action and, as the Authority Having Jurisdiction, NASA would issue building permits and monitor applicable mitigation measures related to development and operation of the proposed project. The UC Regents is the CEQA Lead Agency for the proposed project and would provide authorization before the proposed action is submitted for NASA's approval.²

The proposed project is located at NASA's Ames Research Center (NASA ARC) on an approximately 39-acre project site (Project Site), along with approximately 6 acres of off-site areas (Off-Site Areas) where utility improvements and building demolition would take place. Together, the Project Site and Off-Site Areas compose the approximate 45-acre limits of work (Limits of Work).

The University of California, Berkeley (UC Berkeley) (on behalf of UC Regents) and NASA are preparing a joint environmental impact report/environmental impact statement (joint EIR/EIS) for the proposed project that evaluates the following:³

- CEQA Proposed Project (NEPA Build Alternative 1)
- CEQA Reduced Density Alternative (NEPA Build Alternative 2)
- CEQA Reduced Height Alternative
- CEQA No-Project/Existing Conditions Alternative
- NEPA No-Action Alternative

The Project Proponent has identified one variant/sub-alternative that includes certain project features that are different from those of the CEQA Proposed Project and CEQA Reduced Density Alternative: the No Student/Faculty Housing Variant/Sub-Alternative (Variant).⁴

This technical report characterizes existing conditions and evaluates the potential for biological resources impacts associated with construction and operation of the proposed project and its alternatives. The report documents the assumptions, methodologies, and findings used to support the impact analysis. Furthermore, where applicable, this report identifies mitigation measures that would avoid and minimize specific effects on biological resources.

¹ Throughout this report, *proposed project* refers to both the proposed project (under the California Environmental Quality Act) and the proposed action (under the National Environmental Policy Act).

² UC Regents is a legal entity that includes all of the University of California campuses.

³ Throughout this report, the discussion of the CEQA Proposed Project and the CEQA Reduced Density Alternative also applies to the corresponding Build Alternative under NEPA.

⁴ Throughout this report, *Variant* refers to both the variant (under CEQA) and the Sub-Alternative (under NEPA).

The impact analysis on biological resources uses significance thresholds from Appendix G of the State CEQA Guidelines and relevant thresholds under NEPA. The following is a summary of impacts in the Biological Resources Study Area (study area) under those thresholds. The study area is defined as the Limits of Work plus a 50-foot buffer to encompass all areas in which temporary or permanent impacts could occur for construction of the project components and in which indirect effects on biological resources could result.

Effects on Special-Status Species

Construction of the project could result in effects on special-status plant and wildlife species, including alkali milk-vetch, Congdon's tarplant, Crotch's bumble bee, monarch butterfly, burrowing owl, white-tailed kite, Ridgway's rail, saltmarsh common yellowthroat, Alameda song sparrow, tricolored blackbird, northern harrier, pallid bat, hoary bat, and Townsend's big-eared bat. Mitigation measures are identified that would minimize these effects on special-status wildlife.

Effects on Riparian Habitat and Sensitive Natural Communities

There is no riparian habitat in the study area; therefore, there would be no effect from the project on riparian habitat. There is one 0.012-acre patch of native perennial grassland, which is a sensitive natural community, within 47 feet of the proposed stormwater pipeline along Zook Road that could be affected during project construction. The perennial grassland vegetation would not need to be removed for installation of the pipeline, but sidecasting of excavated material could encroach on the vegetation. The CEQA Proposed Project and the CEQA Reduced Density Alternative would have identical effects on perennial grassland because the project footprint would be identical where the grassland occurs.

Effects on Wetlands

One palustrine emergent wetland that encompasses 0.014 acre (589 square feet) of the study area and is contiguous with the Eastern Diked Marsh occurs 33 feet from the proposed storm drain outfall location at the northern end of the Project Site. The area west of Lindbergh Avenue, where the proposed off-site storm drain main and the outfall at the Eastern Diked Marsh would be constructed, is federally owned but within the boundary of the city of Mountain View. This falls under proprietary jurisdiction and is thus subject to certain State regulations. A formal wetland delineation was completed on August 28, 2025, and is pending review and finalization by the U.S. Army Corps of Engineers. Construction of the proposed project would not directly affect the wetland; however, excavated materials could pose indirect effects, such as encroachment or sedimentation. Operations involving stormwater discharges under the proposed project are designed to not exceed existing conditions with a 10-year storm event. In addition, the outfall and connection to the off-site trunk main would incorporate an orifice and a weir to allow excess water to leave the system when the storage pipes are full for storms greater than a 10-year storm event.

Effects on Wildlife Corridors and Nursery Sites

The proposed project would not result in impacts on known wildlife corridors or wildlife movement. Building façades would be designed with depth-of-shading members, fritted glass, and solid materials, as outlined in standards set forth in the Development Guidelines, and would comply with California Green Building Standards Code (CALGreen) Non-Residential Voluntary Measure A5.107, *Bird-Friendly Building Design*. The CALGreen measure includes design requirements related to glazing, slats, screens, netting, and louvers to minimize the risk of birds colliding with proposed buildings. The project's compliance with bird-friendly building designs, as required in the Development Guidelines, would minimize potential bird collisions with project buildings. Construction of the project could result in effects on non-special-status nesting birds and roosting bats. Mitigation measures are identified that would minimize these effects on wildlife corridors and nursery sites.

Effects on Protected Trees

In total, implementation of the CEQA Proposed Project and CEQA Reduced Density Alternative would include removing approximately 227 trees and planting approximately 1,283 new trees, resulting in a total of approximately 1,301 trees on the Project Site. Of the 1,283 new trees, 390 trees in a 24-inch box container would be replacement trees. Although the project is not subject to the Santa Clara County Heritage Tree Ordinance, this tree replacement is consistent with the provisions of the ordinance. Of the 893 new trees, at a minimum of 65 trees would be used for phytoremediation.

Effects on Habitat Conservations Plans

The study area is within the area covered by the Pacific Gas and Electric Company (PG&E) Bay Area Operations and Maintenance Habitat Conservation Plan, the scope of which is limited to operations and maintenance of PG&E facilities in nine San Francisco Bay Area counties: Sonoma, Marin, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco (Pacific Gas and Electric 2017). The project is also adjacent to lands identified for burrowing owl management at Moffett Federal Airfield under the Santa Clara Valley Habitat Conservation Plan (Santa Clara Valley Habitat Authority 2012). The project would not conflict with the provisions of these plans.

Chapter 1

Introduction

Moffett Partners, LLC (Project Proponent), a joint venture of The Regents of the University of California (UC Regents) and SKSP NRP, LLC, is proposing a master-planned mixed-use academic and research project, referred to as the Berkeley Space Center at the National Aeronautics and Space Administration (NASA) Research Park (NRP) (proposed project/proposed action).⁵ The Project Proponent will require authorization from the UC Regents to proceed with the proposed project under the California Environmental Quality Act (CEQA) and NASA's approval to proceed following analysis consistent with the National Environmental Policy Act (NEPA). NASA is the NEPA Lead Agency for the proposed action and, as the Authority Having Jurisdiction, would issue building permits and monitor applicable mitigation measures related to development and operation of the proposed project. The UC Regents is the CEQA Lead Agency for the proposed project and would provide authorization before the proposed action is submitted for NASA's approval.⁶

The University of California, Berkeley (UC Berkeley) (on behalf of UC Regents) and NASA are preparing a joint environmental impact report/environmental impact statement (joint EIR/EIS) for the proposed project that evaluates the following:⁷

- CEQA Proposed Project (NEPA Build Alternative 1)
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- CEQA Reduced Height Alternative
- CEQA No-Project/Existing Conditions Alternative
- NEPA No-Action Alternative

The Project Proponent has identified one variant/sub-alternative that includes certain project features that are different from those of the CEQA Proposed Project and CEQA Reduced Density Alternative: the No Student/Faculty Housing Variant/Sub-Alternative (Variant).⁸ In addition, the CEQA Proposed Project could also include a Water Reuse Facility Option or a Central Utility Plant Option.⁹

This technical report has been prepared to support UC Berkeley's and NASA's environmental review process and provide information regarding the potential biological resources impacts associated with the proposed project. This report characterizes existing conditions and evaluates the potential for biological resources impacts associated with construction and operation of the proposed project. In addition, this report documents the assumptions, methodologies, and findings used to support the impact analysis. Furthermore, where applicable, this report identifies mitigation measures that would avoid or minimize specific effects on biological resources.

⁵ Throughout this report, *proposed project* refers to both the proposed project (under CEQA) and the proposed action (under NEPA).

⁶ UC Regents is a legal entity that includes all of the University of California campuses.

⁷ Throughout this report, the discussion of the CEQA Proposed Project and the CEQA Reduced Density Alternative also applies to the corresponding Build Alternative under NEPA.

⁸ Throughout this report, *Variant* refers to both the variant (under CEQA) and the Sub-Alternative (under NEPA).

⁹ Under the Water Reuse Facility Option, portions of the non-potable supply would be provided on-site rather than by Mountain View. The Central Utility Plant Option would provide a centralized heating and cooling system for all buildings instead of building-by-building heating, ventilation, and air-conditioning (HVAC) systems.

1.1 Organization of This Technical Report

The report comprises the following chapters, in addition to this introductory chapter:

- Chapter 2, Project Description, describes the proposed project.
- Chapter 3, Methods, describes the methods for evaluating effects, including how information on the biological resources occurring or potentially occurring within the study area was determined.
- Chapter 4, Affected Environment/Existing Setting, describes the existing biological resources within the study area that could be affected by construction and operational activities.
- Chapter 5, Regulatory Setting, introduces federal, state, regional and local laws, regulations, and policies considered in the analysis of biological resources.
- Chapter 6, Impact Analysis, assesses the potential for construction and operation of the project to affect biological resources.
- Chapter 7, References, provides complete reference information for the published, online, agency, institutional, and individual sources consulted in preparation of this report.
- Chapter 8, Preparers, identifies the authors of this report.

In addition, supporting information is provided in the following appendices:

- Appendix A, Species List
- Appendix B, Representative Photographs
- Appendix C, Preliminary Arborist Report

2.1 Project Location

The proposed project is located at NASA's Ames Research Center (NASA ARC), as depicted on Figure 2-1, on an approximately 39-acre project site (Project Site), along with approximately 6 acres of off-site areas (Off-Site Areas) where utility improvements and building demolition would take place. Together, the Project Site and Off-Site Areas comprise the approximate 45-acre limits of work (Limits of Work), as depicted on Figure 2-2 and as more fully described below.

The Limits of Work are located primarily on federal land within NASA ARC, an approximately 2,000-acre facility located in unincorporated Santa Clara County, California between U.S. 101 and the southwestern edge of San Francisco Bay. A small portion of the Off-Site Areas is on federal land owned by the United States Army (Army). The city of Mountain View borders NASA ARC to the north and southwest, and the city of Sunnyvale borders NASA ARC to the southeast and east. NASA ARC is approximately 33 miles south of the city of San Francisco and 8 miles north of the city of San José.

The Project Site is within the city of Mountain View Sphere of Influence but outside of any city's jurisdictional limits. The Off-Site Areas are also within the city of Mountain View Sphere of Influence; most of the Off-Site Areas are outside of any city's jurisdictional limits, with the exception of the northern portion and the southwestern portion, which are within the city of Mountain View. The Project Site is bounded by Wescoat Road to the north and Cody Road to the east.¹⁰ The southern boundary of the Project Site is between Edquiba Road and Girard Road. The western boundary of the Project Site is within an empty lot immediately west of Bailey Road. The Project Site is a portion of Santa Clara County Assessor's Parcel Number 116-18-012.

The Limits of Work is currently developed with 18 one- to three-story buildings that total approximately 185,600 square feet, along with surface parking lots, roadways, and utility infrastructure. The existing buildings are mostly vacant; many were formerly used as ancillary buildings that supported Navy operations (e.g., offices, food service, a gas station, pool, recreation center, and lodging). The other existing buildings within the Limits of Work comprise industrial, storage, and utility facilities. As of mid-2024, approximately 42 people were employed within the Limits of Work; no full time residents or short term occupants (e.g., summer interns) lived within the Limits of Work.

The Project Site is relatively flat, with existing grades gradually sloping from south to north. The Project Site is currently covered with a substantial amount of impervious hardscape. This includes roads, surface parking lots, streets, and paths, which, in total, cover approximately 70 percent of the site. Existing landscaping includes approximately 245 trees located throughout the Project Site.

Soil and groundwater at the Project Site have been affected by contamination associated with the Middlefield-Ellis-Whisman (MEW) Superfund site and the U.S. Navy's operations at Naval Air Station Moffett Field, which is no longer in operation. The MEW extraction and treatment system is directly adjacent to and within the Project Site. Within the Project Site there are several recovery wells and

¹⁰ Cody Road would be realigned to the east as part of the proposed project and would be the eastern boundary of the Project Site.

underground piping for the treatment system. No potable water supplies are fed or contaminated by NASA ARC groundwater; all potable water is purchased from the San Francisco Public Utilities Commission, which contains some portion of off-site groundwater sources.

2.2 Proposed Berkeley Space Center Master Plan and Proposed Berkeley Space Center Development Guidelines

The proposed project will include the proposed Berkeley Space Center Master Plan (Master Plan), which establishes the overall project vision, conceptual plans, and illustrative renderings, and the proposed Berkeley Space Center Development Guidelines (Development Guidelines), which provide Maximum and Minimum Development Parameters and Standards for the proposed project buildings and open space. The Maximum and Minimum Development Parameters are a conceptual layout depicting the horizontal and vertical dimensions of the project. Standards are mandatory requirements that would be required to be implemented for the project. Together, the Master Plan and the Development Guidelines will be included as part of the project application submitted by the Project Proponent to NASA. The analysis of the environmental impacts of the proposed project is based on the proposed Maximum and Minimum Development Parameters and the Standards established in the Development Guidelines.

2.3 Project Characteristics

The proposed project under consideration by NASA (i.e., the proposed action) would include academic and research facilities, consisting of offices, laboratories, research-and-development (R&D) uses, and related amenities (collectively, “Research and Office Uses”); conference center and related amenities (“Conference Uses”); ground-floor retail, food and beverage, maker spaces (i.e., collaborative work spaces for using various tools and materials), and other complementary accessory uses that would be publicly accessible (collectively, “Active Uses”); student/faculty housing, including associated amenities (“Student/Faculty Housing”); short-term lodging, including associated amenities (“Short-Term Lodging”); transportation networks; and open spaces, as well as landscaped spaces, to create a state-of-the-art research and education hub that shapes the future of technology and innovation and advance the UC Regents educational, scientific research, charitable, and other exempt purposes (within the meaning of Section 501(c)(3) of the United States Internal Revenue Code). Figure 2-3 shows the conceptual land use plan for the proposed project.¹¹ Implementation of the proposed project would include demolition of all existing buildings on the Project Site. In addition, as discussed above, the proposed project also includes Off-Site Areas consisting of utility improvements and building demolition. Together, the Project Site and the Off-Site Areas comprise the Limits of Work.

Pursuant to NEPA, the joint EIR/EIS evaluates the following alternatives at an equal level of detail:

¹¹ Both the parcel boundary and the Project Site boundary are shown in the conceptual plans. The parcel boundary includes the leased premises; it is provided for informational purposes only. The Project Site boundary includes the area that would be redeveloped as part of the proposed project.

- **CEQA Proposed Project (NEPA Build Alternative 1)**, which would create approximately 2.3 million square feet of Research and Office Uses, Conference Uses, Active Uses, Student/Faculty Housing, and Short-Term Lodging for visitors and conference attendees. The CEQA Proposed Project would include approximately 2 million square feet for Research and Office Uses, 25,000 square feet for Conference Uses, 90,000 square feet for Active Uses, 130,000 square feet for Student/Faculty Housing, and 75,000 square feet for Short-Term Lodging. Only the CEQA Proposed Project includes the Water Reuse Facility (WRF) Option and the Central Utility Plant (CUP) Option.¹²
- **CEQA Reduced Density Alternative (NEPA Build Alternative 2)**, which would create approximately 1.4 million square feet of Research and Office Uses, Conference Uses, Active Uses, Student/Faculty Housing, and Short-Term Lodging for visitors and conference attendees. Compared to the CEQA Proposed Project, the CEQA Reduced Density Alternative would provide less space for Research and Office Uses. The CEQA Reduced Density Alternative would include approximately 1.1 million square feet for Research and Office Uses, 25,000 square feet for Conference Uses, 90,000 square feet for Active Uses, 130,000 square feet for Student/Faculty Housing, and 75,000 square feet for Short-Term Lodging.
- **NEPA No-Action Alternative**, under which the proposed action would not be constructed and operated at the Project Site. The buildings within the Limits of Work that are currently operational would continue to be operational. The buildings within the Limits of Work that are currently vacant could be reoccupied consistent with the prior uses of the buildings (e.g., ancillary buildings that supported Navy operations as well as industrial, storage, and utility facilities); reoccupying the vacant buildings would not require construction activity. The NASA Ames Development Plan (NADP), which established NASA's vision for long-term development of NASA ARC, also allows other types of uses at the Project Site. The NEPA No-Action Alternative could result in retaining the approximately 185,600 square feet of existing mixed uses, resulting in approximately 668 employees.¹³ The NEPA No-Action Alternative would not result in the reoccupation of any buildings formerly used for lodging; thus, the NEPA No-Action Alternative would not generate any new full-time residents or short term occupants (e.g., summer interns) within the Limits of Work.

Consistent with the guidance in State CEQA Guidelines Sections 15126.6(d) and 15126.6(e), the joint EIR/EIS evaluates the following alternatives in comparison to the CEQA Proposed Project with or without the No Student/Faculty Housing Variant/Sub-Alternative described below. The following alternatives are evaluated qualitatively in the joint EIR/EIS and no detailed analysis is provided in this report.

- **CEQA Reduced Height Alternative**, which would create approximately 2 million square feet of Research and Office Uses, Conference Uses, Active Uses, Student/Faculty Housing, and Short-Term Lodging for visitors and conference attendees. Compared to the CEQA Proposed Project, the CEQA Reduced Height Alternative would achieve lower maximum building height and a greater step-down depth for the Subareas along Wescoat Road. In addition, the CEQA Reduced Height Alternative would provide less space for Research and Office Uses and less space for

¹² Under the Water Reuse Facility Option, portions of the non-potable supply would be provided on-site rather than by Mountain View. The Central Utility Plant Option would provide a centralized heating and cooling system for all buildings instead of building-by-building heating, ventilation, and air-conditioning (HVAC) systems.

¹³ This is based on a generation rate of 3.6 employees per 1,000 square feet.

Student/Faculty Housing compared to the CEQA Proposed Project. The CEQA Reduced Height Alternative would include approximately 1.66 million square feet for Research and Office uses, 25,000 square feet for Conference Uses, 90,000 square feet for Active Uses, 100,000 square feet for Student/Faculty Housing, and 75,000 square feet for Short-Term Lodging.

- **CEQA No-Project/Existing Conditions Alternative**, under which the Project Proponent would not construct and operate the CEQA Proposed Project at the Project Site. The buildings within the Limits of Work that are currently operational would continue to be operational and the buildings within the Limits of Work that are currently vacant would remain vacant.¹⁴

Table 2-1 summarizes the similarities and differences between the CEQA Proposed Project and the CEQA Reduced Density Alternative.

2.3.1 No Student/Faculty Housing Variant/Sub-Alternative

The Project Proponent has identified one variant/sub-alternative that includes certain project features that are different from those of the CEQA Proposed Project and CEQA Reduced Density Alternative: the No Student/Faculty Housing Variant/Sub-Alternative (Variant).¹⁵ Both the CEQA Proposed Project and the CEQA Reduced Density Alternative include the Variant. The Variant would replace the 130,000 square feet of Student/Faculty Housing in Subarea 6 with 130,000 square feet of Research and Office Uses under both the CEQA Proposed Project and CEQA Reduced Density Alternative. Specifically, the Variant would include 90,000 square feet of laboratory and R&D uses, 25,000 square feet of office uses, and 15,000 square feet of academic uses. The Variant would have the same type of land uses; the same general site plan; the same maximum building height; the same amount of Conference Uses, Active Uses, Short-Term Lodging, and open space; the same number of guests; the same roadway infrastructure; the same utility infrastructure; the same parking ratio; and the same construction activities proposed and evaluated under the CEQA Proposed Project and CEQA Reduced Density Alternative. Because the amount of Research and Office Uses and the number of Student/Faculty Housing units would be different under the Variant, the number of bicycle parking spaces, and the number of residents, employees, and students would likewise change. This potential difference in proposed land use is identified as a variant because it may or may not be included as part of the project during implementation. Figure 2-4 shows the conceptual land use plan for the Variant.

Table 2-1. Summary of Similarities and Differences between the CEQA Proposed Project and the CEQA Reduced Density Alternative

Characteristic	CEQA Proposed Project (NEPA Build Alternative 1)	CEQA Reduced Density Alternative (NEPA Build Alternative 2)
Similarities		
Types of Land Uses		Same
Location of Land Uses		Same (see Figure 2-3)
Site Plan		Same (see Figure 2-3)

¹⁴ This provides a conservative analysis under CEQA for the purposes of comparison.

¹⁵ Throughout this report, *Variant* refers to both the Variant (under CEQA) and the Sub-Alternative (under NEPA).

Characteristic	CEQA Proposed Project (NEPA Build Alternative 1)	CEQA Reduced Density Alternative (NEPA Build Alternative 2)
Limits of Work (i.e., Project Footprint)	Same (45 acres, including 39-acre Project Site and 6 acres of Off-Site Areas)	
Maximum Building Height ^a	Same (Approximately 80 feet, with an exceedance of up to 25 feet for mechanical equipment and screens)	
Amount of Conference Uses, Active Uses, Student/Faculty Housing, Short-Term Lodging, and Open Space	Same (25,000-square-feet of Conference Uses, 90,000 square feet of Active Uses, 145 Student/Faculty Housing units, 100 Short-Term Lodging units, and a minimum of 10 acres of open space)	
Number of Residents and Guests	Same (200 guests and 363 residents)	
Utility Infrastructure and Roadways ^b	Same	
Parking Ratio	Same	
Construction Start and End Dates	Same (begin in 2027 and end in 2040)	
No Student/Faculty Housing Variant/Sub-Alternative	Same (Variant included)	
Differences		
Number of Internal Floors ^a	Greater to accommodate increased square footage and building height restriction	Less given reduced overall square footage
Internal Floor-to-Floor Heights ^a	Lower to accommodate increased square footage and building height restriction	Higher given reduced overall square footage
Amount of Square Footage for Research and Office Uses	Greater (2,000,000 square feet)	Less (1,080,000 square feet)
Number of Employees and Students ^c	Greater (5,997 employees and 177 students)	Less (3,331 employees and 95 students)
Number of Parking Spaces ^c	Greater	Less
WRF Option and CUP Option ^d	Yes	No

Source: Proposed Berkeley Space Center Development Guidelines, Spring 2026.

Notes:

WRF = Water Reuse Facility; CUP = Central Utility Plant

- The internal floor-to-floor heights could be lower under the CEQA Proposed Project to accommodate more square footage in each building, whereas the internal floor-to-floor heights under the CEQA Reduced Density Alternative could be higher because less square footage would need to be accommodated in each building.
- Only the CEQA Proposed Project includes the WRF Option and the CUP Option; see footnote “d” for more information regarding these options. The proposed roadways would be the same.
- The difference in the number of employees, students, and parking is due to the greater amount of Research and Office Uses that would be included in the CEQA Proposed Project.
- Under the WRF Option, portions of the non-potable demand would be met using on-site reuse supply rather than recycled water from Mountain View. The non-potable demand that cannot be met by the WRF Option

would require the use of potable water. The CUP Option would provide a centralized heating and cooling system for all buildings instead of building-by-building heating, ventilation, and air-conditioning (HVAC) systems.



Figure 2-1
Project Location
 Berkeley Space Center at NASA Research Park

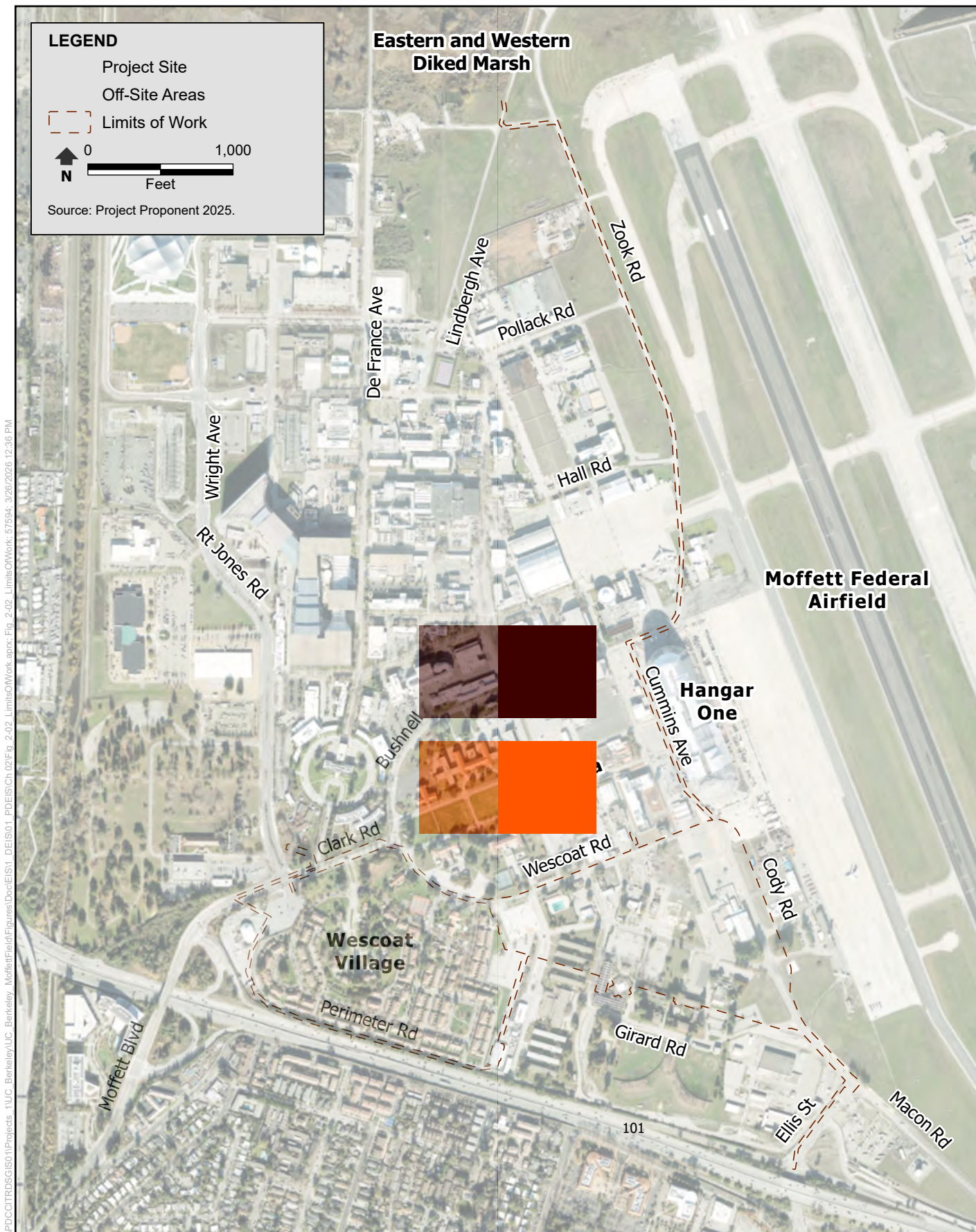
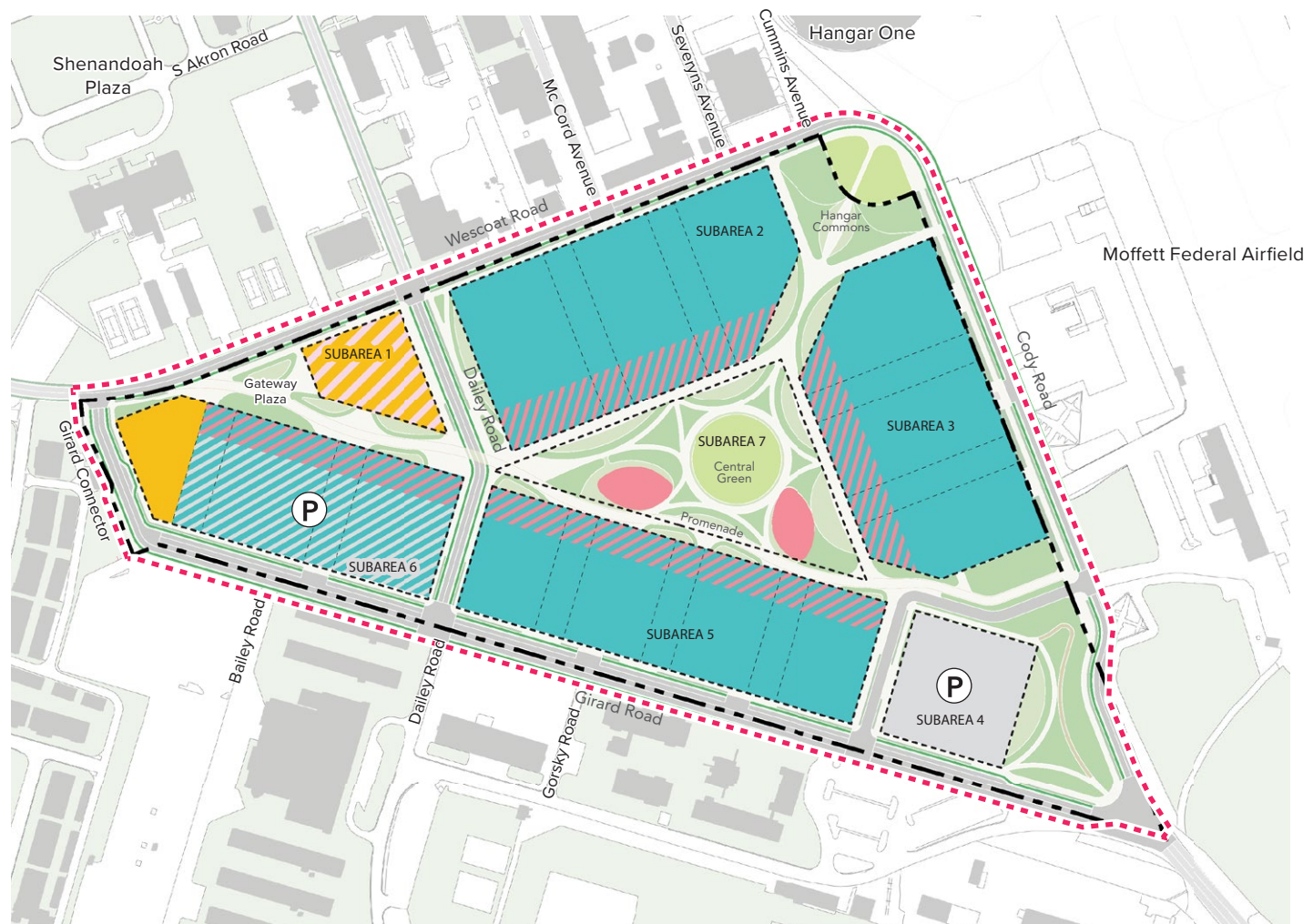


Figure 2-2
Limits of Work
Berkeley Space Center at NASA Research Park

LEGEND

- - - Project Site
- - - Parcel Boundary
- Research and Office Uses
- Research and Office Uses and Parking
- Research and Office Uses and Ground-Floor Active Uses
- Student/Faculty Housing
- Conference Uses, Short-Term Lodging, and Active Uses
- Active Uses
- Parking



Note: Images are conceptual until after project approval. The proposed project would include utility improvements and building demolition outside of the Project Site, but within the Limits of Work; the Limits of Work are depicted on Figure 2-2. The parcel boundary includes the leased premises; it is provided for informational purposes only.

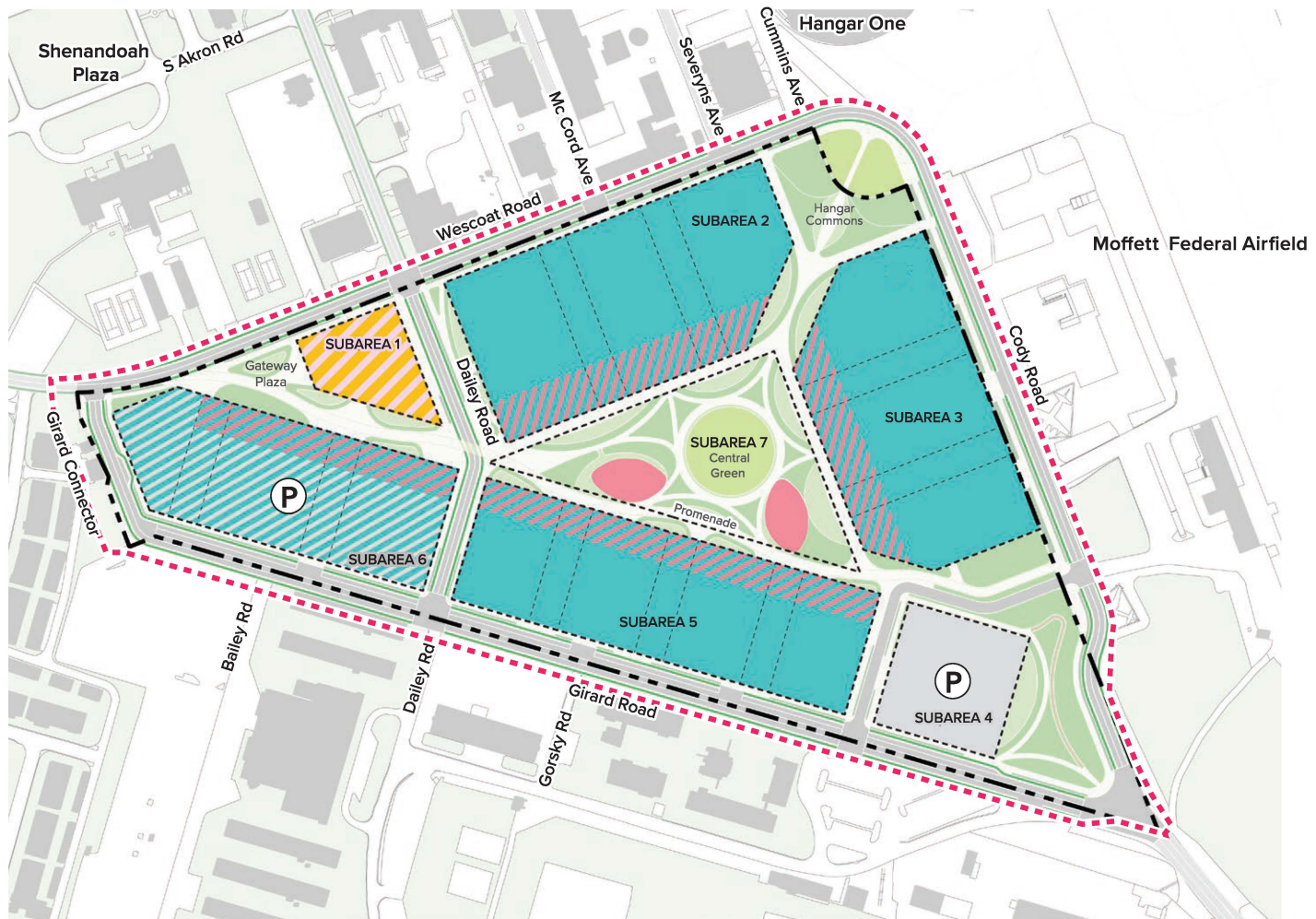
Source: Project Proponent 2024.



Figure 2-3
Conceptual Land Use Plan for the CEQA Proposed Project and CEQA Reduced Density Alternative
Berkeley Space Center at NASA Research Park

LEGEND

- - - - - Project Site
- Parcel Boundary
- Research and Office Uses
- Research and Office Uses and Parking
- Research and Office Uses and Ground-Floor Active Uses
- Conference Uses, Short-Term Lodging, and Active Uses
- Active Uses
- Parking



Note: Images are conceptual until after project approval. The proposed project would include utility improvements and building demolition outside of the Project Site, but within the Limits of Work; the Limits of Work are depicted on Figure 2-2. The parcel boundary includes the leased premises; it is provided for informational purposes only.

Source: Project Proponent 2025.

Potential biological resource issues associated with the proposed project were identified through a review of existing information and a reconnaissance survey of the Biological Resources Study Area on June 10, 2025, as further detailed in the sections below.

3.1 Biological Resources Study Area

The Biological Resources Study Area (study area) encompasses approximately 82 acres. The study area is defined as the Limits of Work plus a 50-foot buffer to encompass all areas in which temporary or permanent impacts could occur from construction of the project components and in which indirect effects on biological resources could result (refer to Figures 3-1a, 3-1b, and 3-1c). Thus, the study area encompasses an area greater than the anticipated Limits of Work for the proposed project.¹⁶ A 50-foot buffer around the project footprint was determined to be a reasonable study area for the reconnaissance survey, based on the landcover type, to identify potential special-status species' habitat or species occurrences that may be directly affected by project activities. However, it should be noted that proposed mitigation measures include protocol-level and preconstruction surveys, which would be conducted within a larger buffer distance from the project footprint and would vary by species.

3.2 Special-Status Species

For the purposes of this report, special-status species are those legally protected or otherwise regulated or monitored by federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties that fall into one or more of these categories.

- Plants or animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA).
- Plants or animals that are candidates for possible future listing as threatened or endangered under the ESA.
- Plants or animals listed or proposed for listing as threatened or endangered under the California Endangered Species Act (CESA).
- Plants or animals that are candidates for listing under the CESA.
- Plants listed as rare under the Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.).
- Taxa (i.e., taxonomic categories or groups) that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA Guidelines (e.g., species that appear on the California Department of Fish and Wildlife [CDFW] special animals or special plants, bryophytes, and lichens lists).

¹⁶ The study area included a 50-foot buffer around the Limits of Work as of April 2025. Minor revisions to the Limits of Work were subsequently made in October 2025. These minor revisions are captured within the study area; thus, the study area was not revised as a result of the minor revisions to the Limits of Work.

- Animal species, subspecies, or distinct populations designated as Species of Special Concern by CDFW.
- Animals designated as Fully Protected under Sections 3511 (birds), 4700 (mammals), 5515 (fish), and 5050 (reptiles and amphibians) of the California Fish and Game Code.
- Plants or animals determined to meet the definitions of rare or endangered under Section 15380 of the CEQA Guidelines.
- Plants or animals with no formal special status but considered by experts to be rare or in serious decline and that may warrant special status, based on recent information.
- Plants ranked as “rare, threatened, or endangered in California” (California Rare Plant Rank [CRPR] 1B and 2)
- Plants considered to be locally significant species (i.e., species that are not rare from a statewide perspective but are rare or unique in a local context, such as within a county or region [CEQA Guidelines Section 15125(c)] or are so designated in local or regional plans, policies, or ordinances [CEQA Guidelines, Appendix G]).

3.3 Literature Review

Biologists reviewed existing resource information related to the Limits of Work to determine whether special-status species or other sensitive biological resources (e.g., waters of the United States) could occur in the study area. The following sources were reviewed:

- California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California search of the Mountain View 7.5-minute quadrangle (2025) (Appendix A, Species Lists).
- California Natural Diversity Database (CNDDB) records search of a 2-mile radius around the study area for plants and a 5-mile radius for wildlife (California Department of Fish and Wildlife 2025a) (Appendix A, Species Lists). Figure 3-2a shows the CNDDB occurrences for plants within a 2-mile radius of the study area, and Figures 3-2b through 3-2g show the CNDDB occurrences for wildlife within a 5-mile radius of the study area.
- NASA ARC annual burrowing owl survey reports (Talon Ecological Group 2021, 2024, 2025).
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) list of endangered and threatened species that may occur in or be affected by the proposed project (U.S. Fish and Wildlife Service 2025a) (Appendix A, Species Lists).
- Western Monarch Milkweed Mapper search for presence of milkweed and monarch butterfly occurrences (Western Monarch Milkweed Mapper 2025),
- iNaturalist search for research-grade monarch butterfly and Crotch’s bumble bee occurrences (inaturalist.org 2025a, 2025b),
- Soil map unit descriptions for the study area (Natural Resources Conservation Service 2024).
- National Wetlands Inventory map of the study area (U.S. Fish and Wildlife Service 2025b).
- U.S. Geological Survey (USGS) 7.5-minute Mountain View quadrangle.
- Preliminary Arborist Report, Ames Research Center, Mountain View (Santa Clara County), CA (HortScience/Bartlett Consulting 2024) (Appendix C).

This information was used to develop lists of special-status species and other sensitive biological resources that could be present in the project region. Species from the lists were considered if they were known to occur in the project region (i.e., within the Mountain View quadrangle or 2-mile radius for plants and a 5-mile radius for wildlife) or if potential habitat for the species was known to be present in the study area. The 2-mile radius for plants and 5-mile radius for wildlife were used due to the urbanized/developed nature of the landscape immediately surrounding the study area, contrasted with the disparate habitat types encompassed by the quadrangles surrounding the Mountain View quadrangle such as the mountain, foothill, and coastal ecosystems. Most of the special-status species in the region are associated with habitat types that are not present in the study area; therefore, a broader search radius was unlikely to include additional species with potential to occur in the study area.

Special-status plant surveys were conducted following protocols outlined by USFWS and CDFW (USFWS 2000; CDFW 2018a; CNPS 2001). These protocols recommend conducting surveys during the blooming period as recorded in *The Jepson Manual* (Baldwin et al. 2012). These blooming times are reflected in Table 4-2.

Biologists also reviewed data relevant to existing terrestrial wildlife connectivity resources, including corridors and linkages that have been documented in the vicinity of the study area from the CDFW Biogeographic Information and Observation System (BIOS) Habitat Connectivity Viewer (California Department of Fish and Wildlife 2025b). These include:

- Missing Linkages: Restoring Connectivity to the California Landscape (Penrod et al. 2001).
- Critical Linkages: Bay Area & Beyond (Penrod et al. 2013).

3.4 Field Survey Methods

ICF botanist Mehrey Vaghti and wildlife biologist Julia Taylor conducted 1-day reconnaissance-level surveys (i.e., not protocol-level surveys) of the entire study area on June 10, 2025. The purpose of these surveys was to document existing biological conditions on the Project Site, including plant and wildlife communities, potential sensitive natural communities, special-status plants, potential habitat for special-status plant and wildlife species, existing barriers to wildlife movement, and potential jurisdictional waters. The surveys were conducted during the identifiable period of special status plant species with potential to occur at the site (see Table 4-2). Biologists walked and drove the extent of the study area and characterized the quality of landcover types for special-status-species habitat, presence of burrows (as suitable burrowing owl habitat), documented any plant or wildlife species observed, and photo documented the study area, with particular focus on areas of potential impact. No protocol-level presence-absence surveys or formal habitat assessments for special-status wildlife surveys have been conducted in the study area. A wetland delineation was conducted for the proposed project by ICF senior wetland ecologist Joe Sanders.¹⁷ Reconnaissance-level surveys are considered appropriate for the purposes of this technical report because the impact analysis conservatively assumes potential for the presence of special-status species if suitable habitat is present. In addition, mitigation measures identified in Chapter 5 would require preconstruction surveys, following established survey protocols, for all special-status species that have potential to occur in the study area.

¹⁷ ICF. 2026. *Berkeley Space Center at NASA Research Park Preliminary Aquatic Resources Delineation Report*. February.

\\PDC\OTRDS\GIS\Projects - 1\UC Berkeley\UC Berkeley Moffett\BiologicalResources\TechReport\BiologicalResources\TechReport.aprx: Figure 3-1a Biological Resources in the Study Area (Overview): 5/25/2026 1:21 PM

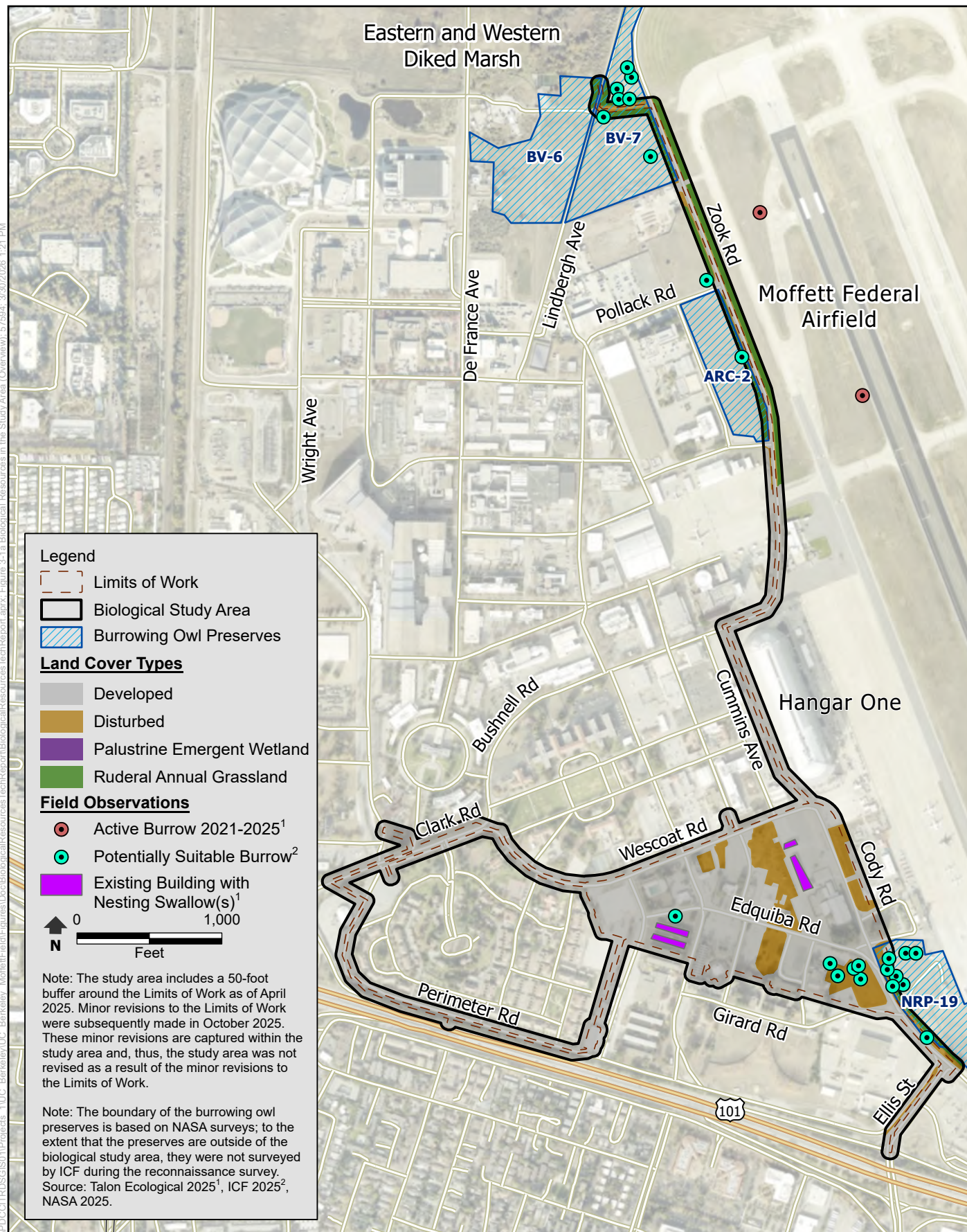


Figure 3-1a
Biological Resources in the Study Area (Overview)
Berkeley Space Center at NASA Research Park

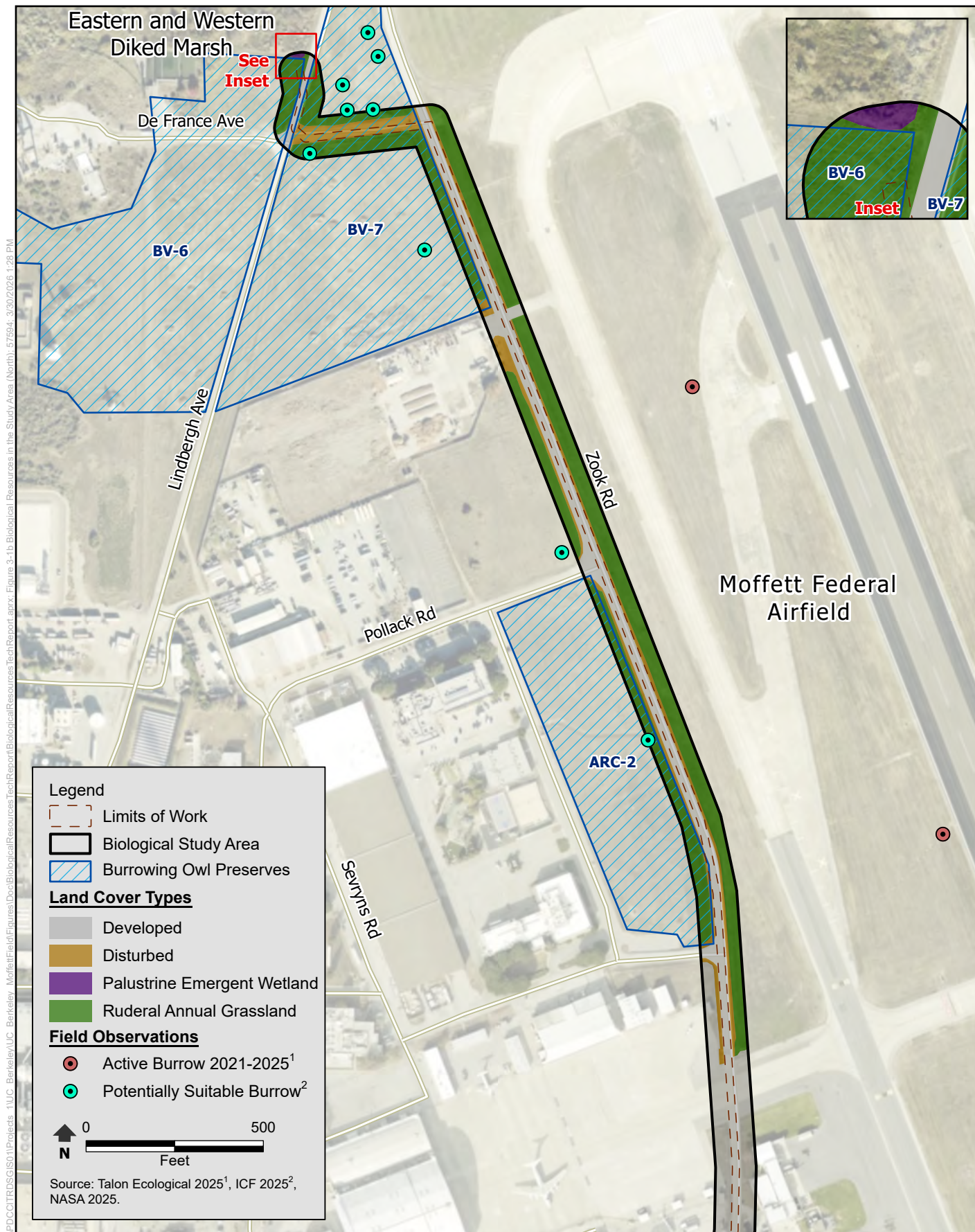


Figure 3-1b
Biological Resources in the Study Area (North)
 Berkeley Space Center at NASA Research Park

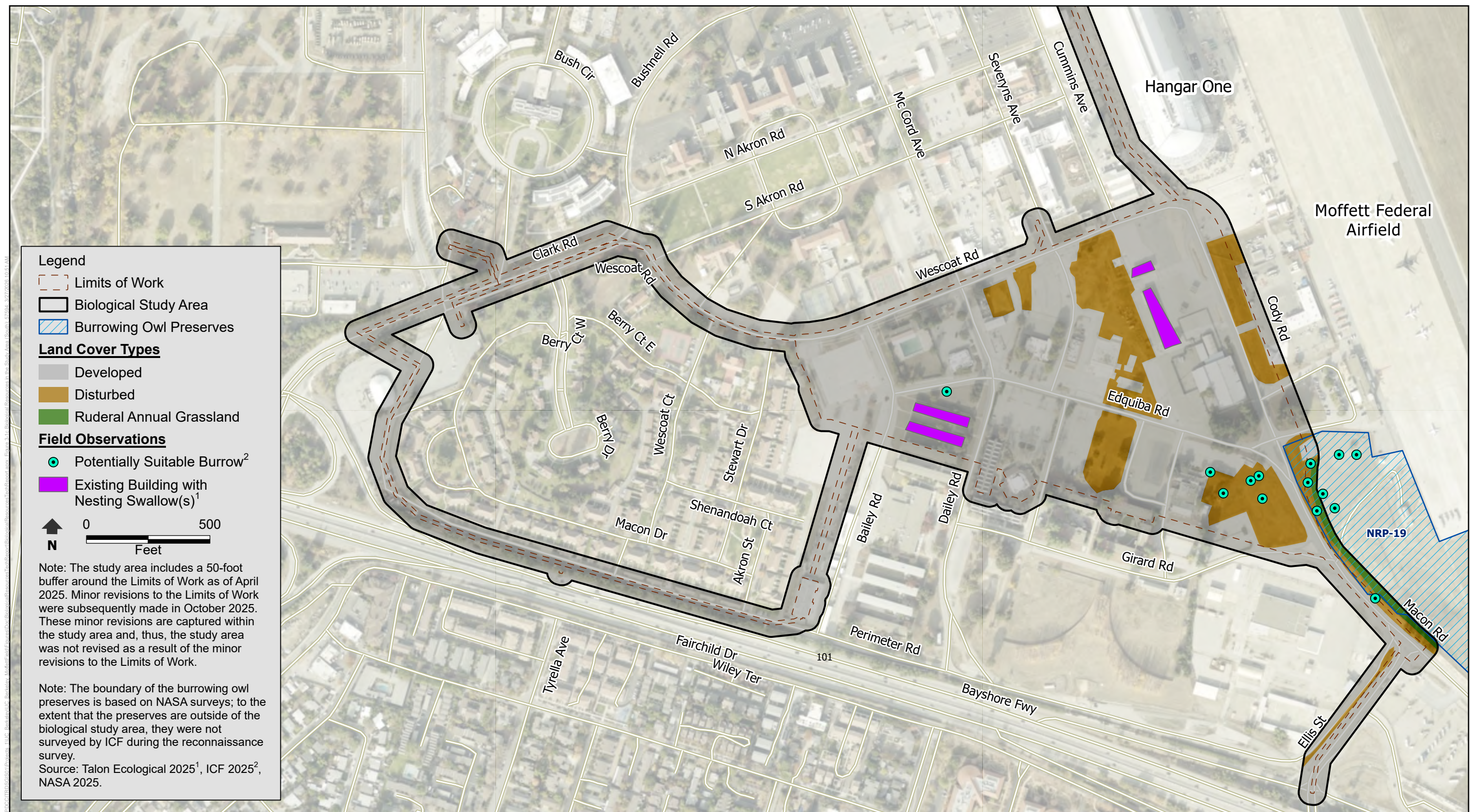


Figure 3-1c
Biological Resources in the Study Area (South)
 Berkeley Space Center at NASA Research Park

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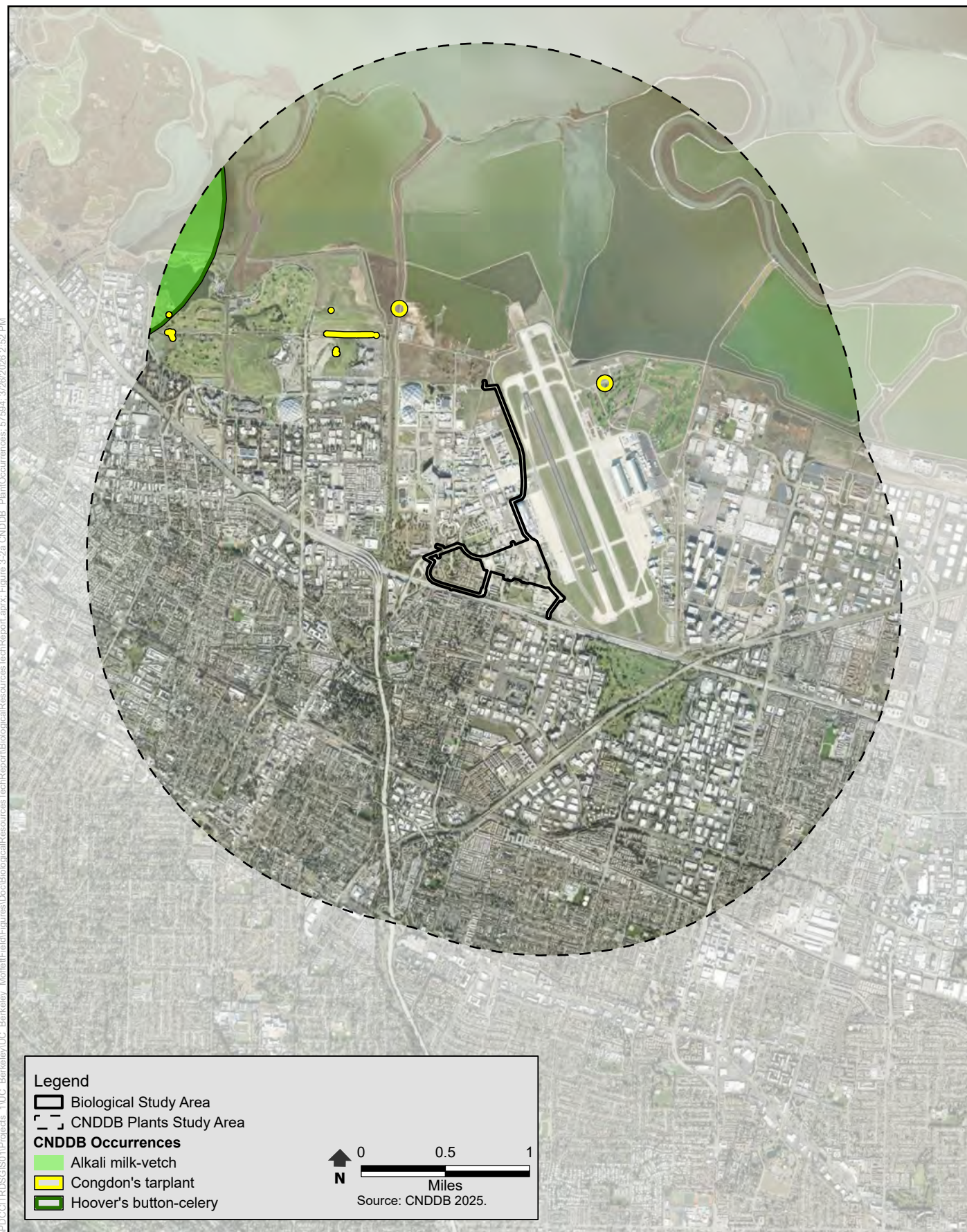


Figure 3-2a
CNDDDB Plant Occurrences Within 2 Miles of the Study Area
Berkeley Space Center at NASA Research Park

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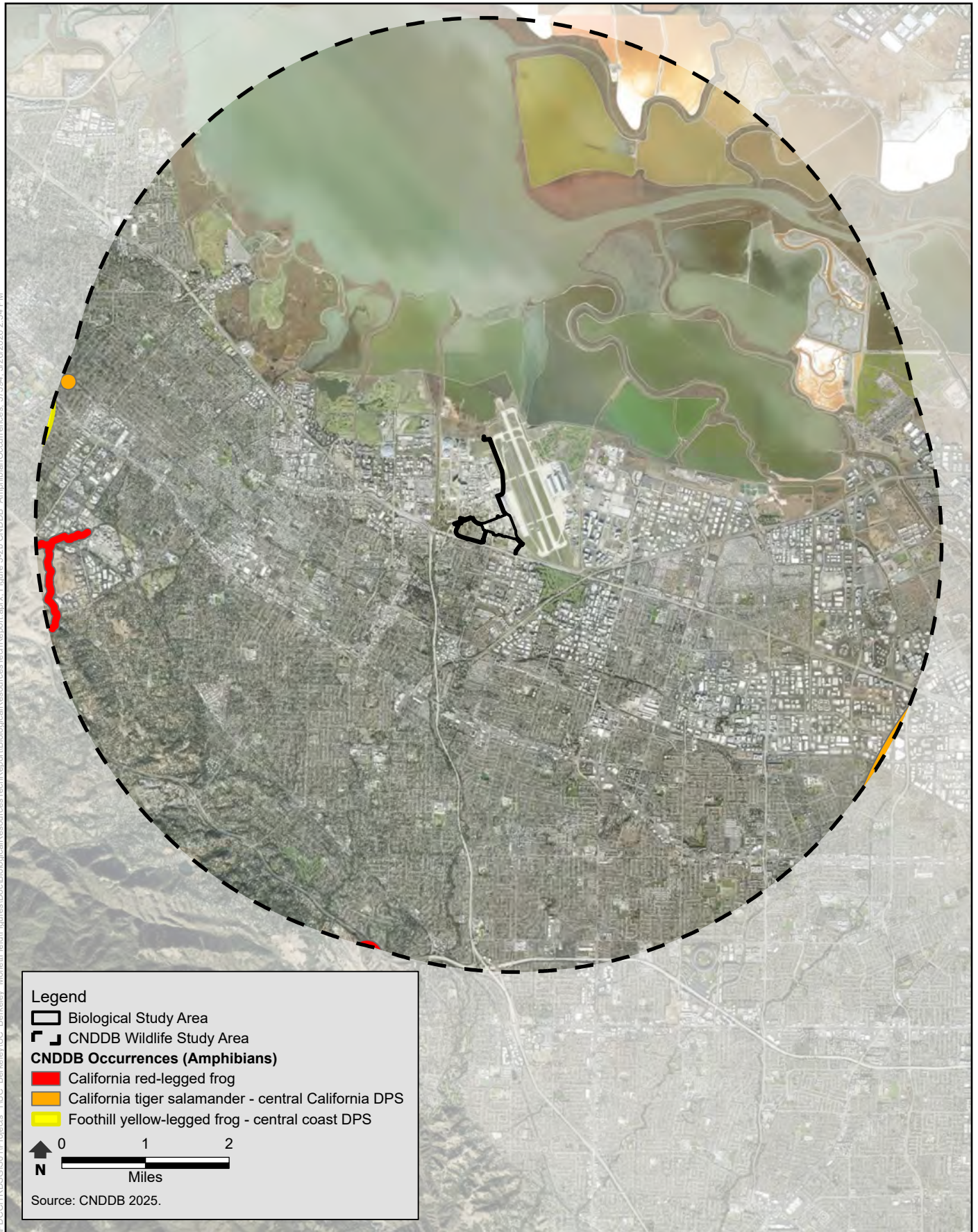


Figure 3-2b
CNDDDB Amphibian Occurrences Within 5 Miles of the Study Area
Berkeley Space Center at NASA Research Park

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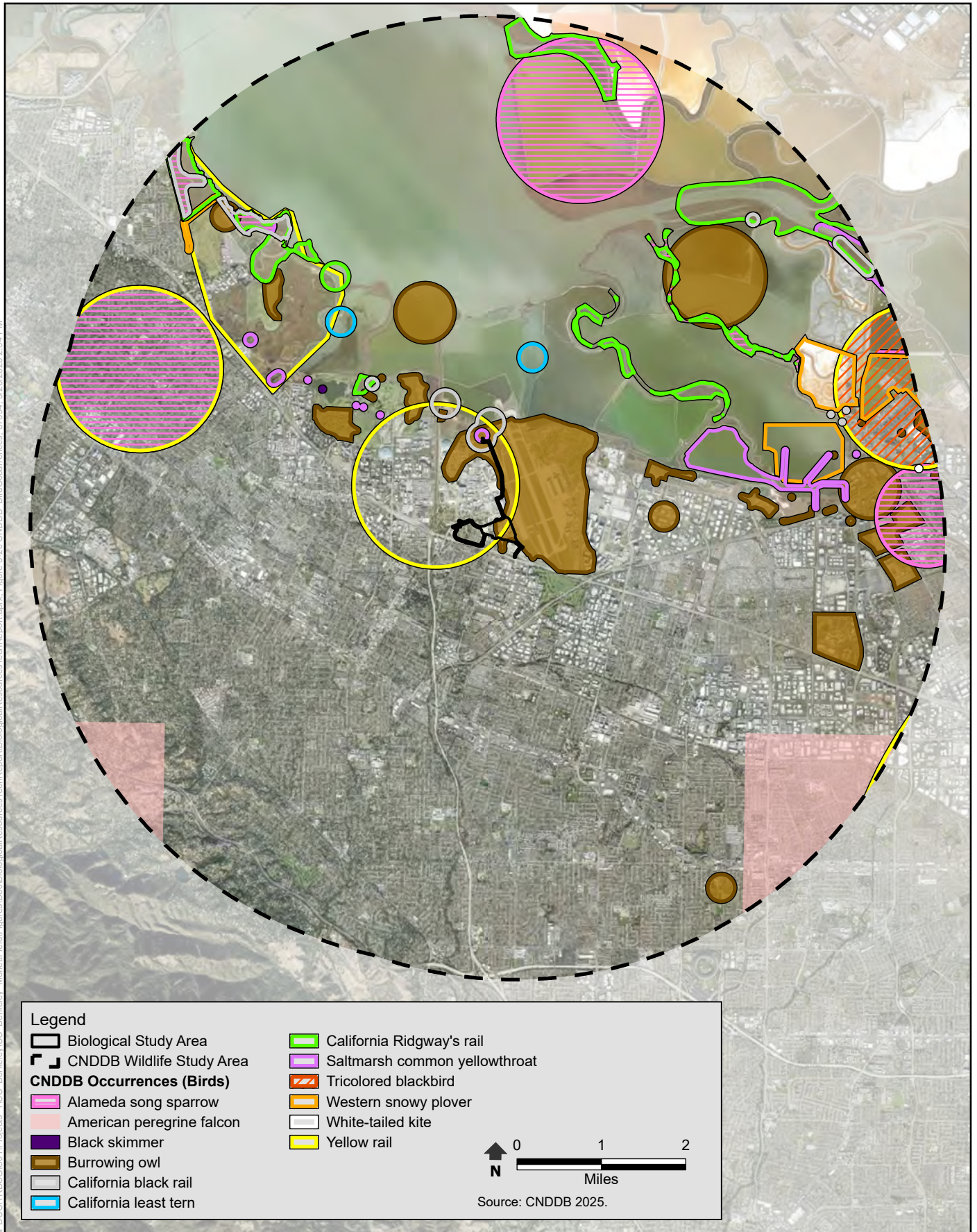


Figure 3-2c
CNDDDB Bird Occurrences Within 5 Miles of the Study Area
Berkeley Space Center at NASA Research Park

\\PDC\OTRDS\GIS\Projects_1\UC_Berkeley\UC_Berkeley_MoffettField\Figures\Doc\BiologicalResources\TechReport\arrry_Figure 3-2d CNDDDB Insect Occurrences: 57594: 3/26/2026 2:54 PM



Figure 3-2d
CNDDDB Insect Occurrences Within 5 Miles of the Study Area
Berkeley Space Center at NASA Research Park

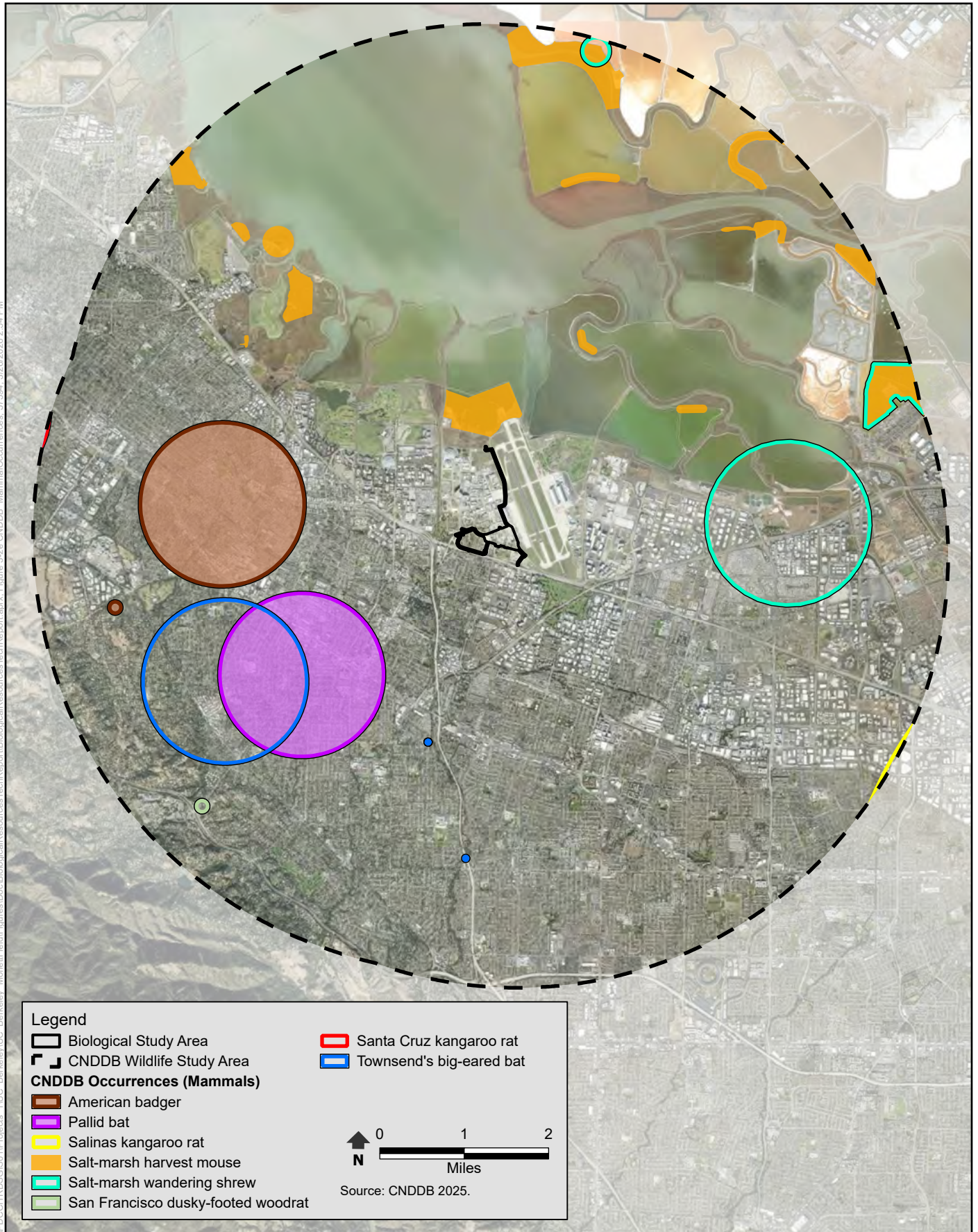


Figure 3-2e
CNDDDB Mammal Occurrences Within 5 Miles of the Study Area
Berkeley Space Center at NASA Research Park

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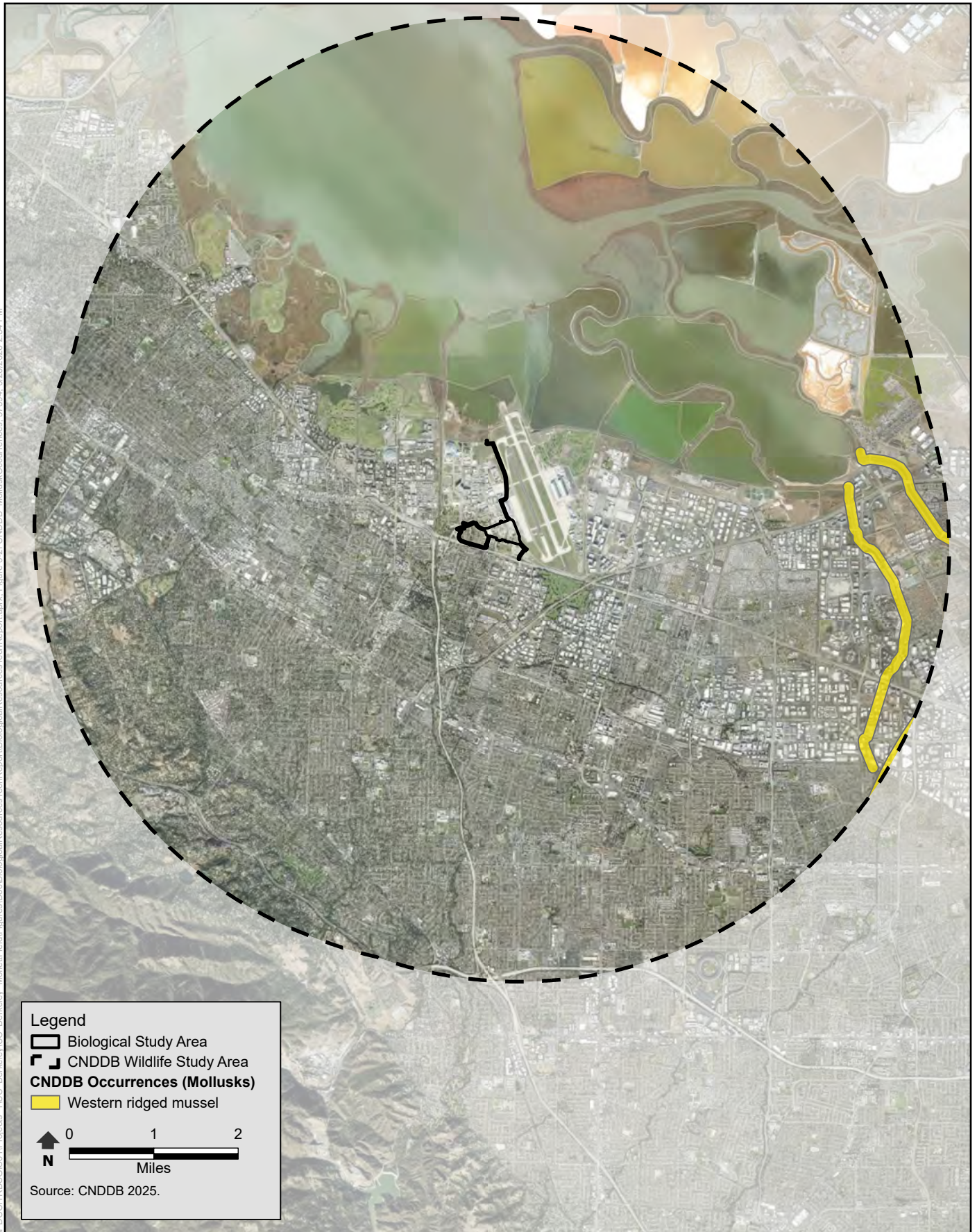


Figure 3-2f
CNDDDB Mollusk Occurrences Within 5 Miles of the Study Area
Berkeley Space Center at NASA Research Park

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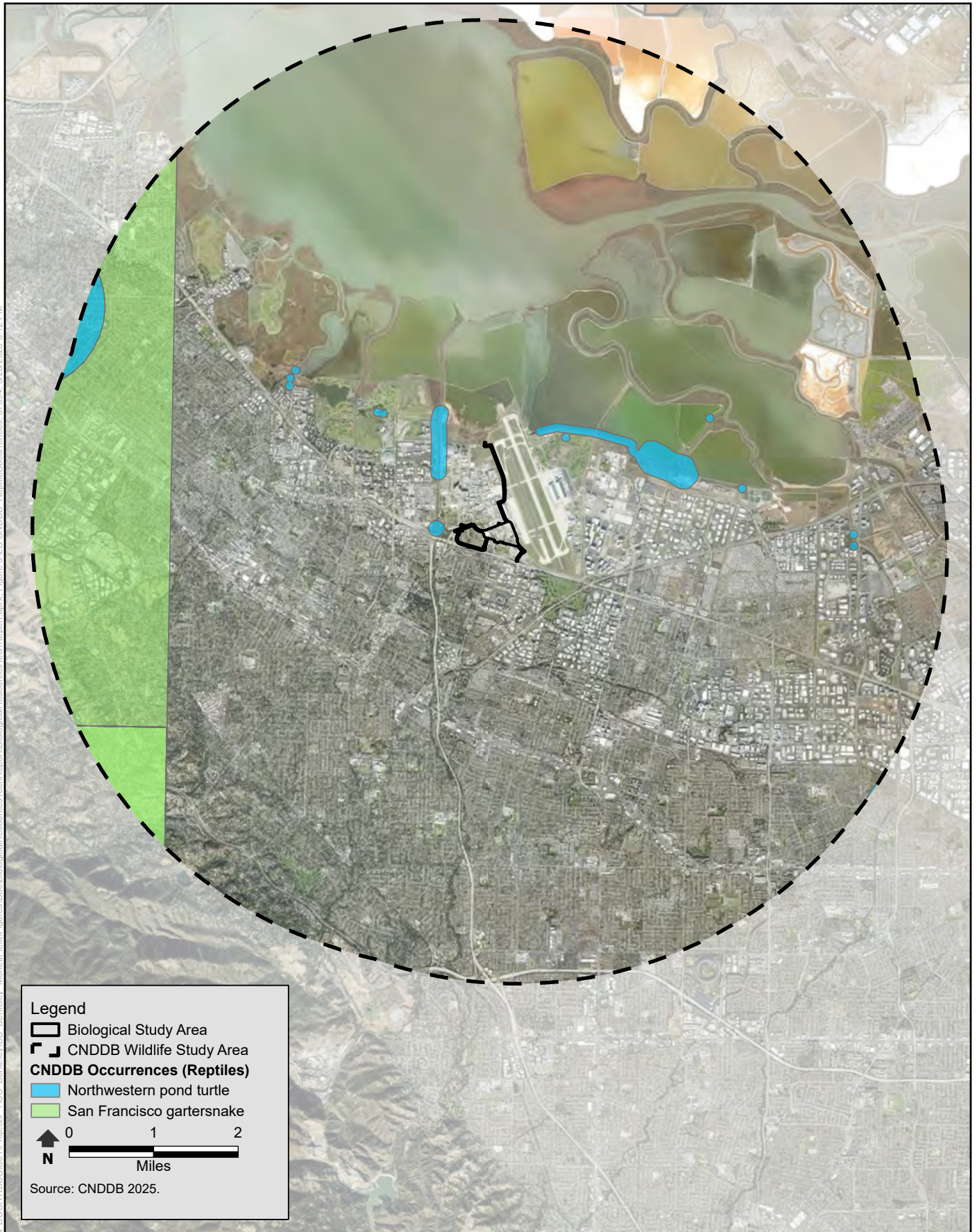


Figure 3-2G
CNDDDB Reptile Occurrences Within 5 Miles of the Study Area
Berkeley Space Center at NASA Research Park

4.1 Physical Conditions

The study area (refer to Section 3.1 for definition of study area) is located on the San Francisco Bay peninsula in the Central Coast subregion of the California Floristic Province (Baldwin et al. 2012). This region of California generally experiences wet, cool winters and dry, warm summers. The study area is approximately 1.4 mile south of the open waters of San Francisco Bay on relatively flat ground, with elevations ranging from approximately 5 to 36 feet above mean sea level. There are two soil map units in the study area—Urbanland-Hangar One complex, 0 to 2 percent slopes, drained, and Embarcadero silty clay loam, drained, 0 to 2 percent slopes.

4.2 Biological Conditions

The sections that follow describe the biological conditions of the study area, including land cover types, potentially occurring special-status species, non-special status wildlife, special-status plant communities, wetlands, sensitive natural communities, wildlife movement, and habitat conservation plans. The resource topics addressed in this technical report correspond to the significance thresholds from Appendix G of the State CEQA Guidelines for biological resources, as described in detail in Section 5.2, *Thresholds of Significance*. Although the sections addressing tree ordinances and habitat conservation plans do not apply to activities at NASA ARC, they are included to support the CEQA analysis for the project.

4.2.1 Land Cover Types

The field survey found that the 81.76-acre study area supports four land cover types: ruderal annual grassland, palustrine emergent wetland, developed, and disturbed. A breakdown of the land cover types found in the study area is provided in Table 4-1. Figure 3-1a shows the land cover types in the study area.

Table 4-1. Land Cover Types in the Study Area

Land Cover Type	Acres
Ruderal Annual Grassland	5.56
Palustrine Emergent Wetland	0.05
Developed	66.03
Disturbed	10.12
Total	81.76

4.2.1.1 Ruderal Annual Grassland

Ruderal land cover consists of areas of managed herbaceous vegetation. This vegetation is regularly mowed to maintain heights of approximately 6 to 10 inches. These areas are dominated by introduced annual grasses and forbs. Typical species include nonnative annual grasses and forbs, such as soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), foxtail brome (*Bromus madritensis*), bird's foot trefoil (*Lotus corniculatus*), bur clover (*Medicago polymorpha*), wildoats (*Avena fatua*), perennial ryegrass (*Festuca perennis*), alkali mallow (*Malvella leprosa*), mustard (*Hirshfeldia incana*), wild parsley (*Torilis nodosa*), and Italian thistle (*Carduus pycnocephalus*). The northern areas also include Bermuda grass (*Cynodon dactylon*), ribwort (*Plantago lanceolata*), rattail sixweeks grass (*Festuca myuros*), wild teasel (*Dipsacus fullonum*), and scattered, mowed coyote brush (*Baccharis pilularis*) (Appendix B, Photo 1).

One 0.012-acre patch of native perennial grassland, dominated by purple needlegrass (*Stipa pulchra*), intersects the buffer within the study area along Zook Road but does not extend into the Limits of Work (Appendix B, Photo 2).

Common wildlife species that occur in ruderal annual grassland include reptiles such as western fence lizard (*Sceloporus occidentalis*) and common gartersnake (*Thamnophis sirtalis*). Grasslands provide foraging habitat for wide-ranging species such as red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and American kestrel (*Falco sparverius*). Mammals typically found in this habitat include California vole (*Microtus californicus*) and California ground squirrel (*Otospermophilus beecheyi*) (California Department of Fish and Game 2005). In addition, many species that nest or roost in adjacent habitats may forage in associated grasslands, including western bluebird (*Sialia mexicana*), western kingbird (*Tyrannus verticalis*), and some species of bats (Zeiner et al. 1990a; 1990b).

Birds observed foraging in or otherwise occupying the ruderal grasslands within the study area during the reconnaissance survey included American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), bushtit (*Psaltiriparus minimus*), lesser goldfinch (*Spinus psaltria*), and Bewick's wren (*Thryomanes bewickii*). Black-tailed jack rabbit (*Lepus californicus*) and yellow-faced bumble bee (*Bombus vosnesenskii*) were also observed during the survey.

4.2.1.2 Palustrine Emergent Wetland

Emergent wetlands are defined by the presence of emergent plants (erect, rooted herbaceous hydrophytes) as the tallest lifeform occupying at minimum 30 percent cover (Federal Geographic Data Committee 2013). A formal wetland delineation was conducted to determine the legal boundaries, definitions and jurisdiction (if any) of the emergent wetlands in the study area.

One feature, classified as *Palustrine – Emergent (PEM)*, according to the Cowardin classification system,¹⁸ occurs along the northern utility alignment, dominated by herbaceous vegetation. It is located at the very northern terminus of the study area west of and adjacent to Lindbergh Avenue, approximately 220 feet north of De France Avenue (refer to Figure 3-1b). This area is at the southeast corner of the 230-acre Moffett Field Remedial Action, which cleaned up a Superfund site and restored the area to wetlands and stormwater retention areas (ITSI Gilbane Company 2013);

¹⁸ Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deep-water Habitats of the United States*. U.S. Fish and Wildlife Service, FWS/OBS-79/31.

the project was completed in 2016 (California Wetlands Monitoring Workgroup 2025). Vegetation cover is dense; dominant species are creeping wildrye (*Elymus triticoides*) and Himalayan blackberry (*Rubus armeniacus*), with greater periwinkle (*Vinca major*) and a few shrubby red willows (*Salix laevigata*). Other species include bird's foot trefoil, poison hemlock (*Conium maculatum*), curly dock (*Rumex crispus*), and bristly oxtongue (*Helminthotheca echinodes*).

The area just north of and adjacent to, but outside of, the study area is a marsh dominated by red willow; it includes cattail (*Typha* sp.), perennial pepperweed (*Lepidium latifolium*), creeping wildrye, and pampas grass (*Cortaderia* sp.). The palustrine emergent wetland area within the study area buffer may be transitional to the wetter area north of the study area (Appendix B, Photo 4).

Common bird species that nest in emergent wetland include red-winged blackbird (*Agelaius phoeniceus*) and marsh wren (*Cistothorus palustris*), both of which were observed during reconnaissance surveys.

4.2.1.3 Developed

The majority of the 81.76-acre study area, approximately 66.03 acres, is made up of developed land. Developed land cover consists of areas with high anthropogenic modification, including structures, roads, other hard surfaces, and associated landscaping. Vegetation includes lawns as well as ornamental trees and shrubs. The majority of trees and shrubs within the study area are mature; these include conifers, such as coast redwood (*Sequoia sempervirens*), pines (*Pinus* spp.), and Hollywood juniper (*Juniperus chinensis* "Kaizukja"); broadleaf deciduous hardwoods, such as sweetgum (*Liquidambar styraciflua*), London plane (*Platanus x hispanica*), Chinese pistache (*Pistacia chinensis*), weeping willow (*Salix babylonica*), and ash (*Fraxinus* spp.); and broadleaf evergreen hardwoods, such as cork oak (*Quercus suber*) and oleander (*Nerium oleander*) (Appendix B, Photo 5).

Cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*) were observed nesting in abandoned buildings in the study area. Specifically, nests were observed in abandoned buildings east of Bailey Road and north of Edquiba Road during the reconnaissance survey (Appendix B, Photo 6). Buildings within the developed area also provide suitable habitat for multiple species of bats. Trees and shrubs provide suitable habitat for a variety of common nesting bird species such as house sparrow (*Passer domesticus*), house finch (*Haemorhous mexicanus*), and western scrub-jay (*Aphelocoma californica*).

4.2.1.4 Disturbed

Disturbed land cover consists of vacant lots and road fringes with bare soil or low vegetation cover due to management (spraying) or excessive anthropogenic disturbance. Typical species include mustard, coastal heron's bill (*Erodium cicutarium*), fluellin (*Kickxia spuria*), stinkwort (*Dittrichia graveolens*), prostrate sandmat (*Euphorbia prostrata*), wall bedstraw (*Galium parisiense*), bur clover, and wild radish (*Raphanus sativus*) (Appendix B, Photo 7). Common species that occur in disturbed landcover include killdeer (*Charadrius vociferous*), which often nest on bare ground or gravel in disturbed areas. Gopher snake (*Pituophis catenifer*) and western fence lizard (*Sceloporus occidentalis*) could also be present in these areas.

4.2.2 Special-Status Species

4.2.2.1 Critical Habitat

Critical habitat refers to areas designated by USFWS that include physical or biological features essential for the conservation of species listed as threatened or endangered under the ESA. When a species is proposed for listing under the ESA, USFWS considers whether there are certain areas essential to the conservation of the species. There is no critical habitat within the study area (U.S. Fish and Wildlife Service 2025a).

4.2.2.2 Special-Status Plant Species

Table 4-2 provides information on the special-status plant species that were identified for consideration; it includes common and scientific names, listing status (federal, state, and/or CRPR), notes on the species habitat, distribution in California, identifiable period (time during the growing season when physiognomic features required for identification are present), and potential for occurrence in the study area. The species listed in this table were generated from queries of the CNDDDB, CNPS inventory, and USFWS database, as described in Section 3.33, taking into consideration the ranges of special-status species that have the potential to occur in the study area, despite not having occurrences in the study area. Only two species in Table 4-2, alkali milk-vetch and Congdon's tarplant, have suitable habitat and some potential to occur in the study area. Both are annual species with probability to occur in grasslands. Historically, there are three CNDDDB records of Congdon's tarplant within a 2-mile radius of the study area. One occurrence was last observed in 2013; two were last observed in 2019. There is one CNDDDB record of alkali milk-vetch within a 2-mile radius of the study area; this was last observed in 2002. Neither of these species, nor any other special-status plant species, was observed during the June 10, 2025, reconnaissance survey that occurred within the blooming and identifiable period for these plants. However, because no protocol-level surveys have been completed and because the ruderal grasslands are regularly managed with mowing, it is assumed that these species could be present within the study area.

Table 4-2. Special-Status Plant Species and Their Potential to Occur in the Study Area

Common Name <i>Scientific Name</i>	Rank ^a	Distribution in California	Habitat Requirements	Identifiable Period ^b	Potential for Occurrence in Study Area
California androsace <i>Androsace elongata</i> ssp. <i>acuta</i>	-/-/4.2	Interior North and South Coast Ranges, Great Valley, San Francisco Bay, South Coast, Peninsular Ranges, San Bernardino Mountains	Chaparrals, cismontane woodlands, coastal scrub, grasslands, meadows and seeps; 500 – 4,300 feet.	March–June	None. The study area is outside the elevation range for this species.

Common Name <i>Scientific Name</i>	Rank ^a	Distribution in California	Habitat Requirements	Identifiable Period ^b	Potential for Occurrence in Study Area
Alkali milk- vetch <i>Astragalus tener</i> var. <i>tener</i>	-/-/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, San Francisco Bay, Interior South Coast Range	Alkaline flats, vernally moist meadows; below 180 feet.	March–June	Low. The probability that the ruderal grasslands provide suitable habitat is low. There is one CNDDB record within a 2-mile radius, last seen in 2002. This species was not observed during the June 10, 2025, survey conducted within the blooming and identifiable period.
Congdon's tarplant <i>Centromadia</i> <i>parryi</i> ssp. <i>congdonii</i>	-/-/1B.1	Central Coast, San Francisco Bay, South Coast Range	Terraces, swales, floodplains, grasslands, disturbed sites; below 950 feet.	(April) May– October (November)	High. The ruderal grasslands provide potential habitat for this species, and there are three CNDDB occurrences within a 2-mile radius of the study area. This species was not observed during the June 10, 2025, survey conducted within the blooming and identifiable period.
Point Reyes salty bird's- beak <i>Chloropyron</i> <i>maritimum</i> ssp. <i>palustre</i>	-/-/1B.2	North and Central Coast	Coastal salt marsh; below 35 feet.	June– October	None. There is no suitable habitat within the study area.
Santa Clara red ribbons <i>Clarkia concinna</i> ssp. <i>automixa</i>	-/-/4.3	San Francisco Bay	Chaparral, cismontane woodland; below 5,000 feet.	(April) May– June (July)	None. There is no suitable habitat within the study area.
Hoover's button-celery <i>Eryngium</i> <i>aristulatum</i> var. <i>hooveri</i>	-/-/1B.1	San Francisco Bay, Outer South Coast Ranges	Vernal pools, occasionally alkaline seasonal wetlands; below 150 feet.	(June) July (August)	None. There is no suitable habitat within the study area. There is one possibly extirpated CNDDB record within a 2-mile radius, which was last observed in

Common Name <i>Scientific Name</i>	Rank ^a	Distribution in California	Habitat Requirements	Identifiable Period ^b	Potential for Occurrence in Study Area
					1909. This species was not observed during the June 10, 2025, survey conducted within the blooming and identifiable period. This species is presumed absent from the study area.
California seablite <i>Suaeda californica</i>	FE/- /1B.1	Central and South Coast, San Francisco Bay	Coastal salt marsh margins; below 50 feet.	July–October	None. There is no suitable habitat within the study area.

Sources: California Department of Fish and Wildlife 2025a; California Native Plant Society 2025; U.S. Fish and Wildlife Service 2025a.

^a. Status explanations:

Federal (ESA)

E = Listed as endangered under the ESA.

- = No listing.

State (CESA)

- = No listing.

California Rare Plant Rank (CRPR)

1B = Rare, threatened, or endangered in California and elsewhere.

4 = Limited distribution; species on a watch list (Note: List 4 may not meet the definition of special status but may warrant consideration on the basis of local significance or recent biological information).

.1 = Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat).

.2 = Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat).

.3 = Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

^b. Month(s) of the year when the plant is typically in bloom or presenting features required for identification.

4.2.2.3 Special-Status Wildlife Species

Table 4-3 provides information on the special-status wildlife species that were identified for consideration; this includes common and scientific names, listing status (federal, state, global rank, and/or state rank), notes on the species' life history, habitat, distribution in California, and potential for occurrence in the study area. The species listed in this table were generated from queries of the CNDDDB and the USFWS database, as described in Section 3.22, taking into consideration the ranges of special-status species that have the potential to occur in the study area, despite not having occurrences in the study area. Species in Table 4-3 that are not known to occur in the study area, have ranges outside the study area, lack suitable habitat in the study area, and/or would not be affected by the proposed project are not addressed further.

Table 4-3. Special-Status Wildlife Species and Their Potential to Occur in the Study Area

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
Invertebrates				
Crotch's bumble bee <i>Bombus crotchii</i>	-/SC/-	Occurs throughout the Pacific Coast, western desert, and adjacent foothills throughout most of the state's southwestern region.	Found in open grassland and scrub. Nests underground in abandoned rodent burrows. Colonies are annual, and only the newly mated queens overwinter. The queens emerge from hibernation in early spring to search for nest sites. Host plant food includes milkweed (<i>Asclepias</i> sp.), pincushion (<i>Chaenactis</i> sp.), lupine (<i>Lupinus</i> sp.), bur clover (<i>Medicago</i> sp.), phacelia (<i>Phacelia</i> sp.), and sage (<i>Salvia</i> sp.).	Moderate. Ruderal grassland hosts many ground squirrel burrows, which could provide suitable nesting habitat, and bur clover was observed during reconnaissance surveys. High-value food sources are limited in the study area, and the ruderal grassland is regularly disturbed/mowed. There is one CNDDDB record of occurrence along Steven's Creek from 2023 located approximately 0.5 mile west of the study area.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/-/-	Endemic to the northern portion of the Central Valley of California. This species occurs from the Millville Plains and Stillwater Plains in Shasta County south throughout the Central Valley to Merced County.	Found in a variety of natural and artificial seasonally ponded Sacramento Valley habitat types, including vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities.	None. No suitable habitat within the study area. No CNDDDB occurrences within 5 miles of the study area.
Monarch butterfly <i>Danaus plexippus</i>	FC/-/-	Adults breed and migrate throughout California and overwinter along the California coast and in central Mexico.	Open habitats, including fields, meadows, weedy areas, marshes, and roadsides. Monarch butterflies roost in wind-protected tree groves (such as eucalyptus) with nectar and water sources nearby. Caterpillar host plants are native milkweeds.	Moderate. Adults may forage in ruderal grasslands and migrate through the site. Adults may also roost in trees in the study area. No host milkweed plants were observed during the reconnaissance survey, but if present, there is potential for breeding to occur. The nearest CNDDDB overwintering site is more than 7 miles northeast of the study area in Alameda County.

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
Amphibians				
California red-legged frog <i>Rana draytonii</i>	T/SSC	Occurs in the San Francisco Bay Area and Coast Ranges, in addition to the Transverse and Peninsular Ranges. Very few populations are now known from Ventura, Los Angeles, and Riverside Counties.	Foothill ponds and streams with no vegetation to dense shrubby or emergent riparian vegetation; minimum 11–20 weeks of water for larval development and upland refugia for aestivation.	None. No suitable habitat within the study area. One CNDDDB occurrence approximately 4.75 miles southwest of the study area.
California tiger salamander <i>Ambystoma californiense</i>	FT/ST/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet; coastal region from Butte County south to northeastern San Luis Obispo County.	Grassland and oak woodland with seasonal ponds and/or pools for breeding; small mammal burrows in vicinity of breeding sites for underground retreats during the dry season.	None. No suitable habitat within the study area. No CNDDDB occurrences within 5 miles of the study area.
Foothill yellow-legged frog <i>Rana boylei</i>	–/E/SSC	In most of Northern California west of Cascade crest and along western flank of Sierra south to Kern County. Isolated population in San Joaquin County. Absent from Monterey County and San Gabriel Mountains. Ranges up to approximately 6,000 feet.	Inhabits moderate- to high-gradient streams in woodland, forest, mixed chaparral, and wet-meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby.	None. No suitable habitat within the study area. No CNDDDB occurrences within 5 miles of the study area.
Reptiles				
Green sea turtle <i>Chelonia mydas</i>	T/–/–	Coastal lagoons and bays throughout California.	Open water; feeds primarily on eelgrass.	None. No suitable habitat within the study area. This species is not tracked under CNDDDB.

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
Northwestern pond turtle <i>Actinemys marmorata</i>	FC/SSC/-	California range includes Oregon border of Del Norte and Siskiyou Counties, areas south along the coast to San Francisco Bay, inland areas through the Sacramento Valley, and the western slope of the Sierra Nevada.	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation.	Moderate. Limited suitable upland habitat in the ruderal grassland in the study area. Turtles may be present in the potential emergent wetland at the northern end of the study area. There are eight CNDDB occurrences within 5 miles of the study area. Two of these occurrences (dated 1987 and 2021) are in Steven's Creek, approximately 0.5 mile west of the study area. Western pond turtles have also been observed in the stormwater ditches along Marriage Road, North Patrol Road, and the Northern Channel east of Moffett Federal Airfield.
San Francisco garter snake <i>Thamnophis sirtalis tetataenia</i>	E/E/FP	California range is limited to very few locations in San Mateo County.	Densely vegetated ponds with an open water component near open hillsides for basking, foraging, and cover in burrows. They sun themselves, feed, and find cover in rodent burrows.	None. No suitable habitat within the study area. Study area is isolated from known populations by urbanization. Species range is west of the study area. One CNDDB occurrence approximately 3.75 miles west of the study area.
Birds				
Snowy egret <i>Egretta thula</i>	-/-/-	Year-round range spans the Central Valley, Delta, entire coast, central Coast Ranges, and southeastern California; winter range expands to include northeastern California.	Nests colonially in dense marshes and low trees; forages in freshwater and saline marshes, shallow open water, and occasionally irrigated cropland or wet upland habitats.	Moderate. Suitable foraging habitat in the potential emergent wetland at the north end of the study area and along Steven's Creek, west of the study area. Nearest CNDDB recorded nesting colony in the Palo Alto Baylands Nature Preserve, approximately 3.5 miles northwest of the study area.

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
California condor <i>Gymnogyps californianus</i>	E/E/FP	Primarily southern and central California, although range has been continuously expanding northward.	Open or semi-open grasslands or woodlands for foraging. Nest on cliffs, rocky outcrops, or in large trees.	None. No known occurrences within 5 miles of the study area. Study area is at the northernmost extent of the species' range.
Northern harrier <i>Circus cyaneus</i>	-/-/SSC	Year-round resident of California. Breeding range encompasses Northern California, the Central Valley, the central coast, and portions of Southern Californian desert.	Nests on the ground among herbaceous vegetation, such as grasses or cattails; forages in grasslands, agricultural fields, and marshes.	Moderate. Low potential for nesting within the ruderal grasslands in the study area, but individuals may forage in grasslands. Potential nesting and foraging habitat in the wetlands north of the study area. There is one CNDDDB occurrence approximately 4.5 miles northwest of the study area.
White-tailed kite <i>Elanus leucurus</i>	-/-/FP	Lowland areas west of Sierra Nevada from the upper Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Open grasslands, meadows, or marshes; require dense-topped trees or shrubs for nesting and perching.	High. Potential nesting habitat in large trees within the study area. Individuals have been observed nesting most years in the Western Diked Marsh north of the study area by NASA ARC biologists. Ruderal grasslands and wetlands north of the study area also provide suitable foraging habitat.
American peregrine falcon <i>Falco peregrinus anatum</i>	-/-/-	Year-round range includes the Sierra Nevada, Cascade Range, northeastern California, Coast Ranges, and coast; winter range expands to include the Central Valley and the Delta and additional portions of eastern and Southern California.	Nests on cliffs or on buildings in urban areas. Forages in a wide variety of habitats but is most common near water where shorebirds and waterfowl are abundant.	Low. Peregrine falcons have been observed nesting in tall buildings at NASA ARC outside of the study area, including N221, Hangar 3, and N243. Buildings within study area do not appear to have structural components that would provide suitable nesting habitat. Foraging habitat is present throughout study area. There are two CNDDDB occurrences approximately 5 miles of the study area.

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
California black rail <i>Laterallus jamaicensis</i> <i>coturniculus</i>	-/T/FP	Approximately 90 percent are found in the tidal salt marshes of the northern San Francisco Bay region, primarily in San Pablo and Suisun Bays. Smaller populations occur in San Francisco Bay, the outer coast of Marin County, freshwater marshes in the foothills of the Sierra Nevada, and in the Colorado River Area.	Nests and forages in saline, freshwater, or brackish emergent marshes with gently grading slopes and upland refugia with vegetative cover beyond the high-water line.	Low. Palustrine emergent wetland that overlaps with the northern tip of the study area does not provide suitable habitat. Potential habitat does not appear to be present within at least approximately 250 feet of the study area. There are five CNDDDB occurrences within 5 miles of the study area.
Yellow rail <i>Coturnicops</i> <i>noveboracensis</i>	-/-/SSC	Considered extremely rare in California. Small numbers winter in coastal marshes and in Suisun Marsh. Local breeder in the northeastern interior.	Breeds in densely vegetated sedge marshes or meadows with moist soil or shallow standing water. Winter habitat includes wet meadows and coastal tidal marshes.	Low. Palustrine emergent wetland that overlaps with the northern tip of the study area does not provide suitable habitat. Potential wintering habitat does not appear to be present within at least approximately 250 feet of the study area. There are four CNDDDB occurrences within 5 miles of the study area.
California Ridgway's rail <i>Rallus obsoletus</i>	E/E/FP	Year-round near coastal range, surrounds San Francisco and San Pablo Bays, and documented at several locations in Suisun Bay.	Nests and forages in dense cordgrass and cattail marshes with vegetated refugia during the highest tides.	Moderate. Palustrine emergent wetland that overlaps with the northern tip of the study area does not provide suitable breeding habitat. Potential habitat does not appear to be present within at least approximately 250 feet of the study area. There are no CNDDDB occurrences within 5 miles of the study area. However, one individual was observed in 2018 approximately 620 feet north of the study area.

Common Name Scientific Name	Status^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
Western snowy plover <i>Charadrius nivosus nivosus</i>	T/-/SSC	Along the West Coast, with inland nesting taking place at the Salton Sea, Mono Lake, and isolated sites on the shores of alkali lakes in northeastern California, in the Central Valley, and southeastern deserts.	Nests, feeds, and takes cover on sandy or gravelly beaches along the coast, on estuarine salt ponds, on alkali lakes, and at the Salton Sea.	Low. No suitable breeding and foraging habitat. There are two CNDDDB occurrences within 5 miles of the study area.
Black skimmer <i>Rynchops niger</i>	-/-/SSC	Salton Sea to south San Diego Bay, Bolsa Chica Ecological Reserve, Upper Newport Bay, Seal Beach National Wildlife Reserve, South San Francisco Bay, Batiquitos Lagoon, and Los Angeles Harbor. In winter, most birds leave the Salton Sea; on the coast, they occur north in numbers to Santa Barbara (uncommonly to San Francisco Bays).).	Highly social colonial waterbird requires large areas of bare earth sufficiently isolated from terrestrial predators and other disturbances.	None. No suitable habitat within the study area. There is one CNDDDB occurrence approximately 2 miles west of the study area dated 2015 in Shoreline Lake.
California least tern <i>Sternula antillarum browni</i>	E/E, FP	Nests along the Pacific Coast from Baja California to San Francisco. The San Francisco Bay Estuary to the Delta is considered to be at the northern limit of the species' range; some small colonies occur in that area.	Nests in loose colonies on barren or sparsely vegetated sandy or gravelly substrates above the high-tide line along the coastline and in lagoons and bays of the California coast. Foraging typically occurs in shallow estuaries or lagoons or in the shallow tidal zone of the open ocean and bays.	None. No suitable nesting or foraging habitat within the study area. There are two CNDDDB occurrences within San Francisco Bay, dated 1987, and within 5 miles of the study area (one less than 1 mile from the study area and one approximately 1.7 miles northwest of the study area).

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
Burrowing owl <i>Athene cunicularia</i>	-/SC/SSC	Central and southern coastal habitats, Central Valley, Great Basin, and deserts. Formerly common in appropriate habitat throughout the state, excluding humid northwest coastal forests and high mountains. Present on larger offshore islands.	Open annual grasslands or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon burrowing mammals (especially California ground squirrel) for burrows.	High. Suitable winter and breeding habitat in ruderal annual grassland within and adjacent to the study area. Study area overlaps with three burrowing owl preserves. Many suitable burrows were observed during the reconnaissance survey, some of which also showed potential sign of owls (e.g., whitewash and/or pellets). Twenty-three CNDDDB occurrences within 5 miles of the study area.
Alameda song sparrow <i>Melospiza melodia pusillula</i>	-/-/SSC	Restricted to the fringes of the south San Francisco Bay.	Nests in salt marsh, primarily in coyote bush and marsh gumplant along tidal channels.	High. Potential suitable breeding and foraging habitat in the palustrine emergent wetland at the northern tip of the study area. Species was observed during reconnaissance survey. Six CNDDDB occurrences within 5 miles of the study area.
Tricolored blackbird <i>Agelaius tricolor</i>	-/T/SSC	A resident in California found throughout the Central Valley and in coastal districts from Sonoma County south. Found locally in northeastern California. In winter, more widespread along central coast and San Francisco Bay Area.	Nests in dense blackberry, cattail, tules, bulrushes, sedges, willow, or wild rose within freshwater marshes. Nests in large colonies of at least 50 pairs (up to thousands of individuals).	Moderate. Potential suitable breeding habitat within the palustrine emergent wetland north of the study area. Potential for individuals to forage in ruderal grassland in the study area. Nearest CNDDDB occurrence is approximately 4 miles east of the study area. Species was not observed during reconnaissance survey.

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
Saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	BCC/SSC	Endemic to the greater San Francisco Bay Area.	Occurs in primarily brackish marsh with dense and continuous wetland or riparian vegetation down to the water surface; however, to a lesser degree, also uses woody swamp/riparian and freshwater marsh. Often found in rush, tall grass, and willow-dominated communities.	High. Suitable breeding and foraging habitat in the palustrine emergent wetland at the northern tip of the study area. Species was observed during reconnaissance survey. Eight CNDDDB occurrences of saltmarsh common yellowthroat within 5 miles of the study area.
Mammals				
Salt-marsh wandering shrew <i>Sorex vagrans halicoetes</i>	-/-/SSC	Restricted to salt marshes in San Francisco Bay.	Medium-high marsh 6 to 8 feet above sea level with abundant driftwood and common pickleweed.	Low. Palustrine emergent wetland that overlaps with the northern tip of the study area does not provide suitable habitat. Potential habitat does not appear to be present within at least approximately 250 feet of the study area. One CNDDDB occurrence approximately 2.5 miles west of the study area.
Pallid bat <i>Antrozous pallidus</i>	-/-/SSC, WBWG = high	Occurs throughout California, except for the high Sierra Nevada from Shasta to Kern Counties to northern Mendocino County.	Forages in a variety of habitats, including deserts, grasslands, shrublands, woodlands, and forests; most common in open, dry habitats; typically roosts in rock crevices, also in tree hollows, bridges, and buildings, in colonies ranging from one to more than 200 individuals.	Moderate. Potential roosting habitat in trees and buildings, including swallow nests, within the study area. Foraging habitat present throughout study area. One CNDDDB occurrence, dated 1945, within 5 miles of the study area.

Common Name Scientific Name	Status^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	-/-/SSC, WBWG = high	Year-round range spans most of California, except the highest elevations of the Sierra Nevada south of Lake Tahoe.	Requires caves, mines, tunnels, buildings, or other human-made structures for roosting; may use separate sites for night, day, hibernation, or maternity roosts. Typically roosts in colonies of fewer than 100 individuals. Forages in all habitats, except alpine and subalpine, although most commonly in mesic forests and woodlands.	Moderate. Potential roosting habitat in buildings within the study area. Foraging habitat present throughout study area. Three CNDDDB occurrences within 5 miles of the study area (one dated 2015, which is possibly extirpated; one dated 1945; and one dated 2017).
Hoary bat <i>Lasiurus cinereus</i>	-/-/- WBWG = medium	The most widespread North American bat; may be found nearly everywhere in California from sea level to 13,200 feet, although its distribution is patchy in southeastern deserts.	Typically roosts alone in a variety of broadleaf tree species such as cottonwood and sycamore; also found roosting in conifers. Breeding habitat includes all woodlands and forests with medium to large trees and dense foliage. May be found in a range of vegetation and roost substrates during migration.	Moderate. Potential habitat in trees within the study area. Foraging habitat present throughout study area. One CNDDDB occurrence within 5 miles of the study area dated 1990.
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	-/-/SSC	Throughout the San Francisco Bay Area.	Nests in a variety of habitats, including riparian areas, oak woodlands, and scrub.	None. No suitable habitat in the study area. One CNDDDB occurrence approximately 5 miles from the study area.
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	E/E/FP	Year-round range includes the marshes surrounding Suisun, San Pablo, and San Francisco Bays, with the Collinsville-Antioch area forming the eastern limit of the range.	Occurs primarily in tidal brackish emergent wetlands dominated by pickleweed and higher-elevation refugia.	Low. Palustrine emergent wetland that overlaps with the northern tip of the study area does not provide suitable habitat. Potential habitat does not appear to be present within at least approximately 250 feet of the study area. Eleven CNDDDB occurrences within 5 miles of the study area.

Common Name Scientific Name	Status ^a (Federal/ State/Other)	Distribution in California	Habitat Requirements	Potential for Occurrence
American badger <i>Taxidea taxus</i>	-/-/SSC	Throughout most of California, except northern North Coast area.	Shrub, forest, and herbaceous cover types with friable soils for digging burrows.	None. No suitable habitat in the study area. Two CNDDDB occurrences within 5 miles of the study area; one is a historic record from 1920, which is presumed to be extirpated due to urbanization.

Sources: California Department of Fish and Wildlife 2025a; U.S. Fish and Wildlife Service 2025

^a. Status Codes:

Federal

E = Federally listed as endangered under federal Endangered Species Act (ESA)

T = Federally listed as threatened under ESA

FC = Federal candidate for listing under ESA

State

E = State listed as endangered under California Endangered Species Act (CESA)

T = State listed as threatened under CESA

SC = State candidate for listing under CESA

Other

SSC = California Species of Special Concern

FP = California Fully Protected Species

WBWG = Western Bat Working Group priority species (<http://wbwg.org/matrices/species-matrix/>):

High = Species imperiled or at high risk of imperilment.

Medium = More research and closer attention needed to adequately assess species' status and needed conservation actions.

Low = Most of existing data support stable population of species; potential for major changes in status in near future unlikely.

The determinations of the potential for each species to occur in the study area are based on the following general criteria:

None: No individuals and/or suitable habitat for the species was found in the study area during surveys.

Low: Species not likely to occur because of marginal habitat quality, distance from known occurrences, or lack of recent occurrences within or in the vicinity of the study area.

Moderate: Some or all of the species' life history requirements are provided by habitat in the study area; populations may not be known to occur in the study area or immediate vicinity but are known to occur in the region.

High/Present: All of the species' specific life history requirements can be met by habitat present in the plan area, and populations are known to occur in the study area or immediate vicinity.

The following special-status species were determined to have moderate to high potential to occur within the study area and are described further in this section: Crotch's bumble bee (*Bombus crotchii*), monarch butterfly (*Danaus plexippus*), northwestern pond turtle (*Actinemys marmorata*), snowy egret (*Egretta thula*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), Ridgway's rail (*Rallus obsoletus*), burrowing owl (*Athene cunicularia*), Alameda song sparrow (*Melospiza melodia pusillula*), tricolored blackbird (*Agelaius tricolor*), saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and hoary bat (*Lasiurus cinereus*).

Crotch's Bumble Bee

Crotch's bumble bee is a candidate for listing as endangered under the CESA (California Department of Fish and Wildlife 2025c).

Crotch's bumble bee has a relatively limited distribution, occurring primarily in California and northern Baja California, Mexico. In California, Crotch's bumble bee historically occurred on the Pacific Coast, in the western desert, in the Central Valley, and in adjacent foothills (California Department of Fish and Wildlife 2023; Williams et al. 2014). The current species range map shows the species is no longer present in portions of California's Pacific Northwest, Central Coast, and inland deserts (California Department of Fish and Wildlife 2023).

Habitat for this species is not specific because the food plant genera used by Crotch's bumble bee (including *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*) are widely distributed in different habitats (Koch et al. 2012). Like most other species of bumble bees, Crotch's bumble bees typically nest in underground cavities such as animal burrows, though nests have also been reported in aboveground structures that provide suitable cavities (Koch et al. 2012).

Colonies are established by mated queens who produce female workers to forage for pollen and nectar, defend the colony, and feed developing larvae, with individual colonies remaining active for only one season (Koch et al. 2012). The flight period for Crotch's bumble bee queens in California is from late February to late October and the period for workers and males in California is from late March through September (California Department of Fish and Wildlife 2019). Little is known about overwintering sites but other bumble bee species are known to overwinter in soft soil or under leaf litter and debris (California Department of Fish and Wildlife 2019).

Ruderal grassland with many ground squirrel burrows which may provide nesting habitat for the bumble bee, and bur clover (a suitable food plant) was observed during reconnaissance surveys. High-value food sources are limited in the study area, and the ruderal grassland is regularly disturbed/mowed to keep vegetation heights between approximately 6 and 10 inches, which may reduce habitat suitability for the species. Grassland in the burrowing owl preserves that overlap with the study area are also mowed to enhance burrowing owl habitat. There is one CNDDB record of occurrence along Stevens Creek from 2023 approximately 0.5 mile west of the study area. Due to the presence of suitable nesting habitat, floral resources, and a nearby occurrence, the potential for nesting and foraging Crotch's bumble bee to occur in the study area is moderate.

Monarch Butterfly

Monarch butterfly was designated as a candidate species by USFWS on May 3, 2022 (87 FR 26152). The species is not listed under the CESA.

Monarch butterfly is one of the most widely distributed butterflies in the world (Glassberg 2001; Brower and Jeansonne 2004). It can be found throughout North America, northern South America, the Iberian Peninsula, eastern and southwestern Australia, New Zealand, and the Indo-Pacific islands (U.S. Fish and Wildlife Service 2020). It is highly migratory and can be found across North America, with a patchier distribution west of the Rocky Mountains.

The western North American population winters along the Pacific Coast of California from Mendocino County south to Baja California, Mexico (U.S. Fish and Wildlife Service 2020). Individuals in this population migrate through California and the Intermountain West during the spring and summer, returning to wintering grounds in the fall.

The breeding, foraging, and migratory habitats for this species generally consist of all areas with the required habitat components, including milkweed (*Asclepias* sp.), nectar sources, and roosting structures.

Monarch butterfly almost exclusively uses plant species in the subfamily Asclepiadoideae as larval food plants, including 27 species of milkweed (*Asclepias* sp.), as well as a few plants in closely related genera (Malcolm and Brower 1986; Jepsen et al. 2015). The species only breeds where milkweed is found (U.S. Fish and Wildlife Service 2022) and lays its eggs on the milkweed plant; the milkweed is an obligate species for the monarch caterpillar (Western Association of Wildlife Agencies 2019; U.S. Fish and Wildlife Service 2020). Other than milkweed for breeding requirements, the habitat requirements for monarch butterfly are not particularly specialized. As a result, monarch butterflies can occur in a wide variety of habitat types.

Monarch butterfly requires nectar-producing plants for foraging and nectar on a variety of flowers, including goldenrods (*Solidago* spp.), asters (*Symphyotrichum* spp.; *Eurybia* spp.), coyotebrush (*Baccharis pilularis*), nettleleaf giant hyssop (*Agastache urticifolia*), yarrow (*Achillea millefolium*), coastal sand verbena (*Abronia latifolia*), bluedicks (*Dichelostemma capitatum*), western goldentop (*Euthamia occidentalis*), seaside fleabane (*Erigeron glaucus*), mountain monardella (*Monardella odoratissima*), coyote mint (*Monardella villosa*), gumplant (*Grindelia camporum*) and sunflowers (*Helianthus* spp.), among others (Xerces Society 2016, 2019).

Roosting sites during migration consist of native and nonnative deciduous and evergreen trees, and narrow-leaved trees such as Monterey cypress (*Hesperocyparis macrocarpa*), Monterey pines (*Pinus radiata*), and blue gum eucalyptus (*Eucalyptus globulus*) (U.S. Fish and Wildlife Service 2020).

Overwintering habitat consists of a specific set of forested tree groves that produce the necessary microclimate for survival and protection from inclement weather (U.S. Fish and Wildlife Service 2021a). Western North American Monarch butterfly overwintering sites exist along a 1,000-kilometer section of the Pacific Coast from Mendocino County, California, to Baja California, Mexico (Pelton et al. 2016). Historically, monarchs overwintered near the coast. In more recent years, however, monarchs have not clustered in the southernmost or northernmost parts of their overwintering range and have been found to be year-round residents in some coastal areas (U.S. Fish and Wildlife Service 2021a). This “resident phenomenon” is due in combination to the abundance of residential-planted nonnative tropical milkweed and climate change (U.S. Fish and Wildlife Service 2021a).

The nearest CNDDDB overwintering site is more than 7 miles northeast of the study area in Alameda County. Adults very likely migrate and forage through the study area and roost in trees that provide shelter from wind and rain. No host milkweed plants were observed during the reconnaissance survey; however, if present, there is potential for breeding to occur. Due to the presence of suitable roosting and nectaring habitat and potential for milkweeds to be present, the potential for monarch butterfly to occur within the study area is moderate.

Northwestern Pond Turtle

Northwestern pond turtle (*Actinemys marmorata*) is a California Species of Special Concern (California Department of Fish and Wildlife 2025c) that is currently under review for federal listing under ESA (U.S. Fish and Wildlife Service 2025a). Northwestern pond turtle occurs throughout California from the coast to the western slopes of the Sierra Nevada up to 6,700 feet (Thomson et al. 2016) in a variety of aquatic habitats. Suitable habitats include ponds, rivers, streams, lakes, permanent and seasonal wetlands, marshes, and reservoirs with adequate cover and basking sites for thermoregulation (e.g., partially submerged logs, stumps, boulders, muddy banks, and mats of floating vegetation). Upland habitat with low disturbance and substrates that allow for burrowing are required for nesting from the spring through early summer, and for overwintering and dispersal (Thomson et al. 2016). Proximity of nesting site to aquatic habitat is dependent on availability, and the nest site is usually within 330 feet of the aquatic habitat but can be up to 1,640 feet away (Thomson et al. 2016).

Northwestern pond turtles are active year-round in warmer locations but will spend winter months in colder climates in a state of dormancy, often burrowing into loose soil or leaf litter on land, or using undercut banks, snags, rocks or bottom mud in ponds (Thomson et al. 2016). Breeding occurs from spring through fall, with nesting taking place from spring to early summer. Females lay from one to 13 eggs, which will hatch in the fall, although the young will remain in the nest until the following spring (Thomson et al. 2016).

Snowy Egret

Snowy egret is included on CDFW's Special Animals List but is not listed under the federal ESA or CESA (California Department of Fish and Wildlife 2025c). Snowy egrets are found throughout much of California, breeding mainly in Siskiyou, Modoc, and San Diego Counties, Humboldt Bay, San Francisco Bay, Sacramento and San Joaquin Valleys, Salton Sea, and Colorado River (Parsons and Master 2020).

Preferred habitat for snowy egrets includes coastal estuaries, fresh and saline emergent wetlands, ponds, rivers, irrigation ditches, and wet fields (Granholm 2008). Waterbirds such as the snowy egret typically use rookeries (colonial nest sites) that often include interspecies nesting with other species in this group (Parsons and Master 2020). Nests are placed in dense emergent vegetation or in low trees in proximity to suitable foraging areas. Snowy egrets feed on a wide variety of prey, including fish, crustaceans, and insects in shallow water or along shores of various wetland or aquatic habitats (Granholm 2008). Adult snowy egrets are mainly year-round residents in California, although individuals disperse from nesting colonies after breeding.

The potential emergent wetland at the northern end of the study area may provide suitable foraging habitat for the species. The nearest recorded nesting colony is in the Palo Alto Baylands Nature Preserve, approximately 3.5 miles northwest of the study area. Thus, the potential for snowy egret to occur within the study area is moderate.

Northern Harrier

Northern harrier is a California Species of Special Concern and a USFWS Bird of Conservation Concern but has no federal regulatory status (California Department of Fish and Wildlife 2025c). The northern harrier is a year-round resident in California and its breeding range covers the northeastern plateau, the northern coast, Central Valley, central coast, and portions of the southern coast and southern deserts. In the non-breeding season, northern harrier can be found in most lowland areas in California when migrants arrive in the state (Davis and Niemela 2008).

Breeding and foraging habitat for northern harrier includes treeless habitats with adequate prey, cover, and perches (such as fence posts). Suitable habitat includes freshwater marshes, brackish and saltwater marshes, wet meadows, margins of lakes, rivers, and streams, grasslands, weed fields, croplands, sagebrush flats, and desert sinks (Davis and Niemela 2008). Nests are built of sticks or grasses and typically placed on the ground in wet areas of tall, dense vegetation. Tall grasses are also used for cover (Polite 2008; Smith et al. 2020).

Northern harriers forage over open habitats for rodents, passerines, reptiles, and frogs (Smith et al. 2020). California voles (*M. Californicus*) are also an important prey item and are typically found in large numbers in wet habitats (Davis and Niemela 2008). The species tends to forage over vegetated, often wet fields more than in grazed or harvested fields (Smith et al. 2020).

There is low potential for nesting within the ruderal grasslands in the study area, but individuals may forage in grasslands. There is potential nesting and foraging habitat in the wetlands north of the study area and there are multiple observations of northern harrier in the northern part of the study area (eBird 2025). There is also one CNDDDB occurrence of northern harrier within 5 miles of the study area. Thus, the potential for northern harrier to occur within the study area is moderate.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a California Fully Protected species (California Department of Fish and Wildlife 2025c). White-tailed kite is present year-round in California and Oregon. Within North America, the white-tailed kite breeding range is concentrated in California (Dunk 2020). The species occupies nearly all areas up to the western Sierra Nevada foothills and southeastern deserts and is a common year-round resident in the Central Valley, other lowland valleys, and along the entire length of the coast (Dunk 2020). Although the white-tailed kite is resident through most of its breeding range, dispersal occurs during the nonbreeding season, leading to a winter range expansion that includes most of California (Dunk 2020).

White-tailed kite inhabits low-elevation grasslands, agricultural areas, wetlands, oak woodlands, and riparian areas adjacent to open habitats (Dunk 2020). White-tailed kites nest in a variety of forested habitats including riparian woodlands, oak woodlands, and oak savannah and typically occupy narrow riparian habitats in addition to roadside trees or tree rows (Estep 2007).

White-tailed kite nests have been documented in a variety of tree species, including valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), willows (*Salix* spp.), live oak (*Quercus agrifolia*), ornamental trees, and occasionally in tall shrubs (Dixon et al. 1957; Estep 2007; Estep 2008; Dunk 2020). Nest trees are selected for structure and security, and typically have a dense canopy or are within a dense group of trees, such as riparian forest or oak woodland. Territory size is variable and regulated primarily by prey abundance and vegetation structure (i.e., accessibility of

prey; Dunk 2020). During the breeding season, kites generally restrict their foraging territories to within 0.06 mile of the nest, although they may range up to 1.86 miles away (Warner and Rudd 1975).

White-tailed kites use a variety of foraging habitat types, but those that support larger and more accessible prey populations are more suitable. The presence and abundance of white-tailed kites is strongly correlated with the presence of voles (Hawbecker 1940; Dixon et al. 1957; Niemela 2007). As a result, population cycles of voles can also influence nesting and wintering abundance of white-tailed kites. Preferred foraging habitat includes undisturbed, open grasslands, meadows, farmlands and emergent wetlands (Polite 2005).

White-tailed kites roost communally during the winter, sometimes in concentrations of hundreds of birds. This roosting behavior usually occurs in large trees, but sometimes occurs in other upland habitats (Polite 2005).

Large trees within the study area provide suitable nesting habitat for white-tailed kite. Individuals have been observed nesting most years in the Western Diked Marsh north of the study area by ARC biologists and there are multiple eBird observations in that area (eBird 2025). Ruderal grasslands and wetlands north of the study area also provide suitable foraging habitat. Thus, the potential for white-tailed kite to occur within the study area is high.

Ridgway's Rail

Ridgway's rail is listed under the State and federal Endangered Species Acts and is also designated as a state Fully Protected Species (California Department of Fish and Wildlife 2025c).

The current distribution of the Ridgway's rail is limited to San Francisco Bay, San Pablo Bay, Suisun Bay, and tidal marshes associated with estuarine sloughs draining into these bays (U.S. Fish and Wildlife Service 2025; Albertson and Evens 2000; California Department of Fish and Game 2000). Of the 193,800 acres of tidal marsh that bordered San Francisco Bay in 1850, about 30,100 acres currently remain (Dedrick 1989), representing an 84 percent reduction in available habitat. The Ridgway's rail now occurs only within the tidal salt and brackish marshes around San Francisco Bay where it is restricted to less than 10 percent of its former geographic range (U.S. Fish and Wildlife Service 2013).

In south and central San Francisco Bay and along the perimeter of San Pablo Bay, rails typically inhabit salt marshes dominated by pickleweed (*Salicornia pacifica*, formerly *S. virginica*) and Pacific cordgrass (*Spartina foliosa*). Pacific cordgrass dominates the middle marsh zone throughout the south and central bay (U.S. Fish and Wildlife Service 2025).

In saline emergent wetlands, Ridgway's rails nest mostly in lower zones near tidal sloughs and where Pacific cordgrass is abundant (Harvey 1988; Eddleman and Conway 2020). In fresh or brackish water, clapper rails construct nests in dense cattail or bulrush (Harvey 1988). Clapper rails build a platform concealed by a canopy of woven cordgrass stems or pickleweed and gumweed (Harvey 1988). Nests are constructed only as high as necessary to prevent inundation while preserving a natural cover of vegetation. Ridgway's rails forage in higher marsh vegetation, along the vegetation and mudflat interface, and along tidal creeks. Ridgway's rails are most active in early morning and late evening, when they forage in marsh vegetation in and along creeks and mudflat edges.

There are no CNDDDB records of Ridgway's rail within 5 miles of the study area. Although the emergent wetland at the northern tip of the study area does not appear to provide suitable habitat for Ridgway's rail within 250 feet of the study area boundary, one Ridgway's rail was observed approximately 670 feet north of the Limits of Work in 2018; there is potential for an individual to be present in the vicinity of the project footprint. Thus, the potential for Ridgway's rail to occur within the study area is moderate.

Burrowing Owl

Western burrowing owl (*Athene cunicularia hypugaea*) is designated as a "candidate" species under CESA, a Species of Special Concern by the CDFW, and a Bird of Conservation Concern by USFWS (California Department of Fish and Wildlife 2025a; U.S. Fish and Wildlife Service 2025a).

Burrowing owls are found in open, well-drained grasslands; agricultural and rangelands; and desert habitats, often associated with burrowing animals. They also occupy golf courses, airports, road and levee embankments, and other disturbed sites where there is sufficient friable soil for burrows (Wilkerson and Siegel 2010; Gervais et al. 2008; Poulin et al. 2020). Because burrowing owls typically use the burrows created by other species, particularly the California ground squirrel, presence of these species is usually a key indicator of potential occurrence of owls (Poulin et al. 2020). In Northern California, most reported nest sites occur in abandoned ground squirrel burrows. Other mammal burrows and various burrow surrogates, such as culverts, pipes, rock piles, and artificially constructed burrows are also used (Rosenberg et al. 1998). Burrowing owls favor areas with short, sparse vegetation to facilitate detection of predators and hunting (Coulombe 1971; Zarn 1974; Plumpton and Lutz 1993a). Typical habitats are treeless, with minimal shrub cover and woody plant encroachment, and have low vertical density of vegetation and low foliage height diversity (Plumpton and Lutz 1993a; Poulin et al. 2020).

Burrowing owls are tolerant of human-altered open spaces, such as areas surrounding airports, golf courses, and military lands where burrows may be readily adopted (Thomsen 1971; Gervais et al. 2008; Rosenberg et al. 2009). Burrowing owls may use burrows in open areas adjacent to unimproved and improved roads (Brenckle 1936; Wilkerson and Siegel 2010). A modest volume of vehicle traffic does not appear to significantly affect behaviors or reproductive success (Plumpton and Lutz 1993b), but presumably may also be a source of collision-related mortality (Rosenberg et al. 2009).

NASA ARC supports one of the last remaining burrowing owl subpopulations in the highly urbanized south San Francisco Bay area. NASA developed a Burrowing Owl Habitat Management Plan (BOHMP) in 2001 to evaluate potential impacts and identify measures to minimize adverse effects on burrowing owls from development activities at NASA ARC (Trulio 2001). These measures address several potential impacts to burrowing owls, including the loss of birds, loss of habitat, disturbance to burrows, increased vehicle collisions, destruction of ground squirrels, decreased prey base, and increased predation. Suitable burrowing owl habitat at NASA ARC is now limited to grassland areas on the airfield and fragmented fields. NASA established and manages five burrowing owl preserves within NASA ARC to mitigate impacts on burrowing owls (refer to Figure 4-1). The study area overlaps with three of the burrowing owl preserves along Cody Road, Zook Road, and Lindbergh Avenue; small portions of preserves BV-6 and NRP-19 overlap with the Limits of Work in the northwest and southeast edges of the study area.

Annual burrowing owl surveys have been conducted at NASA ARC since 1998. Figure 4-1 shows the active burrowing owl burrows observed during 2021 through 2025. NASA ARC historically supported a stable burrowing owl population with 12 to 25 pairs producing five to 12 successful

nests each year through 2014 (Talon Ecological Research Group 2024). A substantial reduction in the burrowing owl population occurred beginning in 2015, concurrent with a regional population decline in the south San Francisco Bay. The burrowing owl population continued to decline, with one or two successful nests in 2019 through 2021, zero successful nests in 2022 and 2023, and one successful nest in 2024 (Talon Ecological Research Group 2024). Survey data from the 2025 breeding season indicates one nest has produced five young in 2025 (Talon Ecological Research Group 2025).

A CNDDDB occurrence overlaps with NASA ARC, including the study area (California Department of Fish and Wildlife 2025a). The nearest burrowing owl burrows observed during the 2025 annual burrowing owl surveys are from the east side of Moffett Federal Airfield on the northeastern portion of NASA ARC, more than 2,000 feet east of the study area (Figure 4-1). No burrowing owls have been recorded on the west side of the Moffett Federal Airfield since 2021 (Talon Ecological Research Group 2021). Due to the known occurrence of burrowing owl at NASA ARC, there is high potential for the species to be present within the study area.

Alameda Song Sparrow

Alameda song sparrow has no federal legal status; however, it is identified by CDFW as a Species of Special Concern (California Department of Fish and Wildlife 2025c).

Song sparrows are found year-round throughout California, except for higher mountains and much of the southeastern deserts. Three subspecies of song sparrow are endemic to San Francisco Bay: San Pablo song sparrow, Alameda song sparrow, and Suisun song sparrow (Takekawa et al. 2011). Alameda song sparrow is restricted to the tidal salt marsh fringes of the south and central San Francisco Bay (Chan and Spautz 2008; Takekawa et al. 2011), with the highest densities occurring in the tidal salt marshes near Dumbarton Point in Alameda County (Chan and Spautz 2008).

Alameda song sparrows nest and forage primarily along tidal channels and sloughs but also on the adjacent marsh plain (Chan and Spautz 2008; Takekawa et al. 2011). Their diet includes snails, amphipods, insects, and seeds (Takekawa et al. 2011). Alameda song sparrows require upper marsh vegetation for nesting, with vegetation sufficiently tall so that nests are not flooded during high tides (Chan and Spautz 2008; Takekawa et al. 2011). The highest densities of song sparrow territories are correlated with presence of gumplant (*Grindelia* spp.) and coyote bush (*Baccharis pilularis*).

Song sparrows are ubiquitous year-round in the vicinity of the study area (eBird 2025) and were observed during the reconnaissance survey adjacent to the emergent wetland, which provides suitable nesting and foraging habitat for the subspecies. The CNDDDB reports six nesting locations within 5 miles of the study area (California Department of Fish and Wildlife 2025a). Thus, the potential for Alameda song sparrow to occur within the study area is high.

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) is listed as threatened under CESA; while it is not listed under ESA, it is considered a Bird of Conservation Concern by USFWS (California Department of Fish and Wildlife 2025c). Tricolored blackbird is a colonial nesting passerine that is largely restricted to California. The species forms some of the largest colonies of any North American

passerine, which may contain tens of thousands of breeding pairs (Beedy et al. 2020). Most of the California breeding population of tricolored blackbird occurs in the Central Valley (California Department of Fish and Wildlife 2018; Beedy et al. 2020). Statewide surveys conducted in 2017 documented 51 percent of breeding birds in Merced and Kern Counties (Meese 2017). While the geographic extent of tricolored blackbird's range has been largely unchanged since the 1930s (Neff 1937; DeHaven et al. 1975; Beedy et al. 1991; Beedy 2008; Hamilton 1998; California Department of Fish and Wildlife 2018; Beedy et al. 2020), substantial annual variation in centers of breeding abundance have been regularly documented since then, particularly between the Sacramento and San Joaquin Valleys (California Department of Fish and Wildlife 2018). These shifts in abundance are indicative of the tricolored blackbird's ability to acclimatize to variation in food supply and nesting substrate (California Department of Fish and Wildlife 2018). Wintering tricolored blackbirds often form huge, mixed species flocks that forage across the landscape. The Sacramento-San Joaquin Delta and central coast are recognized as major wintering areas for tricolored blackbirds (Beedy 2008; California Department of Fish and Wildlife 2018).

Tricolored blackbirds nest colonially, enabling them to synchronize their timing of nest building and egg laying (Beedy et al. 2020). Tricolored blackbird typically nests in areas with open accessible water, a nesting substrate that is protected from ground predators (e.g., vegetation that is flooded, thorny, or spiny), and suitable foraging habitat (e.g., pastures, dry seasonal pools, agricultural fields such as alfalfa and sunflower) that provides abundant insect prey (Hamilton et al. 1995; California Department of Fish and Wildlife 2018; Beedy et al. 2020). Open water within 1,640 feet (500 meters) of nesting substrate is a requirement for colony settlement (Hamilton 2004). Breeding colonies have been recorded in freshwater marshes, willows, blackberries, thistles, and nettles, and more recently in triticale and other grain fields in the San Joaquin Valley (California Department of Fish and Wildlife 2018). Most breeding tricolored blackbirds forage within 3 miles of their colony sites, although individuals have been observed foraging up to 8 miles away (California Department of Fish and Wildlife 2018; U.S. Fish and Wildlife Service 2019). Foraging is typically concentrated in areas that support abundant insect populations, a vital food resource for provisioning nestlings (Beedy 2008). Foraging habitat includes grasslands, alkaline seasonal wetlands, vernal pools, pastures and agricultural crops such as alfalfa and rice, which produce a high abundance of insects and other plant material for consumption, in addition to cattle feedlots and dairies, which supply grains for foraging individuals (California Department of Fish and Wildlife 2018; Beedy et al. 2020).

Roosting by tricolored blackbirds during the fall generally occurs in emergent wetlands consisting of cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.) near abundant food supplies such as cultivated rice (*Oryza sativa*) and water grass (*Echinochloa crus-galli*) (Beedy et al. 2020; U.S. Fish and Wildlife Service 2019). During winter, many tricolored blackbirds move from the Sacramento Valley to the Delta, central coast, and northern San Joaquin Valley. Historically, overwintering colonies occurred near dairies in Marin County, and feedlots in Solano and Merced Counties (U.S. Fish and Wildlife Service 2019).

There is one CNDDDB occurrence approximately 4 miles east of the study area. The potential emergent wetland at the north end of the study area may provide suitable nesting habitat. Individuals may also forage in ruderal grassland in the study area. No tricolored blackbirds were observed during reconnaissance survey, but that does not preclude their potential presence. Thus, there is a moderate potential for tricolored blackbird to occur within the study area.

Saltmarsh Common Yellowthroat

Saltmarsh common yellowthroat is designated as a Species of Special Concern by CDFW (California Department of Fish and Wildlife 2025c). Saltmarsh common yellowthroat has no federal regulatory status; however, the species is designated as a Bird of Conservation Concern by USFWS (California Department of Fish and Wildlife 2025c).

The saltmarsh common yellowthroat is endemic to California; its primary range is within the San Francisco Bay region, with its eastern limits reaching to Alameda County and Suisun Bay. The four main areas of the species' current range include coastal riparian and wetland areas of western Marin and San Mateo Counties, and the tidal marsh systems of San Pablo Bay and southern San Francisco Bay. Some birds winter along the coast south to San Diego County (Grinnell and Miller 1944; Gardali and Evens 2008). Saltmarsh common yellowthroat occurs year-round in its breeding range (Grinnell and Miller 1944; Gardali and Evens 2008).

Breeding habitat primarily consists of emergent wetland, but occasionally riparian and grassland habitats will be used (Green 2008). Saltmarsh common yellowthroats primarily occupy brackish marsh, but are also found in riparian woodland/swamp, freshwater marsh, salt marsh, and uplands (Gardali and Evens 2008). Nests are typically placed on the ground or within 3 inches of the ground (Green 2008). Nests are well-concealed in dense vegetation, such as poison hemlock, cattails, tules, and some shrubs (Gardali and Evens 2008). Saltmarsh common yellowthroats feed mainly on insects and spiders, foraging on the ground and in low vegetation (Guzy and Ritchison 2020).

There is suitable breeding and foraging habitat in the potential emergent wetland at the northern tip of the study area. There are eight CNDDDB records of saltmarsh common yellowthroat within 5 miles of the study area. The species was observed during the reconnaissance survey. Thus, there is a high potential for saltmarsh common yellowthroat to occur within the study area.

Pallid Bat

Pallid bat is identified as a CDFW species of special concern and by the Western Bat Working Group (WBWG) as a high priority species (California Department of Fish and Wildlife 2025c). The species has no federal status.

Pallid bat occurs throughout California except for in the high Sierra Nevada from Shasta to Kern counties (Szewczak and Pierson 1997a). Habitat includes grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests (Harris 1984). The species is most common in open, dry habitats with rocky areas for roosting (Harris 1984). Pallid bat typically roosts in caves, crevices, mines, and occasionally in hollow trees and buildings (Harris 1984). Pallid bats are also known to roost in exfoliating bark on pines, valley oaks (*Quercus lobata*), and in riparian trees and bridges (Rambaldini 2005). The species forages on a variety of insects and arachnids over open ground, usually 2 to 8 feet above ground level (Harris 1984).

The study area contains suitable potential roosting habitat in trees and buildings, including swallow nests, which were present on three buildings during the reconnaissance survey. Foraging habitat is present throughout the study area. There is one CNDDDB occurrence, dated 1945, within 5 miles of the study area. Thus, there is moderate potential for pallid bat to be present within the study area.

Townsend's Big-Eared Bat

Townsend's big-eared bat is identified as a CDFW Species of Special Concern and by the WBWG as a high priority species (California Department of Fish and Wildlife 2025c). The species has no federal status.

Townsend's big-eared bat is found throughout California, except for the high Sierra (Szewczak and Pierson 1997b). A recent study that assessed the current distribution of Townsend's big-eared bat within California found maternity and winter roosts throughout California (Harris et al. 2019).

This species requires caves, mines, tunnels, buildings, or other human-made structures for roosting, and may use separate sites for night, day, hibernation, or maternity roosts (Harris 1984:68). Forages in flight or by gleaning prey from foliage, feeding primarily on small moths but also feeds on beetles and a variety of soft-bodied insects (Harris 1984:68). The species is extremely sensitive to disturbance of roosting site (Harris 1984:68) so it is unlikely to roost in structures with a lot of human disturbance.

The study area contains suitable potential roosting habitat in buildings. Foraging habitat is present throughout the study area. There are three CNDDDB occurrences within 5 miles of the study area (one dated 2015, which is possibly extirpated; one dated 1945; and one dated 2017). Thus, there is moderate potential for Townsend's big-eared bat to be present within the study area.

Hoary Bat

Hoary bat is identified by the WBWG as moderate priority (California Department of Fish and Wildlife 2025c). The species has no federal status.

This species is the most widespread North American bat and may be found nearly everywhere in California from sea level to 13,200 feet, although its distribution is patchy in southeastern deserts. It is a common, solitary species that winters along the coast and in southern California and breeds inland and north of the winter range (Harris 1984).

Hoary bat generally roosts in dense foliage of medium to large trees that are hidden from above, with few branches below, and have ground cover of low reflectivity. This species prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for foraging. Breeding habitat includes all woodlands and forests with medium to large-size trees and dense foliage (Harris 1984). Forages in open areas and habitat edges, feeding primarily on moths, although various flying insects are taken (Harris 1984).

The study area contains suitable potential roosting habitat in trees throughout the study area and foraging habitat is present throughout the study area. There is one CNDDDB occurrence within 5 miles of the study area from 1990. Thus, there is moderate potential for hoary bat to be present within the study area

4.2.3 Sensitive Natural Communities

Sensitive natural communities are those natural communities that are of limited distribution statewide or within a county or region and often vulnerable to environmental effects of projects. Sensitive natural communities are part of California's Natural Heritage Program, as maintained in the CNDDDB; impact assessments are required under CESA and the CEQA Guidelines. Natural communities with ranks of 1 to 3 are considered sensitive. Certain types of waters of the State and waters of the United

States are also considered sensitive natural communities. Sensitive natural communities in the study area include native perennial grassland and palustrine emergent wetland, as described in Sections 4.1.1 and 4.1.2, respectively.

4.2.4 Wetlands and Other Waters of the United States and Waters of the State

As described above in Section 4.2.1.2, one palustrine emergent wetland area, totaling approximately 0.01 acre, was mapped in the study area (see Figure 3-1b). The palustrine emergent wetland occurs in the north end of the study area, near the proposed eastern diked marsh trunk main storm drain outfall and adjacent to the Stevens Creek Shoreline Nature Study Area Preserve in San Francisco Bay. This wetland does not meet the definition of a river, stream or lake and therefore is not subject to the CDFW Lake and Streambed Alteration program (California Department of Fish and Wildlife 2025d). This wetland was previously determined as emergent wetland and water of the United States in 2009 (U.S. Army Corps of Engineers 2009). This mapped palustrine emergent wetland area does not share any surface connection with any other body of water and thus will most likely not be considered a water of the United States, pending review and verification by the U.S. Army Corps of Engineers (ICF 2025).

4.2.5 Wildlife Corridors

The movement of wildlife between patches of suitable habitat is an important ecological process. Species make daily movements to forage, avoid predators, and find refugia. The study area is bounded by existing security fencing that limits the movement of larger wildlife through the study area.

Wildlife corridors are described as pathways or habitat linkages that connect discrete areas of natural open space that would otherwise be separated or fragmented by topography, changes in vegetation, or other natural or man-made obstacles, such as urbanization. The study area is located along the Pacific Flyway, an important route between breeding and wintering grounds for many migratory birds. One linkage, the Bay Wetlands Missing Linkage, extends from just north and west of the study area northward along the west side of San Francisco Bay to just north of the Candlestick Point State Recreation Area. However, this linkage does not overlap the study area and would not be affected by the project.

4.2.6 Migratory Birds

Migratory birds, including raptors, have the potential to nest in the scattered trees and shrubs present in the study area as well as on the ground within and in the vicinity of the study area. Migratory birds, and their occupied nests and eggs, are protected by California Fish and Game Code Sections 3503 and 3503.5 and the Migratory Bird Treaty Act (MBTA). The generally accepted nesting season extends from February 1 through September 30.

4.2.7 Roosting Bats

Bats have the potential to occupy buildings and trees in the study area; bats have also been recorded using cliff and barn swallow nests year-round (California Bat Working Group 2022). Take of nongame mammals, including bats, is prohibited under California Fish and Game Code Section 4150, except as provided elsewhere in the California Fish and Game Code.

4.2.8 Trees

According to the preliminary arborist report, a total of 245 trees were mapped where existing structures would be demolished and new structures would be constructed within the study area. The proposed stormwater line for the eastern diked marsh trunk main and the storm drain outfall areas were not included in the tree survey, but no trees were observed in these areas during the June 10, 2025, survey. Of the 245 trees, 158 trees would qualify as protected trees under the Santa Clara County tree ordinance. NASA endeavors to apply the standards of the County with respect to trees that would qualify as protected trees but is not required to comply and does not issue tree removal permits.

4.2.9 Habitat Conservation Plans

Habitat conservation plans (HCPs) in the context of this report are planning documents adopted or implemented by state, federal, or local agencies that have specific actions or objectives related to the management of biological resources. Habitat conservation plans are required as part of an application for an Incidental Take Permit under Section 10 of the ESA. For the purposes of this analysis, a habitat conservation plan is also defined as an approved local, regional, or state conservation plan. As defined in this document, HCPs also include natural community conservation plans (NCCP) prepared under California's NCCP Act; NCCPs identify the measures necessary to conserve and manage natural biological diversity within the planning area while allowing compatible and appropriate economic development, growth, and other human uses.

Although there are no such plans that are applicable to activities at NASA ARC, two HCPs overlap geographically with NASA ARC. An analysis of potential impacts on HCPs is included in this report in accordance with Appendix G of the State CEQA Guidelines to evaluate the proposed project's potential to conflict with the provisions of an applicable adopted HCP, NCCP, or other approved local, regional, or State HCP. The study area is within the Pacific Gas and Electric (PG&E) Bay Area Operations and Maintenance Habitat Conservation Plan (Pacific Gas and Electric 2017), the scope of which is limited to operations and maintenance of PG&E facilities in nine San Francisco Bay Area counties: Sonoma, Marin, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco.

The study area is approximately 7 miles north and west of the area covered by the Santa Clara Valley HCP. The proposed action is not a covered activity under the Santa Clara Valley HCP; however, the study area overlaps with lands at Moffett Federal Airfield identified for burrowing owl management under the Santa Clara Valley HCP/NCCP (Santa Clara Valley Habitat Agency 2012). The Santa Clara Valley HCP/NCCP is currently being updated in response to the October 10, 2024, decision by the California Fish and Game Commission to grant burrowing owl "candidate" species status under CESA.

4.3 Regulatory Setting

UC Berkeley is constitutionally exempt from local governments' regulations, such as city and county general plans, land use policies, and zoning regulations, whenever using property under its control in furtherance of its educational purposes. As such, UC Berkeley will not consider local policies and regulations in its evaluation of the environmental effects of the proposed project unless UC Berkeley expressly decides to use a local policy or regulation as a threshold or standard of significance.

NASA's Ames Research Center (ARC), including the area where the proposed action would be built and operated, is an area of exclusive federal jurisdiction. In the absence of an explicit waiver of sovereign immunity by Congress, state and local government regulations (e.g., city and county general plans, land use policies, zoning regulations, and state environmental laws) do not apply to areas of exclusive federal jurisdiction. Therefore, state and local government requirements will not be considered as applicable to the proposed action, when the proposed action and environmental effects are located on ARC jurisdictional property. This includes mitigation measures proposed in accordance with those state and local government regulations that are not applicable in areas of federal jurisdiction; such proposed mitigation measures are optional on the part of NASA. However, NASA may, at its discretion, expressly apply a state or local requirement for purposes of establishing a threshold or standard of significance and may elect to comply with mitigation measures required by state or local governmental agencies.

4.3.1 Federal

4.3.1.1 Endangered Species Act

The ESA protects federally listed wildlife species from harm, or take, which is broadly defined as intending to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" or attempting to engage in any such conduct. Take can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as take even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Generally, listed plant species are legally protected from take under the ESA only if they occur on federal lands.

USFWS and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed threatened and endangered species under the ESA. USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under the ESA but may become listed in the near future and are often included in the review of a project.

4.3.1.2 Migratory Bird Treaty Act

The federal MBTA, 16 United States Code Section 703, prohibits the killing, possessing, or trading of migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species, whether they are active or inactive. An active nest is defined as one having eggs or young, as described by USFWS in its June 14, 2018, memorandum "Destruction and Relocation of Migratory Bird Nest Contents." Nest starts (i.e., nests that are under construction but do not yet contain eggs) and inactive nests are not protected from destruction.

In its June 14, 2018, memorandum, USFWS clarified the text regarding destruction of an active nest by adding "while conducting any activity where the intent of the action is not to kill migratory birds or destroy their nests or contents," noting that such conduct is not prohibited under the MBTA.

On April 11, 2025, the U.S. Department of the Interior revoked opinion M-37065, which specified that the MBTA prohibits both intentional and incidental take of migratory birds. The revocation of M-37065 restores opinion M-37050, which specifies that only intentional take of migratory birds is prohibited.

4.3.1.3 Executive Order 13186

Executive Order (EO) 13186 directs executive departments and agencies to take certain actions to further implement the MBTA. The EO requires each federal agency with actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement, within 2 years, a memorandum of understanding with USFWS that promotes the conservation of migratory bird populations. Under this EO, the Secretary of the Interior will establish the interagency Council for the Conservation of Migratory Birds (Council) to oversee the implementation of the EO.

4.3.1.4 EO 13112

EO 13112, issued February 3, 1999, called upon executive departments and agencies to take steps to prevent the introduction and spread of invasive species and support efforts to eradicate and control invasive species that are established.

4.3.1.5 EO 11990

EO 11990 requires federal agencies and responsible entities to avoid an undertaking that involves or provides financial assistance for new construction located within wetlands, unless there is no practicable alternative to such construction.

4.3.1.6 Section 404 of the Clean Water Act

The purpose of the Clean Water Act (CWA) is to maintain and restore the physical, chemical, and biological integrity of waters of the United States, which include, but are not limited to, tributaries to traditionally navigable waters that are currently or were historically used for interstate or foreign commerce, along with adjacent wetlands. Construction activities within waters of the United States are regulated under the CWA by the U.S. Army Corps of Engineers (USACE). The placement of fill into waters of the United States must comply with Section 404 of the CWA permit requirements.

On September 8, 2023, the U.S. Environmental Protection Agency (EPA) and USACE announced a final rule, the “Revised Definition of ‘Waters of the United States’; Conforming” (Conforming Rule). California is among the states that have adopted this rule. The Conforming Rule is the latest definition resulting from revised rules and litigation over the past few years. It conforms the previous definition (i.e., the January 2023 Revised Definition of “Waters of the United States,” which took effect on March 20, 2023, and replaced the 2020 Navigable Waters Protection Rule) to the United States Supreme Court’s May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*. Significant changes include the revised definition of adjacent wetlands; *adjacent* now means having a continuous surface connection. The Conforming Rule also removes the significant nexus test from consideration when identifying tributaries and other waters as federally protected.

4.3.1.7 Section 401 of the Clean Water Act

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water

pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

4.3.1.8 NASA Ames Development Plan

The NASA Ames Development Plan (NADP) is the long-term master plan for NASA's federal campus at Moffett Field published in 2002. The NADP details transformation of the original 500-acre campus of ARC and 1,500 acres of the former Naval Air Station Moffett Field into an integrated, dynamic research and education community. The transformation was led by the establishment of the NRP, a research-and-development campus for partners from academia, industry, and non-profit organizations with shared goals in support of NASA's mission. The NADP includes areas designated for open space and burrowing owl habitat.

The NADP includes planning principles that help guide the development throughout the entirety of NASA ARC. The planning principles include wildlife preservation and wetland preservation. The wildlife preservation planning principle indicates that establishment of burrowing owl preserves, avoidance of impacts to other owl habitats and supplementary mitigation measures are expected to minimize the significant, long-term impacts from development and ensure the protection of the owl colony. The wetland preservation planning principle indicates that NASA Ames will avoid construction in non-tidal wetlands to reduce potential impacts to sensitive habitats. Development plans will ensure no net loss of wetland functions, values or acreage.

4.3.2 State

4.3.2.1 California Endangered Species Act

CESA (California Fish and Game Code Chapter 1.5, Sections 2050–2116) prohibits the take of any plant or animal listed as endangered, threatened, or a candidate species. In accordance with CESA, CDFW has jurisdiction over state-listed species (California Fish and Game Code Section 2070). CDFW regulates activities that may result in take of individuals (i.e., intending to “hunt, pursue, catch, capture, or kill” or attempting to “hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of take under the California Fish and Game Code. CDFW, however, has interpreted take to include the “killing of a member of a species that is the proximate result of habitat modification.”

4.3.2.2 California Fish and Game Code

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue-line streams on USGS maps, and watercourses with subsurface flows fall under CDFW jurisdiction. If CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared.

Certain sections of the California Fish and Game Code describe regulations pertaining to the protection of certain wildlife species. For example, Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian, except as provided by other sections of the code.

Fully protected species are described in Sections 3511 (birds), 4700 (mammals), and 5050 (reptiles and amphibians) of the California Fish and Game Code. These protections state that except as provided, “...no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird], [mammal], [reptile or amphibian].”

California Fish and Game Code Sections 3503, 3513, and 3800, as well as other sections and subsections, protect native birds, including their nests and eggs, from all forms of take. CDFW considers disturbance that causes nest abandonment and/or loss of reproductive effort take. Raptors (e.g., eagles, hawks, owls) and their nests are specifically protected in California under Section 3503.5, which states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.”

Bats and other non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed, except as provided otherwise in the code or in accordance with regulations adopted by the Fish and Game Commission. Activities that result in mortality for non-game mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats) or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young) may be considered take by CDFW.

4.3.2.3 California Native Plant Protection Act

The California Native Plant Protection Act (NPPA) was enacted in 1977. It allows the Fish and Game Commission to designate plants as rare or endangered. Sixty-four species, subspecies, and varieties of plants are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations, emergencies, and, after properly notifying CDFW, vegetation removal from canals, roads, and other sites. Other exceptions include changes in land use and certain other situations.

4.3.2.4 Section 401 of Clean Water Act

The State Water Resources Control Board (State Water Board), together with the Regional Water Quality Control Boards (RWQCB), is the state agency charged with implementing water quality certification in California through Section 401 of the CWA.

4.3.2.5 Porter-Cologne Water Quality Control Act

The State Water Board works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region and may approve, with or without conditions, or deny projects that could affect waters of the State. The RWQCB’s authority comes from the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne broadly defines waters of the State as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California’s jurisdictional reach may overlap and exceed the boundaries of waters of the United States, pursuant to the CWA. Under Porter-

Cologne, the State Water Board and the nine RWQCBs are responsible for granting CWA National Pollutant Discharge Elimination System (NPDES) permits and waste discharge requirements for certain point-source and nonpoint-source discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

4.3.2.6 McAteer-Petris Act

Under the McAteer-Petris Act, the Bay Conservation and Development Commission (BCDC) has jurisdiction within all tidal areas of the San Francisco Bay, marshlands between mean high tide and 5 feet above mean sea level, a band extending 100 feet landward of the San Francisco Bay shoreline, salt ponds, managed wetlands that have been diked off from the bay, and certain waterways. BCDC has authority to permit projects, including those to construct a structure, within its jurisdiction. The proposed storm drain outfall may encroach on the BCDC jurisdictional boundary. However, the coastal zone would not be affected by the proposed project, and the Project Site's status as an Airport Priority Use Area in the Bay Plan would not be affected by the proposed project. Thus, the proposed project would not require a consistency determination or other approval from BCDC.

4.3.2.7 California Green Building Standards Code Non-Residential Voluntary Measure A5.107—Bird-Friendly Building Design

Building façades would be designed with depth-of-shading members, fritted glass, and solid materials outlined in Standards set forth in the Development Guidelines and will comply with California Green Building Standards Code (CALGreen) Non-Residential Voluntary Measure A5.107, *Bird-Friendly Building Design*. The CALGreen measure includes design requirements related to glazing, slats, screens, netting, and louvers to minimize the risk of birds colliding with proposed buildings. The project's compliance with bird-friendly building designs, as required in the Development Guidelines, would minimize potential bird collisions with project buildings.

4.3.3 Regional

4.3.3.1 Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan

The area covered by the Santa Clara Valley HCP/NCCP encompasses 519,506 acres in Santa Clara County in the central California Coast Range. Some conservation actions for western burrowing owl occur in the northern portion of the county in an area referred to as the *expanded study area for burrowing owl conservation* (Santa Clara Valley Habitat Authority 2012). The plan, which was adopted in 2012, provides take authorization to signatory agencies for 18 covered species, including northwestern pond turtle, burrowing owl, and tricolored blackbird, and is currently being updated to address the recent state candidate listing status for burrowing owl. NASA is not a signatory agency, and the Santa Clara Valley HCP/NCCP does not cover activities at NASA ARC.

4.3.3.2 PG&E Bay Area Operations and Maintenance Habitat Conservation Plan

In 2016, PG&E prepared the Bay Area Operations and Maintenance HCP, the scope of which is limited to operations and maintenance of PG&E facilities in nine San Francisco Bay Area counties: Sonoma, Marin, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco (Pacific Gas and Electric 2017). The area covered by the plan overlaps with the study area for the project. To satisfy NEPA requirements, USFWS prepared an environmental assessment and issued a Finding of No Significant Impact, along with the Section 10 permit to PG&E on October 2, 2017. The PG&E Bay Area Operations and Maintenance HCP does not cover activities at NASA ARC.

4.3.3.3 Santa Clara County Heritage Tree Ordinance

Santa Clara County Code, Section C16-2, describes protected trees as any tree on public property having a main trunk or stem measuring 37.7 inches or more in circumference or 12 inches or more in diameter at a height of 4.5 feet above ground level. Multi-trunk trees require a total of 75.4 inches in circumference (24 inches or more in diameter) for all trunks. NASA endeavors to apply the standards of the County with respect to trees that would qualify as protected trees but is not required to comply and does not issue tree removal permits. Mitigation, if necessary, would be in compliance with required tree replacement guidelines, consistent with the Santa Clara County tree ordinance. A permit for tree removal from the County would not be required.

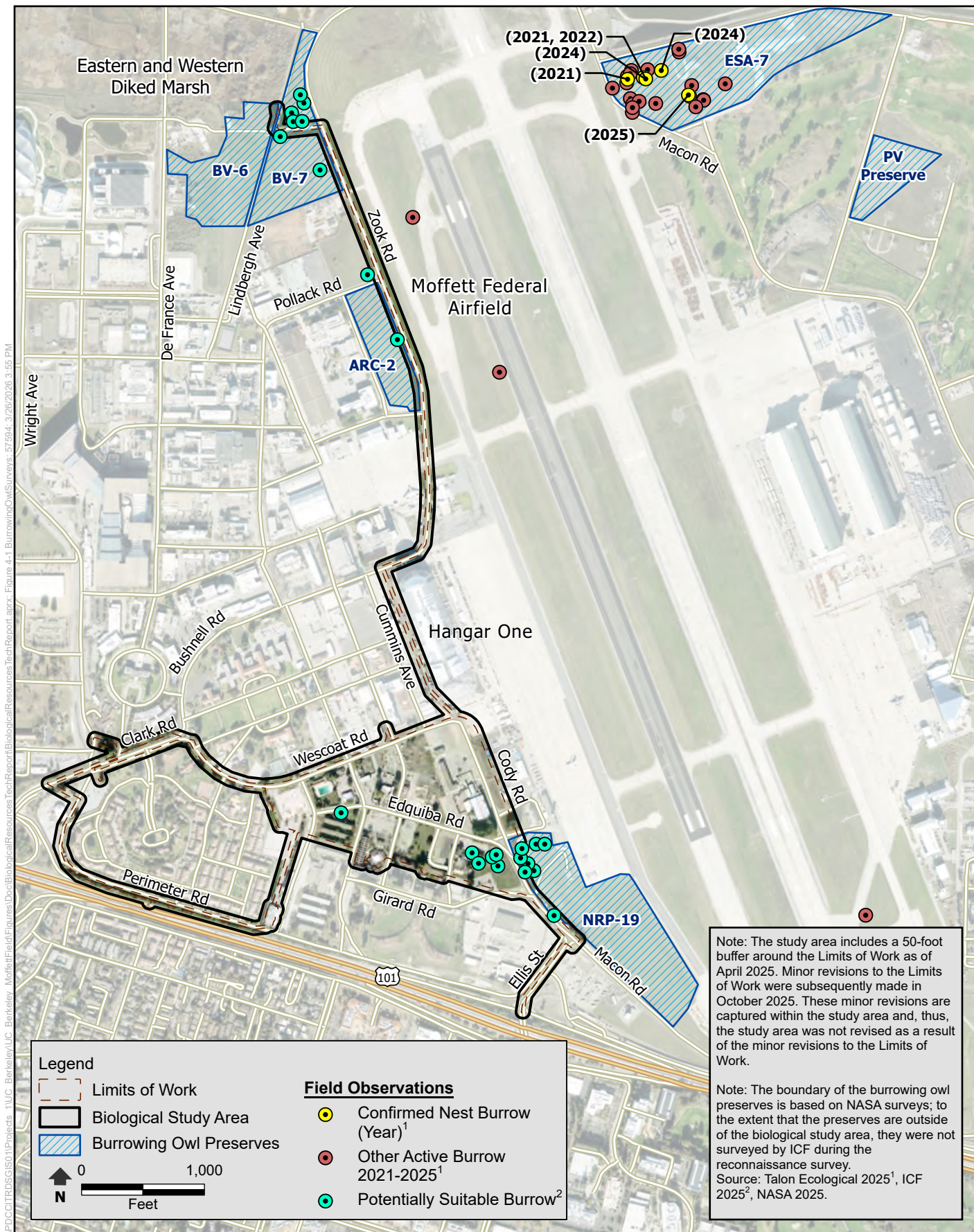


Figure 4-1
Burrowing Owl Survey Locations
 Berkeley Space Center at NASA Research Park

5.1 Methods for Analysis

The methods for analysis of impacts on biological resources are based on professional standards and information cited throughout this report. The key impacts were identified and evaluated according to the environmental characteristics of the study area and the expected magnitude, intensity, and duration of activities related to construction and operation of the proposed project and alternatives.

Direct impacts are those effects that are directly caused by project construction and operation (even if it takes time for the resulting effect to develop). Indirect impacts are those that occur either later in time or at a distance from the project location but are reasonably foreseeable.

Permanent direct impacts on biological resources were quantified using the estimated amount of land cover that would be converted because of construction of new facilities and the operation of the project (i.e., use of project facilities and associated utilities and infrastructure). Facility maintenance during project operations would include the periodic maintenance for buildings, landscaping, the internal roadway network, and utility infrastructure. Scheduled maintenance activities would be infrequent and occur in the early evening or morning hours, as possible, to avoid interference with the project's peak hours of occupancy.

Impacts on biological resources identified within the study area were determined using geographic information system (GIS) software. The project footprint was overlaid on the vegetation community data to quantify the impacts associated with construction and operation of the proposed project. For construction of the stormwater line for the eastern diked marsh trunk main, the construction area was assumed to be completely within existing roads, with the exception of a 0.01-acre area for the northernmost 40 feet of the outfall.

The wildlife connectivity assessment assembled current data and information related to wildlife movement within the vicinity of the study area to qualitatively assess when and where the project could interfere with the movement of any native resident or migratory terrestrial wildlife species.

The CEQA Proposed Project and the CEQA Reduced Density Alternative (with and without the Variant) represent differences in land use but would occur within the same footprint; effect mechanisms and impacts would be similar, with differing number of people present. Therefore, the impacts on biological resources would be the same under the CEQA Proposed Project and the CEQA Reduced Density Alternative.

5.2 Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, and to evaluate the proposed action's potential effects under NEPA, the proposed project would be considered to have a significant impact or substantial adverse effect if it would result in any of the conditions listed below.¹⁹

¹⁹ The parentheticals after each threshold indicate whether a threshold is evaluated under CEQA or NEPA or both.

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the CDFW or USFWS (CEQA/NEPA).
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS (CEQA/NEPA).
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal areas, etc.) through direct removal, filling, hydrological interruption, or other means (CEQA).
- Have a substantial adverse effect on federally protected wetlands through direct removal, filling, hydrological interruption, or other means (NEPA).
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (CEQA/NEPA).
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (CEQA).
- Violate a law, code, or ordinance protecting or regulating special-status species (NEPA).
- Conflict with the provisions of an applicable adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (CEQA/NEPA).
- Result in a cumulatively considerable contribution to a significant environmental impact with respect to biological resources (CEQA).

5.3 Impacts

Throughout this technical report, the discussion of the CEQA Proposed Project and the CEQA Reduced Density Alternative also applies to the corresponding Build Alternative under NEPA.

5.3.1 CEQA No-Project Alternative and NEPA No-Action Alternative

Under the CEQA No-Project Alternative, neither the CEQA Proposed Project nor the CEQA Reduced Density Alternative, nor the CEQA Reduced Height Alternative, would be constructed. The on-site buildings that are currently operational would continue to be operational. Existing conditions would remain. Therefore, the CEQA No-Project Alternative would not result in impacts on biological resources.

Under the NEPA No-Action Alternative, the proposed action would not be constructed and operated at the Project Site. However, the on-site buildings that are currently operational would continue to be operational, and the on-site buildings that are currently vacant would be redeveloped (i.e., reoccupied) pursuant to the NADP. This analysis assumes reoccupancy of the existing buildings would not require any construction activity. An impact would occur if the NEPA No-Action

Alternative would result in impact mechanisms such as habitat loss and the temporary disturbances that are typically generated by construction-related activities such as impacts from noise, lighting, and an increased presence of humans on special-status and non-special-status birds and bats that may be nesting or roosting within or adjacent to currently vacant buildings. Therefore, because the same impact mechanisms would be present, the NEPA No-Action Alternative would result in impacts on special-status and non-special-status birds and bats similar to those of the CEQA Proposed Project (NEPA Build Alternative 1), but to a lesser degree, in the absence of identified mitigation measures.

5.3.2 CEQA Proposed Project (NEPA Build Alternative 1)

5.3.2.1 Effects on Candidate, Sensitive, or Special-Status Species

Effects on Special-Status Plants

Based on a review of the CNDDDB and CNPS inventory, two special-status plants, alkali milk-vetch and Congdon's tarplant, were identified as having potential to occur in the study area. These species flower and are identifiable in June but were not observed during the June 10, 2025, reconnaissance-level survey. However, because no protocol-level surveys have been conducted and because of the regular management of the potential habitat for these species, it is presumed alkali milk-vetch and Congdon's tarplant have the potential to occur in the study area. Construction of the CEQA Proposed Project could result in impacts on alkali milk-vetch and Congdon's tarplant habitat and could result in injury or mortality. Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4 are identified to minimize potential impacts on alkali milk-vetch and Congdon's tarplant by providing environmental awareness training to construction personnel, conducting pre-constructions surveys, implementing avoidance measures, and compensating for direct impacts on plants if avoidance is not feasible.

Identified Mitigation Measures

Mitigation Measure BIO-1. Environmental Resources Worker Awareness Training

Prior to each construction phase, all field management and construction personnel shall be trained by a qualified biologist experienced in construction monitoring as to the importance of protecting sensitive natural resources (e.g., special-status plants, birds, and mammals as well as designated critical and/or suitable habitats for these species) prior to any ground-disturbing activity for each construction phase. Preconstruction training shall be conducted so that construction personnel are aware of their responsibilities and the importance of compliance. All trainees shall be required to sign a sheet, indicating their attendance and completion of environmental training. Construction personnel shall be educated on the types of sensitive resources in the project area and the measures required to avoid and minimize impacts on these resources. Materials covered in the training program shall include environmental rules and regulations, along with specific site requirements to limit activities to approved work areas; timing restrictions; and instructions regarding avoidance of sensitive resource areas. In general, the training shall include the following components:

- A review of the special-status species and sensitive habitats that could be found in work areas, including known plant populations, bird nests or bat roosts, if present, and the location of burrowing owl preserves.

- Measures to avoid or minimize impacts on special-status species and their habitats.
- A review of all conditions and requirements of environmental permits, reports, and plans.
- Consequences for violations of the laws and regulations protecting resources.
- Boundaries of the work area.
- Exclusion and construction fencing methods and staking methods to protect resources.
- Roles and responsibilities, including an explanation regarding the authority of biological monitors to stop work, as required by permits and/or project approvals.
- What to do when special-status species are encountered (including dead, injured, stressed, or entrapped individuals) in work areas.

Mitigation Measure BIO-2. Preconstruction Surveys for Special-Status Species

Prior to the start of construction in a work area for the current construction phase, preconstruction surveys shall be conducted for special-status plant and wildlife species by a qualified biologist(s) to inform implementation of avoidance and compensation measures that may be required if special-status species are observed.

Alkali milk-vetch and Congdon's tarplant surveys shall be required in suitable annual grassland habitat within 100 feet of work areas for the current construction phase. The purpose of the surveys is to inform implementation of the avoidance and compensation measures described below if alkali milk-vetch or Congdon's tarplant are observed. Surveys shall be initiated during the identifiable period of the year that precedes construction of each phase and be consistent with the methods described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (California Department of Fish and Game 2018a).

Surveys for special-status wildlife species (Crotch's bumble bee, monarch butterfly, northwestern pond turtle, snowy egret, northern harrier, white-tailed kite, California Ridgway's rail, western burrowing owl, Alameda song sparrow, tricolored blackbird, saltmarsh common yellowthroat, pallid bat, Townsend's big-eared bat, and hoary bat) shall be conducted consistent with available established survey protocols for each species, such as in *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (California Department of Fish and Wildlife 2023), *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 2012), *Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions* (Johnston et al. 2019).

Mitigation Measure BIO-3. Exclusion Fencing

Prior to the start of construction in a work area for the current construction phase, the Project Proponent or its contractor(s) shall install high-visibility exclusion fencing and erosion control measures prior to any ground disturbance within 50 feet of environmentally sensitive areas (i.e., potential emergent wetlands, native perennial grassland, special-status species' habitats) under the guidance of a qualified biologist. The fencing shall be installed around the perimeter of native perennial grassland, potential emergent wetlands (potential habitat for Ridgway's rail and northwestern pond turtle), and burrowing owl preserves. Flagging or other visual barriers and/or signs may be installed in place of fencing (e.g. in the case of burrowing owl preserves to prevent perching on fence stakes by avian predators). The contractor, under the supervision of a

qualified biologist, shall erect and maintain the exclusion fencing for the duration of the construction activity in that work area. Fencing and erosion control measures shall be inspected and maintained daily by the construction foreman until completion of the construction activity. Status of the fencing and erosion control measures shall also be verified and documented at least once a week by a biological monitor. Fencing shall be removed upon completion of construction activities in that work area and prior to demobilization. Activity exclusion zones for sensitive natural communities shall be a minimum of 50 feet; the zones shall be established around each sensitive natural community, the boundaries of which shall be clearly marked with construction exclusion fencing or its equivalent. The establishment of activity exclusion zones shall not be required if construction-related disturbances shall not occur within 250 feet of the sensitive natural community. The size of activity exclusion zones may be reduced below 50 feet through consultation with a qualified biologist if construction activities are conducted in the presence of a biological monitor.

Mitigation Measure BIO-4: Alkali Milk-Vetch and Congdon's Tarplant

In the event that avoidance of alkali milk-vetch or Congdon's tarplant is not feasible, seeds of alkali milk-vetch and/or Congdon's tarplant shall be collected by a qualified biologist with experience collecting native plant seeds prior to the start of construction in a work area for the current construction phase. Seeds shall be stored and redistributed after the current construction phase is completed. Include the redistributed seeds in the planting palette for on-site restoration of temporarily distributed grassland and/or the landscape design for open space, as described in the Development Guidelines.

Effects on Special-Status Wildlife

Impacts on Monarch Butterfly and Crotch's Bumble Bee

Monarch butterfly is not expected to forage extensively in the study area due to the absence of high-quality nectar sources. Construction and operation of the CEQA Proposed Project could result in impacts on monarch butterfly and suitable roosting and breeding habitat and could result in the injury, mortality, and disruption of normal behaviors of monarch butterfly. The CEQA Proposed Project would most likely result in increased traffic as a result of increased development, which, once completed, could increase the potential mortality of monarch butterfly from being struck by vehicles. Mitigation Measures BIO-1, BIO-5, and BIO-7 are identified to minimize potential impacts on monarch butterflies by providing environmental awareness training to construction personnel, conducting surveys to identify native milkweed patches, compensating for impacts on breeding habitat with milkweed plantings, and avoiding and minimizing potential effects of herbicide and pesticide use on monarch butterfly and its larval host plants and nectar plants.

Construction and operation of the CEQA Proposed Project could result in impacts on Crotch's bumble bees and suitable nesting and foraging habitat (flowers) and could result in the injury, mortality, and disruption of normal behaviors of Crotch's bumble bee. Mitigation Measures BIO-1, BIO-6, and BIO-7 are identified to minimize potential impacts on Crotch's bumble bee by providing environmental awareness training to construction personnel, by requiring preconstruction surveys for bumble bees, by requiring avoidance measures if bumble bees are present during construction activities, and by avoiding and minimizing potential effects of herbicide and pesticide use on Crotch's bumble bee and its nectar plants.

Impacts on Northwestern Pond Turtle

Construction activities could result in the injury and mortality of northwestern pond turtle if they are present in work areas during activities such as grading, excavation, vegetation removal, and the use of construction-related vehicles. Northwestern pond turtle could also be trapped in open trenches or other excavations and become vulnerable to predation. Construction activities could also result in the exposure of northwestern pond turtle to construction-related fluids, such as fuels, oils, and cement, which could result in the injury and mortality of individuals. Construction noise and vibration could also disrupt normal behaviors and result in increased energy expenditures and predation risk. Upon completion of construction, the CEQA Proposed Project is not expected to result in increased injury or mortality of northwestern pond turtle as potential increased lighting and traffic effects would not occur in the vicinity of suitable habitat. Mitigation Measures BIO-1, BIO-2, and BIO-3 are identified to minimize potential impacts on northwestern pond turtle by providing environmental awareness training to construction personnel, including the stop-work authority of the qualified biologist if a special-status species is observed in work areas; by requiring preconstruction surveys for northwestern pond turtle; and by installing exclusion fencing under the guidance of a qualified biologist to prevent northwestern pond turtle from entering work areas.

Impacts on Burrowing Owl

Suitable burrows and some sign of owl (e.g., pellets, whitewash) were observed in most areas of ruderal grassland in the study area during reconnaissance surveys. There are known burrowing owl colonies adjacent to the study area at Moffett Federal Airfield where nesting and foraging habitat is managed for the species (refer to Figures 3-1a, 3-1b, and 3-1c). In addition, the northern extent of the study area overlaps with burrowing owl preserve BV-6 (Figure 3-1b); however, based on a lack of observations in the study area in recent years during burrowing owl population monitoring conducted at NASA ARC, the species is not likely to be present in the study area. The realignment of Cody Road and construction of the stormwater drain outfall would result in the permanent removal of suitable burrowing owl habitat and construction of the utilities would temporarily impact suitable burrowing owl habitat, including approximately 0.28 acre in burrowing owl preserve NRP-19, 0.14 acre in preserve BV-7, 0.01 acre in preserve BV-6, and less than 0.01 acre in preserve ARC-2. If burrowing owls are present in construction areas, ground disturbance and construction vehicles could injure or kill burrowing owls by crushing occupied burrows or collapsing burrow entrances, trapping any owls inside. Burrowing owls are moderately maneuverable, and foraging owls outside of their burrows would be able to avoid direct injury or mortality from slow-moving or stationary construction equipment. Some burrowing owls in urban landscapes appear relatively tolerant of human disturbance (Poulin et al. 2020), and burrowing owls present at NASA ARC are exposed to regular noise and vibration from the adjacent Moffett Federal Airfield. However, it is difficult to predict how and at what distance a given nesting pair would react to noise and vibration related to demolition and construction of buildings under the CEQA Proposed Project. Consequently, if occupied burrows are within 250 feet of project activities, it is possible that construction-generated noise and vibration burrows could alter normal behaviors, including causing adult owls to abandon eggs or recently hatched young or cause wintering owls to abandon their burrows, leaving them vulnerable to predation.

Operation of the CEQA Proposed Project would result in increased human presence, which has the potential to disrupt normal behaviors of burrowing owl. Burrowing owls are susceptible to vehicle collisions (Gervais et al. 2008); increased traffic as a result of the CEQA Proposed Project would pose

a risk of injury or mortality to individuals. Permanent facility lighting associated with project buildings could extend into burrowing owl habitat, which could affect the behavior of individuals. Permanent lighting could reduce prey availability to burrowing owls, as prey may remain closer to cover to avoid detection. Predation risk to burrowing owls could also increase due to artificial lighting because they may be more visible to predators (Scobie et al. 2016); installation of light poles could provide perching structures for potential avian predators. As described in Section 6.3.2.4, impacts related to artificial light would be minimized by selecting low-glare sources, directing lighting away from native habitats, and employing directional lighting with baffles, non-reflective tinting on windows, or other mechanisms. In addition, lighting would comply with dark sky principles and light fixtures would incorporate shielding to restrict light pollution beyond a 90 degree angle. The presence of buildings constructed for the CEQA Proposed Project may also preclude burrowing owl use of habitat in the vicinity of the development. Mitigation Measures BIO-1, BIO-8, BIO-9, BIO-10, and BIO-11 are identified to minimize potential impacts on burrowing owl by providing environmental awareness training to construction personnel, by requiring preconstruction surveys for burrowing owls, requiring avoidance measures if burrowing owls are present during construction activities, and requiring compensation for loss of burrowing owl habitat. Furthermore, the NASA Ames Burrowing Owl Management Plan measures would continue to be implemented to reduce operational impacts on burrowing owl.

Impacts on Other Special-Status Birds

Construction disturbance during the breeding season (approximately February 1 through August 31), including building demolition and tree removal, could result in mortality or disturbance for nesting birds in and adjacent to the construction work areas. The removal of active nests or suitable nesting habitat as well as construction-related noise and visual disturbances during the breeding season could mask calls, disrupt foraging and nesting behaviors, reduce the functions of nesting habitat, result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. As discussed in Section 4.2.3, above, six special-status bird species (in addition to burrowing owl, described separately above) have moderate to high potential to occur in the study area. Because white-tailed kite is fully protected, the removal of trees with active nests is prohibited, as are activities that may result in the loss of white-tailed kites; however, trees could be removed outside of the breeding season (September 1 through January 31), or after a qualified biologist determines the nest is no longer active. Potential impacts on breeding saltmarsh common yellowthroat, Alameda song sparrow, tricolored blackbird, and northern harrier would be limited to construction of the proposed storm drain outfall at the potential emergent wetland on the northern edge of the study area. Although northern harriers do nest in grasslands, the probability that they would nest in the ruderal grasslands in the study area is relatively low due to disturbance from mowing and proximity the existing roads and airfield. Mitigation Measures BIO-1 and BIO-12 are identified to minimize potential impacts on other special-status nesting birds by providing environmental awareness training to construction personnel, requiring preconstruction surveys during breeding season, and requiring avoidance measures if nesting birds are present during construction activities.

In addition to nesting habitat, some special-status birds (e.g., white-tailed kite, tricolored blackbird, northern harrier, Ridgway's rail, and snowy egret) may forage in the ruderal grassland or the palustrine emergent wetland at the north end of the study area. Construction activities are not expected to injure or kill any foraging or nonbreeding adults or fledged juveniles that are no longer dependent on adults because individuals are mobile and would avoid direct injury or mortality from

slow-moving or stationary construction equipment. Mitigation Measures BIO-1 and BIO-3 are identified to minimize potential impacts on foraging special-status birds by providing environmental awareness training to construction personnel, including the stop-work authority of the qualified biologist if a special-status species is observed in work areas, and by installing exclusion fencing between the work area and the potential emergent wetland under the guidance of a qualified biologist to prevent Ridgway's rail from entering work areas.

Potential impacts from increased vehicle traffic, presence of humans, and lighting as a result of the CEQA Proposed Project are similar to those described above under *Impacts on Burrowing Owl*. Potential collisions of birds with buildings are described below under *Impacts on Terrestrial Wildlife Movement*.

Impacts on Special-Status Bats

There is potential roosting habitat in trees, existing swallow nests, and buildings that could be used by special-status bats, including pallid bat, hoary bat, and Townsend's big-eared bat, within the study area. The removal of trees and buildings on the site also has the potential to result in the loss of a colony of common species of roosting bats if present. Individual bats could be physically injured or killed, could be subject to physiological stress from disturbance during torpor, or could face increased predation because of exposure during daylight. In addition, nursing young may be subjected to disturbance-related abandonment by their mothers. Mitigation Measures BIO-1 and BIO-13 are identified to minimize potential impacts on roosting bats by providing environmental awareness to construction personnel, requiring preconstruction surveys, and implementing avoidance measures if roosting bats are present.

Identified Mitigation Measures

Mitigation Measure BIO-1. Environmental Resources Worker Awareness Training

Mitigation Measure BIO-2. Preconstruction Surveys for Special-Status Species

Mitigation Measure BIO-3. Exclusion Fencing

Refer to *Effects on Special-Status Plants*, above, for the full text of these mitigation measures.

Mitigation Measure BIO-5. Monarch Butterfly Breeding Habitat

Prior to, the start of construction in a work area for the current construction phase, botanists shall identify and map locations of milkweed (monarch butterfly breeding habitat). If the Limits of Work overlaps with milkweed plants, milkweed plants shall be removed outside of the breeding season for monarch butterfly (February 15 through October 15). The Project Proponent shall compensate for the permanent loss of milkweed by planting native milkweed in the landscape design for open space at a ratio of 1:1 (one native milkweed planted for each milkweed plant removed) and by including native nectar plants for monarch butterfly such as goldenrods (*Solidago* spp.), asters (*Symphyotrichum* spp.; *Eurybia* spp.), coyotebrush (*Baccharis pilularis*), nettleleaf giant hyssop (*Agastache urticifolia*), yarrow (*Achillea millefolium*), coastal sand verbenas (*Abronia latifolia*), blue dicks (*Dichelostemma capitatum*), seaside fleabane (*Erigeron glaucus*), coyote mint (*Monardella villosa*), gumplant (*Grindelia camporum*), and sunflowers (*Helianthus* spp.), among others (Xerces Society 2025), in planting palettes for on-site restoration of temporarily disturbed grassland and/or the landscape design for open space, as described in the Development Guidelines.

Mitigation Measure BIO-6. Crotch's Bumble Bee

Prior to any phase of construction, as long as the species is considered a candidate for listing under the California Endangered Species Act (CESA) or in the event that they become listed under CESA, a qualified biologist shall assess the work area through a desktop analysis and land cover assessment through site visits to determine whether the work area for the current phase of construction and immediately surrounding landscape within 50 feet has the potential to contain potential habitat for Crotch's bumble bees. This analysis shall identify whether the work area is a developed area with no landscaping (i.e., contains buildings; paved roads, sidewalks or parking lots; other built infrastructure; or mowed and irrigated lawns) or contains open grassland, ornamental landscaping or scrub habitats that could be potential Crotch's bumble bee foraging, nesting, or overwintering habitat.

If habitat suitable for Crotch's bumble bee is determined not to be present within the work area for the construction phase, then further measures would not be required.

If the work area contains suitable Crotch's bumble bee habitat, then the following measures shall be implemented prior to construction of the phase.

- Pre-construction surveys for Crotch's bumble bee and nests shall be conducted within all suitable habitat prior to initial ground-disturbing activities for the current construction phase. Surveys shall follow the survey methodologies set out in the CDFW *Survey Considerations for CESA Candidate Bumble Bee* (CDFW 2023). The surveys can be phased with project buildout. The purpose of this survey shall be to identify active nest colonies inside of and within 50 feet of permanent and temporary impact areas. If Crotch's bumble bees are not detected during the pre-construction survey, no additional measures are required.
- If active Crotch's bumble bee nests are present within the Limits of Work or a 50-foot buffer surrounding the Limits of Work, an appropriate no disturbance buffer zone shall be established around the nest to reduce the risk of disturbance or accidental take. The buffer shall provide at least 50 feet of clearance around nest entrances.
 - If establishment of a no-work buffer is feasible, construction activities shall not occur within the no-work buffer until a qualified biologist determines that the colony is no longer active (i.e., no Crotch's bumble bees are seen flying in or out of the nest for three consecutive days indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony). Once the nest has been determined inactive, construction activities within the no-work buffer(s) shall be allowed to resume.
 - If avoidance of the nest is not feasible, the Project Proponent or its contractor(s) shall consult with a qualified biologist familiar with Crotch's bumble bee biology, regulations, and conservation for recommendations on appropriate measures. The proposed measures must be approved by NASA ARC Environmental Management Division (EMD) prior to proceeding.
- Mowing shall be minimized as much as feasible in suitable Crotch's bumble bee habitat. In areas where mowing is needed, the following measures to minimize potential take of Crotch's bumble bee shall be followed, to the extent feasible:
 - Mow outside of the blooming season (typically March through June), if feasible;

- Mow at the highest cutting height possible to avoid disturbing nests or overwintering queens;
- Avoid mowing from noon into the afternoon, the time of day when pollinators are most active; and
- Mow at speeds less than 8 mph.
- During construction, vehicles onsite shall not exceed a speed of 15 mph. This requirement shall be posted with signage noted throughout the Project Site.

Mitigation Measure BIO-7. Herbicide and Pesticide Use

To minimize impacts on monarch butterfly and Crotch's bumble bee from herbicide and pesticide drift, application shall be limited to areas immediately adjacent to the proposed facilities and shall be conducted using handheld equipment. Herbicides and pesticides shall be applied only by applicators with current licenses and/or certifications from the California Department of Pesticide Regulation. The herbicide applicator shall follow the label directions. Spray nozzles shall be kept within 24 inches of target vegetation during spraying. The most current information on herbicide and pesticide toxicity on wildlife shall be used to inform future decisions about herbicide and pesticide use during operations.

Mitigation Measure BIO-8. Burrowing Owl Surveys

Prior to any ground disturbance for the current construction phase, a qualified biologist shall conduct pre-construction surveys in all areas identified as suitable habitat within 250 feet of the Limits of Work. Surveys shall be performed consistent with the methods described in the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 2012). The purpose of the pre-construction surveys is to document the presence or absence of burrowing owls on the Limits of Work of the construction phase, particularly in areas within 250 feet of construction activities. Surveys shall be initiated no less than 14 days prior to initial construction activities for the phase, and the final survey shall conclude no more than 2 calendar days prior to construction of the phase.

Mitigation Measure BIO-9. Burrowing Owl Avoidance

If active burrowing owl burrows are detected during preconstruction surveys, the following shall apply:

1. No disturbance shall occur within 160 feet of active burrows during the non-breeding season (September 1 through January 31).
2. No disturbance shall occur within 250 feet of active burrows during the breeding season (February 1 through August 31).

If disturbance must occur within the breeding or non-breeding season buffer zones, the Project Proponent or its contractor(s) shall work with NASA ARC EMD prior to commencement of activities for each construction phase to adhere to and implement the measures listed below. Alternative

measures to avoid impacts may be considered on a case-by-case basis in coordination with NASA ARC EMD and the approved qualified biologist.²⁰

Prior to beginning any construction activity for the current construction phase within 250 feet of burrowing owl habitat, NASA ARC EMD must review and approve all vehicular access routes and staging areas.

Mitigation Measure BIO-10. Burrowing Owl Relocation

If occupied burrowing owl burrows cannot be avoided (i.e., disturbance within 160 feet of active burrows during the non-breeding season or 250 feet of active burrows during the breeding season would occur), the following measures shall be implemented in accordance with and subject to the approval of the NASA ARC EMD.

1. Passive Relocation

a. Timing.

- i. No passive relocation is allowed during the breeding season (February 1 through August 31). The destruction of burrows is only allowed outside of the breeding season (September 1 through January 31). All artificial burrows shall be installed prior to the breeding season.
- ii. Installation of artificial burrows must occur prior to activities that cause disturbance. A project is not allowed to proceed until NASA ARC EMD has verified the artificial burrows have been installed.
- iii. Installation of artificial burrows must occur at least 1 week prior to passive relocation and burrow exclusion activities.

b. Surveys and Banding.

- i. The approved qualified biologist must conduct multiple surveys for a minimum of 2 weeks prior to the passive relocation. These surveys need to locate active burrows within the Limits of Work and buffer zone, identify satellite burrows outside the buffer zone, and observe owl behavior to establish the territory of the owl.
- ii. Before passive relocation occurs, owls should be trapped and banded, at the discretion of the NASA ARC EMD, to track success. At least 2 weeks prior to the exclusion, all owls may be banded by an approved qualified biologist who has a minimum of 2 years of bird banding experience and a Federal Bird Banding and Marking Permit.

c. Restrictions.

²⁰ As described in the NASA ARC Final Burrowing Owl Habitat Management Plan (NASA 2022), the qualified biologist must have 1) familiarity with the western burrowing owl biology and its local ecology (i.e., Santa Clara County); 2) at least 2 years of experience conducting habitat assessments and breeding and non-breeding season surveys for burrowing owls, or experience with these surveys conducted under the direction of an experienced western burrowing owl biologist; 3) familiarity with regulations related to burrowing owls and conservation; and 4) experience with analyzing impacts of development on burrowing owls and their habitat.

- i. Passive relocation should only be allowed if satellite burrows are located outside of the 50-foot buffer zone to increase the chances of success. All passive relocation efforts must be coordinated with and approved by NASA ARC EMD.
- ii. Burrows associated with ground squirrel colonies (i.e., dense clusters of interconnecting burrows that support multiple ground squirrels) must be protected to the extent they do not conflict with NASA infrastructure protection and aircraft safety requirements.

2. Exclusion Requirements

- a. Short-term exclusion (for 1 to 4 weeks) must be avoided to the extent feasible and is only allowed if avoidance measures are not practicable. If short-term exclusion is the only available mechanism, install a one-way door, and once the owl leaves, collapse the burrow within the 1-4 week duration. Long-term exclusion (more than 4 weeks) is prohibited. If exclusion more than 4 weeks is necessary, passive relocation measures shall be implemented.
 - i. Burrowing owls may only be temporarily excluded from burrows in the Limits of Work and 50-foot buffer zone.
 - ii. Restoration. Burrows within the Limits of Work and 50-foot buffer that are temporarily excluded (i.e., not destroyed) must be restored to pre-project conditions (e.g., removal of wood blocks/one-way doors, digging out burrows by hand, and relocating squirrels to the area) in coordination with NASA ARC EMD.
- b. Exclusion Procedures.
 - i. Exclusion shall be conducted by installing one-way doors in burrow entrances. One-way doors shall be left in place for a minimum of 48 hours to ensure owls have left the burrow before excavation.
 - ii. The approved qualified biologist shall remove the one-way doors and verify that no owls are present before excavating the burrows. All burrows shall be excavated immediately after removal of the one-way doors.
- c. Re-entry Prevention.
 - i. If project activities do not occur within 5 days of removing the one-way doors, the Limits of Work and 250-foot buffer zone shall be resurveyed to verify that burrowing owls have not reoccupied the site.
 - ii. The Limits of Work and 250-foot buffer zone shall be resurveyed if the site remains inactive for more than 2 weeks during construction to ensure owls have not occupied the site in the interim period between the initial surveys and ground-disturbing activities.

3. Artificial Burrows.

- a. Replacement Ratio. Active natural and artificial burrows (i.e., burrows that have been active during the breeding season within the last 5 years) that are

permanently excluded (i.e., destroyed) shall be replaced with artificial burrows at a 3:1 ratio.

- b. **Siting and Design.** Artificial burrows must be installed within approximately 300 feet of the burrows to be destroyed, if feasible. If this distance is not feasible, the Project Proponent or its contractor(s) must coordinate with the approved qualified biologist to locate alternate sites (e.g., within burrowing owl preserves or other burrowing owl habitat). The location(s) and design of the artificial burrows will be developed in coordination with the NASA ARC EMD prior to installation.
- c. **Monitoring.** Subsequent to installation of artificial burrows, the Limits of Work, buffer zone, and surrounding area must be monitored daily for at least 1 week to confirm owl use of the alternate burrows before destroying burrows in the Limits of Work. Burrow exclusion is not allowed until owl use of the artificial burrows and/or satellite burrows is confirmed by the approved qualified biologist.
- d. **Management.** Activities must be minimized around the new artificial burrows, and these areas need to be managed to provide foraging habitat to the extent possible.

Mitigation Measure BIO-11: Burrowing Owl Habitat

If suitable burrowing owl habitat is temporarily disturbed or permanently lost or degraded (as determined by the qualified biologist and approved by NASA ARC EMD), the following measures shall be implemented:

1. The permanent loss of suitable burrowing owl habitat from project impacts shall be replaced at a 3:1 mitigation ratio.
2. All suitable burrowing owl habitat temporarily disturbed by ground-disturbing activities must be restored with native grasses and habitat (e.g., rocks, mulch, berms) to attract native insects and rodents to facilitate repopulation of ground squirrels.
3. The location of habitat restoration area(s) must be approved by NASA ARC EMD.
4. Initial restoration activities associated with permanent habitat loss must commence prior to construction. NASA ARC EMD must verify that restoration activities have been initiated prior to construction activities.
5. Recommended native plant species include, but are not limited to, meadow barley, purple needlegrass, coast range melic, California poppy, California brome, Molate red fescue, monkey flower, purshings lotus, deerweed, Farewell to Spring, sky lupine, and small fescue.
6. Native seed dispersal within selected restoration areas should be scheduled for the beginning of the winter rainy season. If seed dispersal occurs during the dry months, irrigation shall be necessary.
7. All restoration areas must be maintained and monitored for up to 2 years to ensure the long-term success of the restoration (i.e., restoration areas provide suitable habitat for burrowing owl). The approved qualified biologist must conduct inspections (at a frequency agreed upon by NASA ARC EMD) and coordinate maintenance requirements with the Project Proponent or

its contractor(s). If restoration and/or ground squirrel repopulation efforts are not successful, the Project Proponent or its contractor(s) shall coordinate with NASA ARC EMD to evaluate and implement additional activities (including potential ground squirrel relocation) to ensure the continued success of the restoration.

Mitigation Measure BIO-12. Nesting Birds

Timing Restrictions. To the maximum extent feasible, as determined by the contractor in coordination with a qualified biologist, construction activities, vegetation removal, and trimming shall be scheduled during the nonbreeding season of birds (September 1 through January 31) to avoid impacts on nesting birds if nesting birds are present. If construction activities, vegetation removal, and trimming cannot be conducted in accordance with this timeframe, surveys for nesting birds and additional protective measures shall be implemented as described below.

Preconstruction Surveys. A qualified wildlife biologist with knowledge of avian species and their behavior shall conduct nesting surveys before the start of each construction phase from locations where access is allowed. A minimum of three separate surveys shall be conducted within 30 days prior to construction of each phase, with the last two surveys conducted within 7 days and 3 days prior to construction. Surveys shall be conducted within the project construction and staging areas as well as all suitable nesting habitat (e.g., trees, shrubs, potential emergent wetland, grasslands, ruderal areas, cultivated lands, human-made structures) within 500 feet of the project construction and staging areas for the current construction phase to locate any active nest protected by the MBTA or by CDFW. If no active nests are detected during these surveys, no additional measures shall be required if construction begins within 3 calendar days. An additional survey shall be conducted after any construction breaks of 3 calendar days or more.

Non-Disturbance Buffer. If active nests are found in the survey area, non-disturbance buffers shall be established around the nest sites to avoid disturbance or destruction of the nest site until the end of the breeding season (September 1) or until a qualified wildlife biologist determines that the young have fledged and moved out of the work area (this date varies by species). Buffer distances vary by species and conservation status (e.g., listed species and fully protected species, for which take is prohibited, may warrant larger buffers than non-special-status species), but typically, these buffer distances are between 300 and 650 feet for raptors and between 50 and 250 feet for other nesting birds. The extent of the buffers shall be determined by the qualified wildlife biologist(s) and established by taking into consideration the type and extent of the proposed activity occurring near the nest, the duration and timing of the activity, the line of sight between the nest and the disturbance, the sensitivity and the habituation of the birds and raptors to existing conditions, and the dissimilarity of the proposed activity to ambient levels of noise and other disturbances. The qualified wildlife biologist(s) shall mark the extent and locations of non-disturbance buffers on maps that shall be presented to construction personnel at morning tailboards or use flagging, fencing, or other suitable physical markers, depending on the species of birds, the size of the buffers, and the construction activities to be conducted in the work area.

Nest Monitoring. The qualified wildlife biologist(s) shall monitor the nests to ensure that construction activities shall not affect nest success. Buffers (described above) may be reduced if a full-time qualified biologist is present to monitor the nest. Active nests shall be monitored to track progress of nesting activities until the biologist determines that the young have fledged

and are capable of independent survival or the nest site is no longer active. Monitoring will be conducted from locations where access is allowed.

Authority of Qualified Wildlife Biologist(s). If, during construction, the qualified wildlife biologist(s) determines that a nesting bird is disturbed by construction activities to the point where continued activities could lead to nest failure, the qualified wildlife biologist(s) shall have the authority to immediately stop work and provide additional protective measures (including increasing the non-disturbance buffer distance) that need to be implemented and continue monitoring the nest until determining that bird behavior has normalized.

Mitigation Measure BIO-13. Roosting Bats

To avoid take of roosting bats, a preconstruction survey of buildings to be demolished or trees to be trimmed or removed shall be conducted prior to the start of construction in the work area for the current construction phase in areas affected by the current construction phase by a qualified wildlife biologist in accordance with *Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions* (Johnston et al. 2019). If special-status roosting bats are found, an avoidance or mitigation plan prepared by a qualified wildlife biologist shall be developed and implemented to avoid take of roosting bats. Avoidance measures may include conducting construction, demolition, tree-trimming or tree-removal outside of hibernation (January–February) and maternal roosting (March 1–August 31) time periods and excluding bats from buildings after they have left the roost to forage at night by closing entrances. Mitigation may include the construction of bat boxes to accommodate displaced bats. If bat boxes are used, their success shall be monitored and reported to NASA.

5.3.2.2 Effects on Riparian Habitat or Other Sensitive Natural Community

There is no riparian habitat in the study area, and no riparian habitat would be affected by project construction or operations. A 0.012-acre patch of native perennial grassland occurs within 47 feet of the Limits of Work for the proposed stormwater pipeline along Zook Road for the eastern diked marsh trunk main. The perennial grassland vegetation would not need to be removed for installation of the pipeline, but sidecasting of excavated material could encroach on the vegetation. Mitigation Measures BIO-1 and BIO-3 are identified to minimize potential impacts on a sensitive natural community by training construction personnel on protecting the vegetation, reporting requirements, and the ramifications for not following these measures, and by installing exclusion fencing under the guidance of a qualified biologist to protect the vegetation from sidecastings or other indirect impacts. Effects on emergent wetland communities are discussed in Section 6.3.2.3, *Effects on State or Federally Protected Wetlands*.

Identified Mitigation Measures

Mitigation Measure BIO-1. Environmental Resources Worker Awareness Training

Mitigation Measure BIO-3. Exclusion Fencing

Refer to *Effects on Special-Status Plants*, above, for the full text of these mitigation measures.

5.3.2.3 Effects on State or Federally Protected Wetlands

One palustrine emergent wetland is within a 50-foot buffer of the proposed stormwater pipeline alignment for the eastern diked marsh trunk main, but not within the proposed Limits of Work. The palustrine emergent wetland, which is located at the edge of the Moffett Field Remedial Action Project (ITSI Gilbane Company 2013), would not need to be excavated or filled for installation of the pipeline and is approximately 33 feet from the proposed eastern diked marsh trunk main storm drain outfall location. The area west of Lindbergh Avenue where the proposed off-site storm drain main and the outfall at the eastern diked marsh would be constructed is federally owned but within the boundary of the city of Mountain View. This falls under proprietary jurisdiction and is thus subject to certain State regulations.

Project construction and operations have the potential to affect jurisdictional waters. This wetland was mapped and the extent of jurisdictional waters will be verified by the U.S. Army Corps of Engineers prior to construction. This feature is not a river, stream, or lake and therefore not subject to the Lake and Streambed Alteration program; the California Fish and Game Code is not applicable to NASA. Any modifications to jurisdictional waters will be coordinated with jurisdictional agencies, including the U.S. Army Corps of Engineers and Regional Water Quality Control Board, as necessary, with any necessary authorizations secured in advance. Where avoidance of designated jurisdictional wetland and waters is infeasible, appropriate mitigation will be developed and implemented in accordance with applicable State and federal regulations.

The discharge of storm water from NASA ARC is regulated by four permits issued by the State Water Resources Control Board under the National Pollutant Discharge Elimination System: (1) General Permit for Storm Water Discharges Associated with Industrial Activities, (2) General Permit for Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems, (3) State Water Resources Control Board General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, and (4) California Regional Water Quality Control Board San Francisco Bay Region General Waste Discharge Requirements for Discharge or Reclamation of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds (BB&E 2025).

Operations involving stormwater discharges under the CEQA Proposed Project and the CEQA Reduced Density Alternative would meter flows leaving the Project Site; such discharges are designed to not exceed existing conditions with a 10-year storm event. For storms greater than a 10-year storm event, the outfall and connection to the off-site trunk main would incorporate an orifice and a weir to allow excess water to leave the system when the storage pipes are full.

As part of the proposed project, a swale and riprap would be installed at the eastern diked marsh trunk main outfall. Typical maintenance activities at the eastern diked marsh trunk main outfall would include removal of accumulated sediment, removal of trash and debris to maintain storage capacity, vegetation control, and inspection and repair of the embankments and dewatering devices.

During construction, sidecasting of excavated material could encroach on the wetland resource. Mitigation Measures BIO-1, BIO-3, BIO-14, and BIO-15 are identified to avoid or minimize potential impacts on wetlands during construction by (1) training construction personnel on protecting wetlands, reporting requirements, and the ramifications for not following these measures; (2) by installing exclusion fencing and erosion control measures under the guidance of a qualified biologist to protect wetlands from sidecastings or other indirect impacts; (3) performing construction

activities outside of the wet season, and (4) obtaining permits and a mitigation plan if impacts are unavoidable.

Identified Mitigation Measures

Mitigation measure requirements shall be included in construction specifications for the proposed project for the construction contractor.

Mitigation Measure BIO-1. Environmental Resources Worker Awareness Training

Mitigation Measure BIO-3. Exclusion Fencing

Refer to *Effects on Special-Status Plants*, above, for the full text of these mitigation measures.

Mitigation Measure BIO-14. Avoid and Minimize Disturbance of Waters of the United States, including Wetlands, and Waters of the State

To the extent possible, the Project Proponent or its contractor(s) shall avoid and minimize impacts on waters of the United States, including wetlands, and waters of the State by implementing the following measures:

- The project shall be designed, to the extent possible, to avoid direct and indirect impacts on waters of the United States, including wetlands, and waters of the State.
- Construction activities shall be avoided in saturated or ponded natural wetlands during the wet season (October through May) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, shall be employed.
- All activities shall be completed promptly to minimize their duration and resultant impacts.

Mitigation Measure BIO-15. Compensate for Losses of Waters of the United States, including Wetlands, and Waters of the State

If it is not feasible for construction activities to avoid impacts on waters of the United States, including wetlands, and waters of the State, the following shall apply:

- The Project Proponent or its contractor(s) shall acquire all applicable permits.
- The Project Proponent or its contractor(s) shall demonstrate that there is no net loss of wetlands and other waters of the United States and state-protected waters/wetlands from project construction. To ensure this, wetland mitigation shall be developed as a part of the permitting process. Mitigation shall be provided before construction-related impacts on the existing wetlands occur. Mitigation typically includes the purchase of mitigation credits within the watershed. The exact mitigation requirement and ratio will be determined in consultation with USACE and/or RWQCB, but the Project Proponent or its contractor(s) shall compensate for affected wetlands at a ratio of no less than 1:1.

5.3.2.4 Interfere with the Movement of Any Native Resident or Migratory Fish or Wildlife Species, or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites

Impacts on Terrestrial Wildlife Movement

The Project Site does not occur between areas of natural open space; the site is bordered by U.S. 101 to the south, which impedes terrestrial wildlife connectivity. The Project Site and greater surrounding landscape is bounded by an existing security fence. Construction of the CEQA Proposed Project would not further impede movement within the fenced area. Any common urban-adapted species that currently move through the Project Site would continue to be able to do so following construction.

The Project Site is within the Pacific Flyway, a migratory bird route. Approximately 277 trees would be removed as a result of all construction phases of the CEQA Proposed Project, some of which provide suitable stopover habitat for migratory birds. However, construction of the CEQA Proposed Project would not inhibit the use of similar trees and shrubs in the vicinity of the Project Site by migratory birds. Furthermore, proposed landscaping would include tree and shrub plantings, including planting of approximately 1,283 new trees and planting phytoremediation bands along Girard Road, that would also provide potential stopover habitat post-construction.

Artificial night lighting has the potential to affect wildlife behavior. Studies show that birds are attracted to artificial lights, which may disrupt their behavioral patterns or cause collision-related fatalities (Gauthreaux and Belser 2006). The Project Site is located in a developed setting with adjacent lighting. Wildlife species that currently occur in the study area are adapted to urban environments with artificial lighting. As required in the Development Guidelines, impacts related to artificial light would be minimized by selecting low-glare sources, directing lighting away from native habitats, and employing directional lighting with baffles, non-reflective tinting on windows, or other mechanisms. In addition, lighting would comply with dark sky principles and light fixtures would incorporate shielding to restrict light pollution beyond a 90-degree angle.

Birds are known to be subject to collision with building windows or other features that reflect the sky, trees, or other vegetation. Similarly, transparent windows can result in bird collisions when they allow birds to perceive an unobstructed flight route through the glass or when the combination of transparent glass and interior vegetation (such as in planted atria) results in attempts by birds to fly through glass to reach vegetation. The greatest risk of avian collisions with buildings is within 60 feet of the ground because this is the area in which most bird activity occurs. The extent of glazing on a building and the presence of vegetation opposite the glazing are known to be two of the strongest predictors of avian collision rates. To minimize impacts on birds due to collisions, the CEQA Proposed Project would comply with California Green Building Standards Code (CALGreen) Non-Residential Voluntary Measure A5.107, *Bird-Friendly Building Design*, which is one of the standards established in the Development Guidelines (see Section 2.2, above). Bird-friendly design requirements would include the incorporation of design criteria related to glazing, slats, screens, netting, and louvers to minimize the risk of birds colliding with proposed buildings by increasing visibility and reducing reflections on building surfaces. With these proposed bird-safe design features, impacts related to bird collisions would be sufficiently minimized.

Impacts on Non-Special-Status Nesting Birds

There is potential for non-special-status birds to nest in trees, shrubs, ruderal grassland, and buildings or other structures (e.g., culverts) within the study area. Non-special status bird species may also nest in the emergent marsh just north of the study area where the storm drain outflow is located. Barn and cliff swallow nests were observed in four of the buildings that would be demolished as part of construction of the CEQA Proposed Project. Construction-related disturbance during the nesting season (typically, February 1 through September 30 for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction of active nests from building demolition, tree removal, or tree trimming or indirectly, causing nest abandonment through construction-related disturbance. Mitigation Measures BIO-1 and BIO-12 are identified to minimize potential impacts on nesting birds by providing environmental awareness training to construction personnel, requiring preconstruction surveys during breeding season, and requiring avoidance measures if nesting birds are present during construction activities.

Impacts on Roosting Bats

There is suitable habitat in trees and buildings that could be used as nursery sites by common bat species such as Mexican free-tailed bat (*Tadarida brasiliensis*) and Yuma myotis (*Myotis yumanensis*). As described above under *Impacts on Nesting Birds*, nesting barn swallows and cliff swallows were observed on several of the existing buildings in the study area. The potential exists for bat maternity roosts in the trees, existing swallow nests, and buildings. The removal of trees and buildings on the site has the potential to result in the loss of a colony of common species of roosting bats if present. Individual bats could be injured or killed, could be subject to physiological stress from disturbance during torpor, or could face increased predation because of exposure during daylight. In addition, nursing young may be subjected to disturbance-related abandonment by their mothers. Mitigation Measures BIO-1 and BIO-13 are identified to minimize potential impacts on roosting bats by providing environmental awareness to construction personnel, requiring preconstruction surveys, and implementing avoidance measures if roosting bats are present.

Identified Mitigation Measures

Mitigation Measure BIO-1. Environmental Resources Worker Awareness Training

Refer to *Effects on Special-Status Plants*, above, for the full text of this mitigation measure.

Mitigation Measure BIO-12. Nesting Birds

Mitigation Measure BIO-13. Roosting Bats

Refer to *Effects on Special-Status Wildlife*, above, for the full text of these mitigation measures.

5.3.2.5 Conflict with any Local Policies or Ordinances Protecting Biological Resources

The study area is federally owned land; compliance with the Santa Clara County Heritage Tree Ordinance (tree ordinance) is not required. Therefore, the CEQA Proposed Project would not conflict with the ordinance under CEQA thresholds. The tree ordinance does not protect or regulate special-status species and, therefore, does not apply to the NEPA thresholds. However, the Project

Proponent has provided an analysis of impacts based on the ordinance, which is described below for informational purposes. The tree ordinance requires preparation of an arborist report, implementation of protective measures before and during construction, monitoring after construction, and replacement of all healthy native trees 12 inches in diameter or more (at 4.5 feet above the ground) at varying ratios (2:1 to 5:1), based on the size of the trees removed.

A preliminary arborist report was completed in September 2024 (Appendix C). The CEQA Proposed Project would affect up to 158 trees that would qualify as protected trees under the ordinance. The preliminary arborist report indicates that 18 of these trees could be preserved by following tree preservation guidelines, but the remaining 140 trees would require removal for construction. Although tree replacement is not required, implementation of the protective measures in the preliminary arborist report have been identified to protect trees before and during construction and avoid future loss of additional trees. For a list of the protective measures, refer to the preliminary arborist report in Appendix C. Furthermore, proposed landscaping would include tree and shrub plantings, including planting of approximately 1,283 new trees, which exceeds the maximum potential replacement ratio for the 140 trees removed under the tree ordinance (i.e., at 5:1, the tree ordinance would require 700 replacement trees). Therefore, the CEQA Proposed Project would not conflict with the Santa Clara County Heritage Tree Ordinance.

5.3.2.6 Conflict with the Provisions of an Applicable Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan

The study area is within the area covered by the PG&E Bay Area Operations and Maintenance Habitat Conservation Plan. The CEQA Proposed Project would not interfere with or affect any covered activities or conservation actions associated with the operation and maintenance of PG&E utility infrastructure. Therefore, the CEQA Proposed Project would not conflict with the provisions of this plan.

The Project Proponent is not a permittee under the Santa Clara Valley HCP/NCCP and the CEQA Proposed Project would not interfere with or impact any of the plan's covered activities. As described in Section 6.3.2.1, there are known burrowing owl colonies adjacent to the study area at Moffett Federal Airfield where nesting and foraging habitat is managed for the species, which is a covered species under the Santa Clara Valley HCP/NCCP (refer to Figures 3-1a, 3-1b, and 3-1c). In addition, the northern extent of the study area overlaps with burrowing owl preserve BV-6 (Figure 3-1b). No other covered activities or conservation actions under the Santa Clara Valley HCP/NCCP occur within this area. Construction-related noise and vibration could conflict with conservation and management activities for burrowing owl under the HCP/NCCP. Mitigation Measures BIO-1, BIO-8, BIO-9, and BIO-10, and BIO-11 are identified to minimize potential impacts on burrowing owl and burrowing owl-specific conservation actions of the Santa Clara Valley HCP/NCCP by providing environmental awareness training to construction personnel, by requiring preconstruction surveys for burrowing owls, requiring avoidance measures if burrowing owls are present during construction activities, and requiring compensation for loss of burrowing owl habitat. Mitigation Measures BIO-1, BIO-8, BIO-9, BIO-10, and BIO-11 are consistent with both the NASA Ames Research Center Burrowing Owl Habitat Management Plan (Leidos 2022) and the Santa Clara Valley HCP/NCCP Burrowing Owl Conservation Strategy (Santa Clara Valley Habitat Agency 2012). Therefore, the CEQA Proposed Project would not conflict with the provisions of this plan.

Identified Mitigation Measures

Mitigation Measure BIO-1: Environmental Resources Worker Awareness Training

Refer to *Effects on Special-Status Plants*, above, for the full text of this mitigation measure.

Mitigation Measure BIO-8: Burrowing Owl Surveys

Mitigation Measure BIO-9: Burrowing Owl Avoidance

Mitigation Measure BIO-10: Burrowing Owl Relocation

Mitigation Measure BIO-11: Burrowing Owl Habitat

Refer to *Effects on Special-Status Wildlife*, above, for the full text of these mitigation measures.

5.3.3 CEQA Proposed Project No Student/Faculty Housing Variant (NEPA Build Alternative 1, No Student/Faculty Housing Sub-Alternative)

The primary differences between the CEQA Proposed Project No Student/Faculty Housing Variant and the CEQA Proposed Project would be the amount of Research and Office Uses, the number of Student/Faculty Housing units, the number of bicycle parking spaces, and the number of residents, employees, and students. The Variant would have the same type of land uses; the same general site plan; the same maximum building height; the same amount of Conference Uses, Active Uses, Short-Term Lodging, and open space; the same number of guests; the same roadway infrastructure; the same utility infrastructure; the same parking ratio; and the same construction and operation activities proposed under the CEQA Proposed Project. The Variant would have the same project footprint and generally the same types of operational activities as the CEQA Proposed Project. However, there would generally be a greater amount of activity (i.e., employees and students) on-site under the CEQA Proposed Project with the Variant compared to the CEQA Proposed Project. Specifically, the CEQA Proposed Project with the Variant would result in approximately 6,373 employees and 187 students working at the Project Site, whereas the CEQA Proposed Project without the Variant would result in approximately 5,997 employees and 177 students working at the Project Site. The increase in activity during operation is not anticipated to result in increased impacts on biological resources. Therefore, the potential impacts on biological resources under the CEQA Variant would be the same as the CEQA Proposed Project described in Section 6.3.2, above.

5.3.4 CEQA Reduced Density Alternative (NEPA Build Alternative 2)

The primary differences between the CEQA Reduced Density Alternative and the CEQA Proposed Project would be the number of internal floors, internal floor-to-floor heights, amount of square footage for Research and Office Uses, the number of employees, the number of students, and the number of parking spaces. The CEQA Reduced Density Alternative and the CEQA Proposed Project would have the same types of land uses in the same locations; the same site plan; the same maximum building height; the same amount of square footage for Conference Uses, Active Uses, Student/Faculty Housing, Short-Term Lodging, and open space; the same number of residents and

guests; the same utility infrastructure and roadways; and the same parking ratio. The CEQA Reduced Density Alternative would have the same project footprint and the same types of operational activities as the CEQA Proposed Project. However, there would generally be less activity (i.e., employees and students) on-site under the CEQA Reduced Density Alternative compared to the CEQA Proposed Project. The CEQA Reduced Density Alternative would result in approximately 3,331 employees and 95 students working at the Project Site, whereas the CEQA Proposed Project would result in approximately 5,997 employees and 177 students working at the Project Site. Therefore, the potential impacts on biological resources under the CEQA Reduced Density Alternative would be the same as the CEQA Proposed Project described in Section 6.3.2, above.

5.3.5 CEQA Reduced Density Alternative No Student/Faculty Housing Variant (NEPA Build Alternative 2, No Student/Faculty Housing Sub-Alternative)

The primary differences between the CEQA Reduced Density Alternative No Student/Faculty Housing Variant and the CEQA Reduced Density Alternative would be the amount of Research and Office Uses, the number of Student/Faculty Housing units, the number of bicycle parking spaces, and the number of residents, employees, and students. The Variant would have the same type of land uses; the same general site plan; the same maximum building height; the same amount of Conference Uses, Active Uses, Short-Term Lodging, and open space; the same number of guests; the same roadway infrastructure; the same utility infrastructure; the same parking ratio; and the same construction activities proposed under the CEQA Reduced Density Alternative. The Variant would have the same project footprint and operational use as the CEQA Reduced Density Alternative. However, there would generally be a greater amount of activity (i.e., employees and students) on-site under the CEQA Reduced Density Alternative with the Variant compared to the CEQA Reduced Density Alternative. Specifically, the CEQA Reduced Density Alternative with the Variant would result in approximately 3,707 employees and 105 students working at the Project Site, whereas the CEQA Reduced Density Alternative would result in approximately 3,331 employees and 95 students working at the Project Site; however, the same impact mechanisms would be present to a lesser, but not substantial, degree. Therefore, the potential impacts on biological resources under the Variant would be the same as those of the CEQA Reduced Density Alternative, as described in Section 6.3.4, above.

Chapter 6

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Chapter 7

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Appendix A
Species Lists



Search Results

64 matches found. Click on scientific name for details

Search Criteria: , Quad is one of [3712241:3712242:3712252:3712251:3712158:3712148:3712138:3712231:3712232]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICROHABITATS	LOWEST ELEVATION (FT)	HIGHEST ELEVATION (FT)	CA ENDEMIC	DATE ADDED	PHOTO
<i>Acanthomintha duttonii</i>	San Mateo thorn-mint	Lamiaceae	Apr-Jun	FE	CE	1B.1	Chaparral, Valley and foothill grassland	Serpentine	165	985	Yes	1974-01-01	 © 2011 Aaron Schusteff
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	Alliaceae	(Apr)May-Jun	None	None	1B.2	Cismontane woodland, Valley and foothill grassland	Clay, Serpentine (often), Volcanic	170	1000	Yes	2001-01-01	 © 2019 Aaron Arthur
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	Boraginaceae	Mar-Jun	None	None	1B.2	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland		10	1640	Yes	1974-01-01	 © 2011 Neal Kramer

<i>Androsace elongata</i> ssp. <i>acuta</i>	California androsace	Primulaceae	Mar-Jun	None	None	4.2	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland		490	4280		1994- 01-01	 © 2008 Aaron Schusteff
<i>Arctostaphylos regismontana</i>	Kings Mountain manzanita	Ericaceae	Dec-Apr	None	None	1B.2	Broadleaved upland forest, Chaparral, North Coast coniferous forest	Granitic, Sandstone	1000	2395	Yes	1994- 01-01	No Photo Available
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk- vetch	Fabaceae	Mar-Jun	None	None	1B.2	Playas, Valley and foothill grassland (adobe clay), Vernal pools	Alkaline	5	195	Yes	1994- 01-01	No Photo Available

<i>Atriplex depressa</i>	brittlescale	Chenopodiaceae	Apr-Oct	None	None	1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools	Alkaline, Clay	5	1050	Yes	1994-01-01	 © 2009 Zoya Akulova
<i>Atriplex minuscula</i>	lesser saltscale	Chenopodiaceae	May-Oct	None	None	1B.1	Chenopod scrub, Playas, Valley and foothill grassland	Alkaline, Sandy	50	655	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
<i>Calandrinia breweri</i>	Brewer's calandrinia	Montiaceae	(Jan)Mar-Jun	None	None	4.2	Chaparral, Coastal scrub	Burned areas, Disturbed areas, Loam (sometimes), Sandy (sometimes)	35	4005		1994-01-01	No Photo Available
<i>Centromadia parryi</i> ssp. <i>congdonii</i>	Congdon's tarplant	Asteraceae	(Apr)May-Oct(Nov)	None	None	1B.1	Valley and foothill grassland (alkaline)		0	755	Yes	1994-01-01	No Photo Available
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	Orobanchaceae	Jun-Oct	None	None	1B.2	Marshes and swamps (coastal salt)		0	35		1974-01-01	 ©2017 John Doyen

<i>Chorizanthe robusta</i> var. <i>robusta</i>	robust spineflower	Polygonaceae	Apr-Sep	FE	None	1B.1	Chaparral (maritime), Cismontane woodland (openings), Coastal dunes, Coastal scrub	Gravelly (sometimes), Sandy (sometimes)	10	985	Yes	1980-01-01	No Photo Available
<i>Cirsium fontinale</i> var. <i>fontinale</i>	fountain thistle	Asteraceae	(Apr)May-Oct	FE	CE	1B.1	Chaparral (openings), Cismontane woodland, Meadows and seeps, Valley and foothill grassland	Seeps, Serpentine	150	575	Yes	1974-01-01	No Photo Available
<i>Cirsium praeteriens</i>	lost thistle	Asteraceae	Jun-Jul	None	None	1A			0	330	Yes	2001-01-01	No Photo Available
<i>Clarkia concinna</i> ssp. <i>automixa</i>	Santa Clara red ribbons	Onagraceae	(Apr)May-Jun(Jul)	None	None	4.3	Chaparral, Cismontane woodland		295	4920	Yes	1994-01-01	No Photo Available

<i>Clarkia lewisii</i>	Lewis' clarkia	Onagraceae	(Feb)May-Jul	None	None	4.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal scrub		100	3920	Yes	1980- 01-01	No Photo Available
<i>Collinsia corymbosa</i>	round-headed collinsia	Plantaginaceae	Apr-Jun	None	None	1B.2	Coastal dunes		0	65	Yes	1994- 01-01	 ©2007 Steve Matson
<i>Collinsia multicolor</i>	San Francisco collinsia	Plantaginaceae	(Feb)Mar- May	None	None	1B.2	Closed-cone coniferous forest, Coastal scrub	Serpentine (sometimes)	100	900	Yes	1974- 01-01	No Photo Available
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	Orchidaceae	Mar-Aug	None	None	4.2	Lower montane coniferous forest, North Coast coniferous forest	Seeps (usually), Serpentine (usually), Streambanks	330	7990		1980- 01-01	 © 2013 Scot Loring

<i>Dirca occidentalis</i>	western leatherwood	Thymelaeaceae	Jan-Mar(Apr)	None	None	1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North Coast coniferous forest, Riparian forest, Riparian woodland	Mesic	80	1395	Yes	1974- 01-01	 © 2017 Steve Matson
<i>Eleocharis parvula</i>	small spikerush	Cyperaceae	(Apr)Jun- Aug(Sep)	None	None	4.3	Marshes and swamps		5	9910		1980- 01-01	 ©2018 Ron Vanderhoff
<i>Elymus californicus</i>	California bottle-brush grass	Poaceae	May- Aug(Nov)	None	None	4.3	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest, Riparian woodland		50	1540	Yes	1974- 01-01	No Photo Available

<i>Eriogonum umbellatum</i> var. <i>bahiiforme</i>	bay buckwheat	Polygonaceae	Jul-Sep	None	None	4.2	Cismontane woodland, Lower montane coniferous forest	Rocky, Serpentine (often)	2295	7220	Yes	2001-01-01	No Photo Available
<i>Eriophyllum latilobum</i>	San Mateo woolly sunflower	Asteraceae	May-Jun	FE	CE	1B.1	Cismontane woodland (often roadsides), Coastal scrub, Lower montane coniferous forest		150	1085	Yes	1974-01-01	 Neal Kramer
<i>Eryngium aristulatum</i> var. <i>hooveri</i>	Hoover's button-celery	Apiaceae	(Jun)Jul(Aug)	None	None	1B.1	Vernal pools		10	150	Yes	1984-01-01	No Photo Available
<i>Eryngium jepsonii</i>	Jepson's coyote-thistle	Apiaceae	Apr-Aug	None	None	1B.2	Valley and foothill grassland, Vernal pools	Clay	10	985	Yes	2016-09-13	No Photo Available
<i>Extriplex joaquinana</i>	San Joaquin spearscale	Chenopodiaceae	Apr-Oct	None	None	1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland	Alkaline	5	2740	Yes	1988-01-01	No Photo Available

<i>Fissidens pauperculus</i>	minute pocket moss	Fissidentaceae		None	None	1B.2	North Coast coniferous forest (damp coastal soil)		35	3360		2001-01-01	 ©2021 Scot Loring
<i>Fritillaria liliacea</i>	fragrant fritillary	Liliaceae	Feb-Apr	None	None	1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland	Serpentine (often)	10	1345	Yes	1974-01-01	 © 2004 Carol W. Witham
<i>Hesperolinon congestum</i>	Marin western flax	Linaceae	Apr-Jul	FT	CT	1B.1	Chaparral, Valley and foothill grassland	Serpentine	15	1215	Yes	1974-01-01	 © 2009 Neal Kramer
<i>Hoita strobilina</i>	Loma Prieta hoita	Fabaceae	May-Jul(Aug-Oct)	None	None	1B.1	Chaparral, Cismontane woodland, Riparian woodland	Mesic, Serpentine (usually)	100	2820	Yes	2001-01-01	 © 2004 Janell Hillman
<i>Iris longipetala</i>	coast iris	Iridaceae	Mar-May(Jun)	None	None	4.2	Coastal prairie, Lower montane coniferous forest, Meadows and seeps	Mesic	0	1970	Yes	2006-10-12	 © 2014 Aaron Schusteff

<i>Lasthenia conjugens</i>	Contra Costa goldfields	Asteraceae	Mar-Jun	FE	None	1B.1	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools	Mesic	0	1540	Yes	1974-01-01	 © 2013 Neal Kramer
<i>Legenere limosa</i>	legenere	Campanulaceae	Apr-Jun	None	None	1B.1	Vernal pools		5	2885	Yes	1974-01-01	 ©2000 John Game
<i>Leptosiphon ambiguus</i>	serpentine leptosiphon	Polemoniaceae	Mar-Jun	None	None	4.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland	Serpentine (usually)	395	3710	Yes	1994-01-01	 © 2010 Aaron Schusteff
<i>Leptosiphon aureus</i>	bristly leptosiphon	Polemoniaceae	Apr-Jul	None	None	4.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland		180	4920	Yes	1994-01-01	 © 2007 Len Blumin

<i>Leptosiphon grandiflorus</i>	large-flowered leptosiphon	Polemoniaceae	Apr-Aug	None	None	4.2	Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland	Sandy (usually)	15	4005	Yes	1994-01-01	 © 2003 Doreen L. Smith
<i>Leptosiphon latisectus</i>	broad-lobed leptosiphon	Polemoniaceae	Apr-Jun	None	None	4.3	Broadleafed upland forest, Cismontane woodland		560	4920	Yes	2001-01-01	 © 2015 Steve Matson
<i>Lessingia hololeuca</i>	woolly-headed lessingia	Asteraceae	Jun-Oct	None	None	3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland	Clay, Serpentine	50	1000	Yes	1994-01-01	 © 2015 Aaron Schusteff

<i>Lessingia tenuis</i>	spring lessingia	Asteraceae	May-Jul	None	None	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	Openings	985	7055	Yes	1974- 01-01	 © 2020 Keir Morse
<i>Malacothamnus arcuatus</i> var. <i>arcuatus</i>	arcuate bushmallow	Malvaceae	Apr-Sep	None	None	1B.2	Chaparral, Cismontane woodland		50	1165	Yes	1974- 01-01	 © 2017 Keir Morse
<i>Malacothamnus hallii</i>	Hall's bushmallow	Malvaceae	(Apr)May- Sep(Oct)	None	None	1B.2	Chaparral, Coastal scrub		35	2495	Yes	1974- 01-01	 © 2017 Keir Morse
<i>Monolopia gracilens</i>	woodland woollythreads	Asteraceae	(Feb)Mar-Jul	None	None	1B.2	Broadleafed upland forest (openings), Chaparral (openings), Cismontane woodland, North Coast coniferous forest (openings), Valley and foothill grassland	Serpentine	330	3935	Yes	2010- 04-06	 © 2016 Richard Spellenberg

<i>Navarretia prostrata</i>	prostrate vernal pool navarretia	Polemoniaceae	Apr-Jul	None	None	1B.2	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools	Mesic	10	3970	Yes	2001-01-01	No Photo Available
<i>Pedicularis dudleyi</i>	Dudley's lousewort	Orobanchaceae	Apr-Jun	None	CR	1B.2	Chaparral (maritime), Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland		195	2955	Yes	1974-01-01	No Photo Available
<i>Piperia candida</i>	white-flowered rein orchid	Orchidaceae	(Mar-Apr)May-Sep	None	None	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	Serpentine (sometimes)	100	4300		1994-01-01	 ©2016 Barry Rice

<i>Piperia michaelii</i>	Michael's rein orchid	Orchidaceae	Apr-Aug	None	None	4.2	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal scrub, Lower montane coniferous forest		10	3000	Yes	1984- 01-01	No Photo Available
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris' popcornflower	Boraginaceae	Mar-Jun	None	None	1B.2	Chaparral, Coastal prairie, Coastal scrub	Mesic	10	525	Yes	1984- 01-01	No Photo Available
<i>Plagiobothrys chorisianus</i> var. <i>hickmanii</i>	Hickman's popcornflower	Boraginaceae	Apr-Jun	None	None	4.2	Chaparral, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Vernal pools		50	1280	Yes	2001- 01-01	No Photo Available

<i>Plagiobothrys glaber</i>	hairless popcornflower	Boraginaceae	Mar-May	None	None	1A	Marshes and swamps (coastal salt), Meadows and seeps (alkaline)		50	590	Yes	1974-01-01	No Photo Available
<i>Puccinellia simplex</i>	California alkali grass	Poaceae	Mar-May	None	None	1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools	Alkaline, Flats, Lake Margins, Vernal Mesic	5	3050		2015-10-15	 © 2017 Chris Winchell
<i>Ranunculus lobbii</i>	Lobb's aquatic buttercup	Ranunculaceae	Feb-May	None	None	4.2	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools	Mesic	50	1540		1974-01-01	 © 2018 John Doyen
<i>Ravenella exigua</i>	chaparral harebell	Campanulaceae	May-Jun	None	None	1B.2	Chaparral (rocky, usually serpentinite)		900	4100	Yes	1974-01-01	No Photo Available

<i>Sagittaria sanfordii</i>	Sanford's arrowhead	Alismataceae	May-Oct(Nov)	None	None	1B.2	Marshes and swamps (shallow freshwater)		0	2135	Yes	1984-01-01	 ©2013 Debra L. Cook
<i>Sanicula hoffmannii</i>	Hoffmann's sanicle	Apiaceae	Mar-May	None	None	4.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Lower montane coniferous forest	Clay (often), Serpentine (often)	100	985	Yes	1974-01-01	No Photo Available
<i>Senecio aphanactis</i>	chaparral ragwort	Asteraceae	Jan-Apr(May)	None	None	1B.2	Chaparral, Cismontane woodland, Coastal scrub	Alkaline (sometimes)	50	2625		1994-01-01	 Neal Kramer
<i>Spergularia macrotheca</i> var. <i>longistyla</i>	long-styled sand-spurrey	Caryophyllaceae	Feb-May	None	None	1B.2	Marshes and swamps, Meadows and seeps	Alkaline	0	835	Yes	2017-06-16	No Photo Available

<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	most beautiful jewelflower	Brassicaceae	(Mar)Apr-Sep(Oct)	None	None	1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentine	310	3280	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	northern slender pondweed	Potamogetonaceae	May-Jul	None	None	2B.2	Marshes and swamps (shallow freshwater)		985	7055		1994-01-01	 Dana York (2016)
<i>Suaeda californica</i>	California seablite	Chenopodiaceae	Jul-Oct	FE	None	1B.1	Marshes and swamps (coastal salt)		0	50	Yes	1988-01-01	 © 2010 Chris Winchell
<i>Trifolium amoenum</i>	two-fork clover	Fabaceae	Apr-Jun	FE	None	1B.1	Coastal bluff scrub, Valley and foothill grassland (sometimes serpentinite)		15	1360	Yes	1974-01-01	No Photo Available
<i>Trifolium buckwestiorum</i>	Santa Cruz clover	Fabaceae	Apr-Oct	None	None	1B.1	Broadleafed upland forest, Cismontane woodland, Coastal prairie	Gravelly	115	2000	Yes	1994-01-01	No Photo Available

<i>Trifolium hydrophilum</i>	saline clover	Fabaceae	Apr-Jun	None	None	1B.2	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools	0	985	Yes	2001-01-01	 © 2005 Dean Wm Taylor
<i>Usnea longissima</i>	Methuselah's beard lichen	Parmeliaceae		None	None	4.2	Broadleafed upland forest, North Coast coniferous forest	165	4790		2014-03-01	 © 2021 Scot Loring

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SNAME	CNAME	ELMCODE	OCCNUMBER	KQUADNAME	ELEVATION	PRESENCE	OCCTYPE	OCCRANK	ELMDATE	FEDLIST	CALLIST	GRANK	SRANK	RPLANTRANK
Centromadia parryi ssp. congdonii	Congdon's tarplant	PDAST4R0P1		53 Mountain View		5 Presumed Extant	Natural/Native occurrence	Fair	20190719	None	None	G3T2	S2	18.1
Centromadia parryi ssp. congdonii	Congdon's tarplant	PDAST4R0P1		102 Mountain View		5 Presumed Extant	Natural/Native occurrence	Poor	20130816	None	None	G3T2	S2	18.1

SNAME	CNAME	OCCNUMBER	KQUADNAME	ACCURACY	PRESENCE	OCCTYPE	OCCRANK	ELMDATE	FEDLIST	CALLIST	CDFWSTATUS
Melospiza melodia pusillula	Alameda song sparrow	26	Palo Alto	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	19080919	None	None	SSC
Melospiza melodia pusillula	Alameda song sparrow	17	Mountain View	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	19840406	None	None	SSC
Melospiza melodia pusillula	Alameda song sparrow	25	Milpitas	3/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	19470916	None	None	SSC
Melospiza melodia pusillula	Alameda song sparrow	24	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19471003	None	None	SSC
Melospiza melodia pusillula	Alameda song sparrow	7	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20040515	None	None	SSC
Melospiza melodia pusillula	Alameda song sparrow	1	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20040519	None	None	SSC
Astragalus tener var. tener	alkali milk-vetch	11	Mountain View	1 mile	Possibly Extirpated	Natural/Native occurrence	None	19050404	None	None	
Astragalus tener var. tener	alkali milk-vetch	68	Milpitas	1 mile	Possibly Extirpated	Natural/Native occurrence	None	190504XX	None	None	
Taxidea taxus	American badger	643	Mountain View	1 mile	Possibly Extirpated	Natural/Native occurrence	None	1920XXXX	None	None	SSC
Taxidea taxus	American badger	642	Palo Alto	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	20190531	None	None	SSC
Falco peregrinus anatum	American peregrine falcon	52	Mindogo Hill	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	20180601	Delisted	Delisted	
Falco peregrinus anatum	American peregrine falcon	33	San Jose West	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	20150422	Delisted	Delisted	
Rynchops niger	black skimmer	7	Mountain View	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	20150808	None	None	SSC
Athene cunicularia	burrowing owl	26	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	20160401	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	24	Mountain View	3/5 mile	Possibly Extirpated	Natural/Native occurrence	None	XXXXXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	392	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20160109	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	480	Milpitas	2/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	1971XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	215	Mountain View	2/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	19930622	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	212	Milpitas	non-specific area	Possibly Extirpated	Natural/Native occurrence	None	20110922	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	1932	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	2004XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	25	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	20080528	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	1032	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Poor	2004XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	345	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	20140307	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	340	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	2002XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	27	Mountain View	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	198301XX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	20	Cupertino	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	1983XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	22	Mountain View	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	1983XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	21	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	20080129	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	23	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	2004XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	491	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Poor	2002XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	1031	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Poor	2003XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	1033	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Poor	2004XXXX	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	1927	Milpitas	80 meters	Presumed Extant	Natural/Native occurrence	Good	20100205	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	555	Milpitas	80 meters	Presumed Extant	Natural/Native occurrence	Fair	20021121	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	669	Milpitas	80 meters	Presumed Extant	Natural/Native occurrence	Fair	20040314	None	Candidate	Endangered SSC
Athene cunicularia	burrowing owl	1235	Mountain View	80 meters	Presumed Extant	Natural/Native occurrence	Poor	2002XXXX	None	Candidate	Endangered SSC
Laterallus jamaicensis coturniculus	California black rail	286	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20120330	None	Threatened	FP
Laterallus jamaicensis coturniculus	California black rail	193	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20080314	None	Threatened	FP
Laterallus jamaicensis coturniculus	California black rail	301	Mountain View	1/10 mile	Presumed Extant	Natural/Native occurrence	Good	20130330	None	Threatened	FP
Laterallus jamaicensis coturniculus	California black rail	302	Mountain View	1/10 mile	Presumed Extant	Natural/Native occurrence	Good	20140923	None	Threatened	FP
Laterallus jamaicensis coturniculus	California black rail	299	Milpitas	specific area	Presumed Extant	Natural/Native occurrence	Unknown	20150827	None	Threatened	FP
Sternula antillarum browni	California least tern	67	Mountain View	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	19870727	Endangered	Endangered	FP
Sternula antillarum browni	California least tern	68	Mountain View	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	19870731	Endangered	Endangered	FP
Rana draytonii	California red-legged frog	230	Palo Alto	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20221221	Threatened	None	SSC
Rallus obsoletus obsoletus	California Ridgway's rail	35	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	1975XXXX	Endangered	Endangered	FP
Rallus obsoletus obsoletus	California Ridgway's rail	60	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20060201	Endangered	Endangered	FP
Rallus obsoletus obsoletus	California Ridgway's rail	41	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19790128	Endangered	Endangered	FP
Rallus obsoletus obsoletus	California Ridgway's rail	45	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20180312	Endangered	Endangered	FP
Rallus obsoletus obsoletus	California Ridgway's rail	20	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	1975XXXX	Endangered	Endangered	FP
Rallus obsoletus obsoletus	California Ridgway's rail	42	Mountain View	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	1975XXXX	Endangered	Endangered	FP
Rallus obsoletus obsoletus	California Ridgway's rail	84	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20010206	Endangered	Endangered	FP
Suaeda californica	California seablite	8	Mountain View	non-specific area	Possibly Extirpated	Natural/Native occurrence	None	19710808	Endangered	None	
Centromadia parryi ssp. congdonii	Congdon's tarplant	41	Milpitas	specific area	Presumed Extant	Natural/Native occurrence	Good	20160708	None	None	
Centromadia parryi ssp. congdonii	Congdon's tarplant	53	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Fair	20190719	None	None	
Centromadia parryi ssp. congdonii	Congdon's tarplant	18	Milpitas	specific area	Presumed Extant	Natural/Native occurrence	Good	20150728	None	None	
Centromadia parryi ssp. congdonii	Congdon's tarplant	102	Mountain View	80 meters	Presumed Extant	Natural/Native occurrence	Poor	20130816	None	None	
Centromadia parryi ssp. congdonii	Congdon's tarplant	103	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Fair	20190718	None	None	
Allium peninsulare var. franciscanum	Franciscan onion	2	Palo Alto	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19490519	None	None	
Malacothamnus hallii	Hall's bushmallow	32	Milpitas	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	19550801	None	None	
Lasiurus cinereus	hoary bat	95	Mountain View	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	19901121	None	None	
Eryngium aristulatum var. hooveri	Hoover's button-celery	9	Milpitas	1 mile	Possibly Extirpated	Natural/Native occurrence	None	19021019	None	None	
Eryngium aristulatum var. hooveri	Hoover's button-celery	5	Mountain View	1 mile	Possibly Extirpated	Natural/Native occurrence	None	19090624	None	None	
Eryngium aristulatum var. hooveri	Hoover's button-celery	8	Milpitas	1 mile	Possibly Extirpated	Natural/Native occurrence	None	19021020	None	None	
Spirinchus thaleichthys pop. 2	longfin smelt - San Francisco Bay-Delta DPS	22	Redwood Point	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	1995XXXX	Endangered	Threatened	
Tryonia imitator	mimic tryonia (=California brackishwater snail)	36	Milpitas	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	XXXXXXX	None	None	
Tryonia imitator	mimic tryonia (=California brackishwater snail)	32	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Unknown	198611XX	None	None	
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	16	Newark	specific area	Presumed Extant	Natural/Native occurrence	Unknown	19851024	None	None	
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	15	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Good	197706XX	None	None	
Circus hudsonius	northern harrier	4	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19710601	None	None	SSC
Actinemys marmorata	northwestern pond turtle	1261	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20230617	Proposed Threatened	None	SSC
Actinemys marmorata	northwestern pond turtle	1628	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19870513	Proposed Threatened	None	SSC
Actinemys marmorata	northwestern pond turtle	1631	Mountain View	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	20210412	Proposed Threatened	None	SSC
Actinemys marmorata	northwestern pond turtle	1626	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Unknown	20220705	Proposed Threatened	None	SSC
Actinemys marmorata	northwestern pond turtle	1472	Milpitas	specific area	Presumed Extant	Natural/Native occurrence	Unknown	20170512	Proposed Threatened	None	SSC

SNAME	CNAME	OCCNUMBER	KQUADNAME	ACCURACY	PRESENCE	OCCTYPE	OCCRANK	ELMDATE	FEDLIST	CALLIST	CDFWSTATUS
Actinemys marmorata	northwestern pond turtle	1627	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Fair	20210902	Proposed Threatened	None	SSC
Actinemys marmorata	northwestern pond turtle	1630	Mountain View	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	20180513	Proposed Threatened	None	SSC
Actinemys marmorata	northwestern pond turtle	1629	Mountain View	80 meters	Presumed Extant	Natural/Native occurrence	Fair	20221107	Proposed Threatened	None	SSC
Antrozous pallidus	pallid bat	253	Mountain View	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	19450806	None	None	SSC
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	19	Mountain View	1 mile	Possibly Extirpated	Natural/Native occurrence	None	19151025	None	None	
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	22	Milpitas	1 mile	Extirpated	Natural/Native occurrence	None	19050621	None	None	
Trifolium hydrophilum	saline clover	26	Milpitas	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	1892XXXX	None	None	
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	10	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19980811	None	None	SSC
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	45	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Good	19990630	None	None	SSC
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	8	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20040516	None	None	SSC
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	55	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	20160516	None	None	SSC
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	54	Mountain View	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	1985XXXX	None	None	SSC
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	46	Mountain View	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	1985XXXX	None	None	SSC
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	118	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Good	20160518	None	None	SSC
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	72	Milpitas	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	1985XXXX	None	None	SSC
Reithrodontomys raviventris	salt-marsh harvest mouse	115	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Good	19901216	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	129	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19910722	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	81	Milpitas	specific area	Presumed Extant	Natural/Native occurrence	Unknown	1984XXXX	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	26	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	1975XXXX	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	7	Mountain View	1/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	198512XX	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	92	Milpitas	specific area	Presumed Extant	Natural/Native occurrence	Unknown	198608XX	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	148	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Excellent	19900830	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	132	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Fair	19901012	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	133	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	19901130	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	130	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Good	19901026	Endangered	Endangered	FP
Reithrodontomys raviventris	salt-marsh harvest mouse	151	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Unknown	1988XXXX	Endangered	Endangered	FP
Sorex vagrans halicoetes	salt-marsh wandering shrew	10	Milpitas	1 mile	Extirpated	Natural/Native occurrence	None	19510805	None	None	SSC
Sorex vagrans halicoetes	salt-marsh wandering shrew	1	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	1976XXXX	None	None	SSC
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat	22	Cupertino	1/10 mile	Presumed Extant	Natural/Native occurrence	Good	20160330	None	None	SSC
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	4	La Honda	3/5 mile	Presumed Extant	Natural/Native occurrence	Good	198312XX	Endangered	Endangered	FP
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	21	La Honda	non-specific area	Presumed Extant	Natural/Native occurrence	Excellent	19870515	Endangered	Endangered	FP
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	24	Mindego Hill	1/5 mile	Presumed Extant	Natural/Native occurrence	Good	20120517	Endangered	Endangered	FP
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	22	Mindego Hill	2/5 mile	Presumed Extant	Natural/Native occurrence	Good	20020408	Endangered	Endangered	FP
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	74	Mindego Hill	1/10 mile	Presumed Extant	Natural/Native occurrence	Unknown	198312XX	Endangered	Endangered	FP
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	23	Mindego Hill	1/5 mile	Presumed Extant	Natural/Native occurrence	Good	20120625	Endangered	Endangered	FP
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	75	Palo Alto	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19220531	Endangered	Endangered	FP
Egretta thula	snowy egret	13	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	2005XXXX	None	None	
Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	44	Santa Teresa Hills	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	20170627	Threatened	None	SSC
Corynorhinus townsendii	Townsend's big-eared bat	428	Mountain View	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	19461124	None	None	SSC
Corynorhinus townsendii	Townsend's big-eared bat	647	Cupertino	80 meters	Possibly Extirpated	Natural/Native occurrence	None	20150709	None	None	SSC
Corynorhinus townsendii	Townsend's big-eared bat	646	Cupertino	80 meters	Presumed Extant	Natural/Native occurrence	Fair	20171006	None	None	SSC
Agelaius tricolor	tricolored blackbird	911	Milpitas	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	1993XXXX	None	Threatened	SSC
Gonidea angulata	western ridged mussel	143	Milpitas	non-specific area	Possibly Extirpated	Natural/Native occurrence	None	1908XXXX	None	None	
Gonidea angulata	western ridged mussel	141	Milpitas	non-specific area	Possibly Extirpated	Natural/Native occurrence	None	1908XXXX	None	None	
Charadrius nivosus nivosus	western snowy plover	127	Milpitas	non-specific area	Presumed Extant	Natural/Native occurrence	Good	2009XXXX	Threatened	None	SSC
Charadrius nivosus nivosus	western snowy plover	128	Mountain View	specific area	Presumed Extant	Natural/Native occurrence	Good	20020109	Threatened	None	SSC
Elanus leucurus	white-tailed kite	80	Milpitas	80 meters	Presumed Extant	Natural/Native occurrence	Good	20040415	None	None	FP
Coturnicops noveboracensis	yellow rail	13	Palo Alto	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	19111117	None	None	SSC
Coturnicops noveboracensis	yellow rail	12	Mountain View	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	1901XXXX	None	None	SSC
Coturnicops noveboracensis	yellow rail	43	Mountain View	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	19880117	None	None	SSC
Coturnicops noveboracensis	yellow rail	11	Milpitas	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	20131022	None	None	SSC

IPaC resource list

This information is currently unavailable. We are aware of the problem and working on a solution. In the meantime, you can obtain similar project-specific bird occurrence results using the [AKN RAIL tool](#). ✕

could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

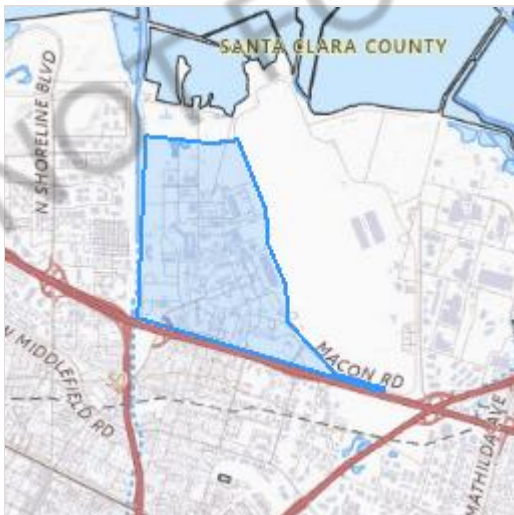
Project information

NAME

BSC Moffat Field

LOCATION

Santa Clara County, California



DESCRIPTION

Some(The project site is on federal land within the NASA Ames Research Center (ARC), an approximately 2,000-acre facility located between U.S. 101 and the southwestern edge of San Francisco Bay. The city of Mountain View borders the NASA ARC to the north and southwest; the city of Sunnyvale borders the NASA ARC to the southeast and east. The NASA ARC is

approximately 33 miles south of the city of San Francisco and 8 miles north of the city of San José. As part of the NASA Ames Development Plan (NADP), development was considered in four areas at NASA ARC, commonly referred to as the NASA Research Park (NRP), Eastside/Airfield, Bay View, and Ames Campus. The approximately 40-acre project site is within the NRP.)

Local offices

San Francisco Bay-Delta Fish And Wildlife

☎ (916) 930-5603

📠 (916) 930-5654

650 Capitol Mall

Suite 8-300

Sacramento, CA 95814

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
 2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Condor <i>Gymnogyps californianus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern <i>Sternula antillarum browni</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway's Rail <i>Rallus obsoletus obsoletus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle <i>Chelonia mydas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle <i>Actinemys marmorata</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog <i>Rana boylei</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5133	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found There is proposed critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Crustaceans

NAME	STATUS
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
------	--------

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6310>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The [data](#) in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the [Supplemental Information on Migratory Birds and Eagles document](#) to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden->

Bald and Golden Eagle information is not available at this time

Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior [authorization](#) by the Department of Interior U.S. Fish and Wildlife Service (FWS). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The FWS interprets the MBTA to prohibit incidental take.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Migratory bird information is not available at this time

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Bald and Golden Eagle Protection Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then

the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1Ch](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix B

Representative Photographs

The representative photographs were taken during a reconnaissance survey of the study area on June 10, 2025.



Photo 1 – Ruderal annual grassland west of Zook Road, mowed.



Photo 2 – Perennial grassland west of Zook Road, mowed.



Photo 3 – Potential Emergent wetland within the study area.



Photo 4 – Potential Emergent wetland adjacent and northwest of the study area.



Photo 5 – Developed land cover.



Photo 6 – Vacant buildings within developed land cover.

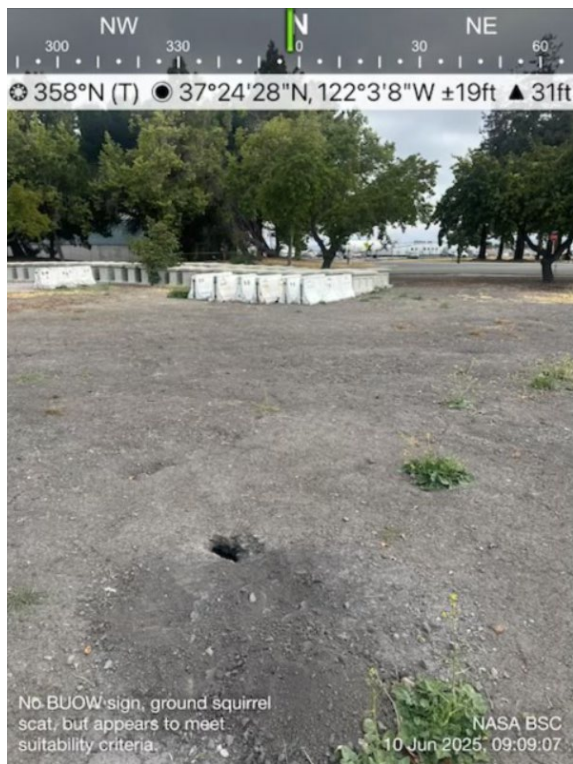


Photo 7 – Disturbed land cover.

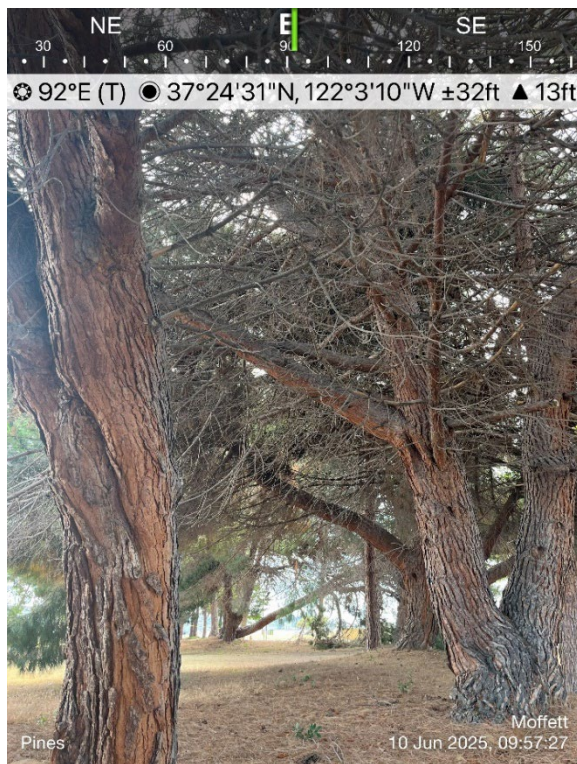


Photo 8 – Mature pine trees within the developed area.



Photo 9 – Security fence along Zook Road.



Photo 10 – Security fence along Zook Road.



Photo 11 – Security fence along Zook Road.



Photo 12 – Security fence adjacent to burrowing owl habitat.



**Photo 13 – Burrow in ruderal annual grassland
along Zook Road.**



**Photo 14 – Insect nectary source (bird's foot
trefoil) along Zook Road adjacent and north of
the study area.**



Photo 15 – Debris piles off Zook Road.

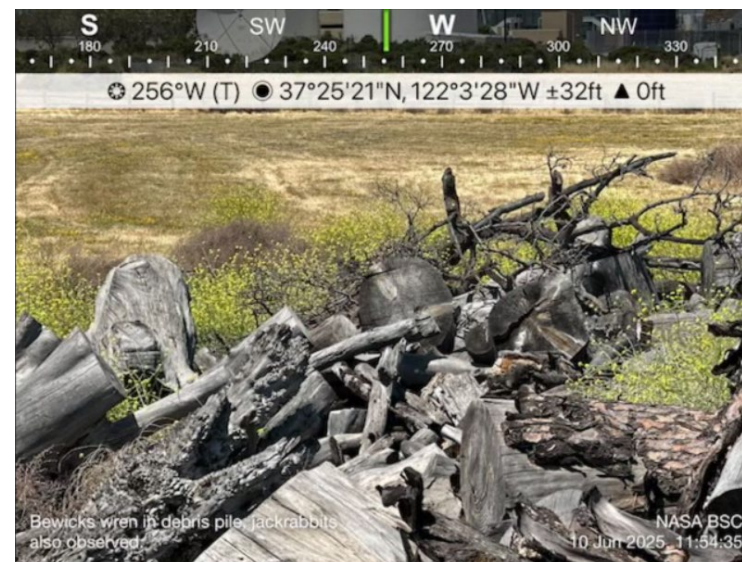


Photo 16 – Debris pile off Zook Road



Photo 17 – Annual grassland along Zook Road.

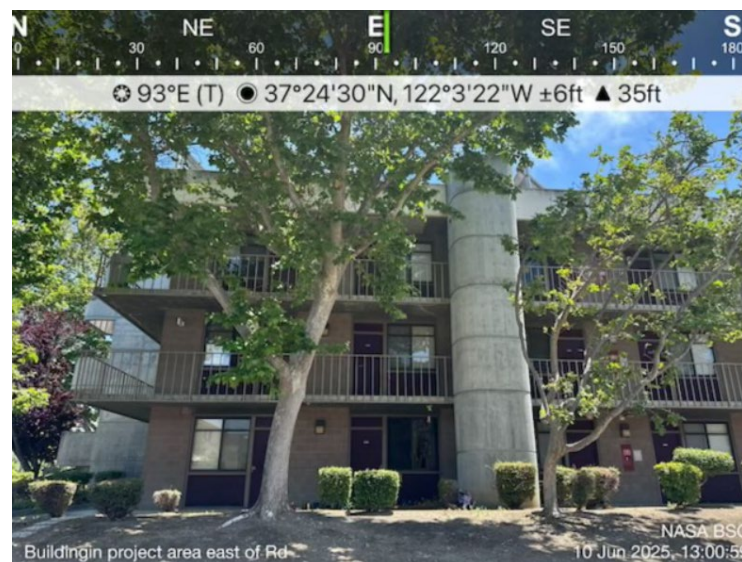


Photo 18 – Developed area.



Photo 19 – Building to be demolished near Gorsky Road.



Photo 20 – Developed area.



Photo 21 – Structure in developed area with cliff swallow nests.



Photo 22 – Structure in developed area with cliff swallow nests.



Photo 23 – Mature hardwood trees in developed area.



Photo 24 – Mature conifer trees in developed area.



Photo 25 – Vacant buildings in developed area.

Preliminary Arborist Report



Preliminary Arborist Report

Ames Research Center Mountain View (Santa Clara County), CA

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Preliminary Arborist Report
Ames Research Center
Mountain View (Santa Clara County), CA

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Preliminary Arborist Report

Ames Research Center
Mountain View (Santa Clara County), CA

Introduction and Overview

Moffett Properties LLC. are planning to redevelop a part of the Ames Research Center in Mountain View (Santa Clara County), CA. Currently, the site consists of several buildings, parking lots, and remnant landscaping. HortScience | Bartlett Consulting (Divisions of The F.A. The Bartlett Expert Tree Company) was asked to prepare a **Preliminary Arborist Report** to evaluate tree impacts before, during, and after construction.

Italian stone pine #191 was uprooting and was leaning on Italian stone pine #192 (Photo 1). Property managers were notified on August 19. I recommend that tree #191 be removed as soon as possible to avoid damage to people and property.

Photo 1. Italian stone pine #191 had was uprooting and was leaning on the neighboring tree (#192).



This report provides the following information:

1. An assessment of each tree's health, structure, suitability for preservation, and protected status within and adjacent to the proposed project area.
2. A preliminary assessment of the impacts on trees within the construction footprint and recommendations for action.
3. Preliminary guidelines for tree preservation throughout the planned demolition and construction phases of the project.

Recommendations for the preservation of trees can be found in the **Preliminary Evaluation of Impacts** section.

Assessment Methods

Trees were assessed on August 19, 21, and September 20, 2024. The tree assessment included all trees 6 inches in diameter and greater on the property. The assessment procedure consisted of the following steps:

1. Identifying the tree species with a trunk diameter of 6 inches and greater within the property and adjacent trees overhanging the property.
2. Tagging trees with identification numbers and recording their locations on a map.
3. Measuring the trunk diameter at a point 54 inches above grade.
4. Evaluating the health and structural condition using a scale of 1 – 5 based on visual inspection from the ground:
 - 5 - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
 - 4 - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
 - 3 - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
 - 2 - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
 - 1 - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as “high,” “moderate” or “low.” Suitability for preservation considers the health, age and structural condition of the tree, and its potential to remain an asset to the site for years to come.

High: Trees with good health and structural stability that have the potential for longevity at the site.

Moderate: Trees with somewhat declining health and/or structural defects than can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in ‘high’ category.

Low: Trees in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

Description of Trees

A total of 245 trees were assessed, representing 42 species. One-hundred thirty-seven trees were in fair condition just under 60% of the total population. Sixty-seven (67) trees were in poor condition and 39 were in good condition. Trees #92 and 132 were dead. Descriptions of each tree are found in the **Tree Assessment Form** and approximate locations are shown on the **Tree Assessment Plan** (see *Exhibits*).

**Table 1: Condition ratings and frequency of occurrence of trees.
Ames Research Center, Mountain View (Santa Clara County), CA**

Common Name	Scientific Name	Condition				Total
		Dead (0)	Poor (1-2)	Fair (3)	Good (4-5)	
European white birch	<i>Betula pendula</i>	-	2	1	-	3
Incense cedar	<i>Calocedrus decurrens</i>	-	1	-	-	1
Blue atlas cedar	<i>Cedrus atlantica</i> 'Glaucua'	-	-	1	3	4
European hackberry	<i>Celtis australis</i>	-	-	1	-	1
Carob	<i>Ceratonia siliqua</i>	-	2	2	-	4
Loquat	<i>Eriobotrya japonica</i>	-	1	1	-	2
Red flowering gum	<i>Eucalyptus ficifolia</i>	-	-	1	1	2
Red ironbark	<i>Eucalyptus sideroxylon</i>	-	1	-	-	1
Raywood ash	<i>Fraxinus angustifolia</i> 'Raywood'	-	2	-	-	2
Evergreen ash	<i>Fraxinus uhdei</i>	-	-	6	-	6
Honey locust	<i>Gleditsia triacanthos</i>	-	1	-	-	1
Arizona cypress	<i>Hesperocyparis arizonica</i>	-	-	1	2	3
Leyland cypress	x <i>Hesperotropsis leylandii</i>	-	-	1	-	1
Hollywood juniper	<i>Juniperus chinensis</i> 'Kaizuka'	-	-	-	1	1
Goldenrain tree	<i>Koelreuteria paniculata</i>	-	-	1	-	1
Crape myrtle	<i>Lagerstroemia indica</i>	-	-	-	4	4
Glossy privet	<i>Ligustrum lucidum</i>	-	12	21	1	34
Sweetgum	<i>Liquidambar styraciflua</i>	-	-	3	-	3
Tulip tree	<i>Liriodendron tulipifera</i>	1	5	3	-	9
Cajeput paperbark tree	<i>Melaleuca quinquenervia</i>	-	-	-	3	3
Fruitless white mulberry	<i>Morus alba</i> 'Fruitless'	-	2	-	-	2
Mulberry	<i>Morus</i> sp.	-	2	-	-	2
Prunus	<i>Prunus</i> sp.	1	-	-	-	1
Canary Island pine	<i>Pinus canariensis</i>	-	-	10	5	15
Coulter pine	<i>Pinus coulteri</i>	-	-	-	4	4
Italian stone pine	<i>Pinus pinea</i>	-	1	9	-	10
Chinese pistache	<i>Pistacia chinensis</i>	-	-	2	-	2
Tarata pittosporum	<i>Pittosporum tenuifolium</i>	-	-	4	-	4
Victorian box	<i>Pittosporum undulatum</i>	-	5	3	-	8
London plane	<i>Platanus x hispanica</i>	-	22	43	-	65
Fremont cottonwood	<i>Populus fremontii</i>	-	1	-	-	1
Cherry	<i>Prunus avium</i>	-	2	-	-	2
Purpleleaf plum	<i>Prunus cerasifera</i>	-	-	1	-	1
Almond	<i>Prunus dulcis</i>	-	1	1	-	2
Hollyleaf cherry	<i>Prunus ilicifolia</i>	-	-	1	-	1
Evergreen pear	<i>Pyrus kawakamii</i>	-	-	4	-	4
Cork oak	<i>Quercus suber</i>	-	-	-	3	3
Italian buckthorn	<i>Rhamnus alaternus</i>	-	-	2	-	2
Weeping willow	<i>Salix babylonica</i>	-	-	2	1	3
Coast redwood	<i>Sequoia sempervirens</i>	-	4	8	6	18
American arborvitae	<i>Thuja occidentalis</i>	-	-	4	3	7
Mexican fan palm	<i>Washingtonia robusta</i>	-	-	-	2	2
Total		2	67	137	39	245

The most common tree assessed was London plane with 65 trees or 26% of the total population. Forty-three (43) were in fair condition and 22 were in poor condition. The London planes were generally growing in parking lots (Photo 2). Trees ranged in diameter from 5 to 30 inches. Trees had varying degrees of anthracnose with some trees having little to no foliage. Dead and dying branches were prevalent.

Tulip trees were growing in close proximity to the London planes, also being used as parking lot trees. Five trees were in poor condition with severe infestations with aphids and dead and dying branches. Three were in fair condition, tree #132 was dead. Trees were small with diameters from 7 to 11 inches.

Glossy privet was the second most frequently occurring species with 34 trees. Tree #81 was in good condition; 21 trees were in fair condition and 12 trees were in poor condition. Glossy private was the only tree species growing in the yard area of a building on Edquiba Rd. Trees were growing close together in a single row lining a fence with narrow suppressed crowns, and dead and dying branches (Photo 3).

Eighteen (18) coast redwoods were assessed. Six trees were in good condition, eight were in fair condition and just four were in poor condition. A group of good condition coast redwoods (#181-183) was growing between the street and parking lot. The trees had excurrent form typical of the species, characterized by a central stem and well-distributed lateral branches (Photo 4).

Photo 3, right. Glossy privets #151-157 were crowded. Trees had high, narrow, suppressed crowns.

Photo 4, bottom right. A group of good condition mature coast redwoods (#181-183) was growing in the space between the street and parking lot.

Photo 2, below. Tulip tree #72 and London plane #73 were growing in a parking lot, both represent typical trees for the species and growing conditions.



Of the 15 Canary Island pine trees assessed five were in good condition and 10 trees were in fair condition. Trees were mature in development with diameters of 16 to 36 inches.

Ten (10) Italian stone pines were evaluated. Nine were in fair condition. Tree #191 was uprooting (note, page 1). The stone pines were large trees with diameters of 18 to 51 inches.

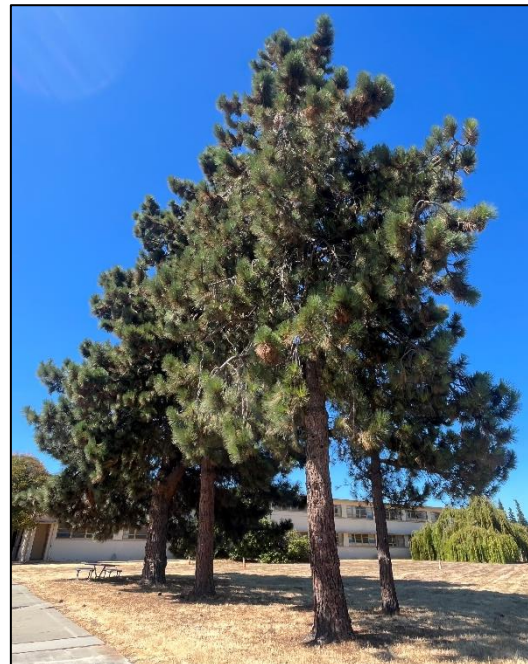
Of the eight Victorian box trees assessed, three were in fair condition and five were in poor condition. Five Victorian box trees had multiple trunks ranging in diameter from 4 to 10 inches. The three trees with single trunks ranged from 21 to 7 inches in diameter.

Seven American arborvitae included three trees in good condition and four in poor condition. Tree #146 had a partially failed stem that was still living and remainder of the crown had patchy dieback.

Six mature fair condition evergreen ash were evaluated. Trees were mature with trunks ranging from 21 to 44 inches in diameter. Trees had varying degrees of dieback.

Six species were represented by four trees (blue Atlas cedar, Coulter pine, crape myrtle, carob, evergreen pear, and tarata pittosporum). The Coulter pines, crape myrtles were in good condition, along with three blue Atlas cedars. Four evergreen pear and tarata pittosporum, two carobs, and one blue Atlas cedar were in fair condition. Two carobs were in poor condition. The group of Coulter pines #42-45 was growing along Dailey Rd. These trees were well adapted to the site (Photo 5). Crape myrtles #53-56 were healthy well-formed trees in good condition. Diameters measured either 10 or 11 inches.

Photo 5. Coulter pines #42-45 were healthy mature trees.



Three weeping willows were assessed, two were in fair condition and one was in good condition (#47, 111, and 112). The trees were semi-mature in development, ranging in diameter from 15 to 23 inches. These trees had umbrella form with foliage to the ground.

Three cork oaks were in good condition and mature in development. The largest of which was #87 with a 52-inch diameter. The tree was a specimen tree. Trees #87 and 118 had 23-inch diameter (Photo 6).

Photo 6. Cork oak #118 was in good condition.

Two of the three Arizona cypresses assessed were in good condition and tree #114 was in fair condition. These trees had diameters ranging from 16 to 30 inches.



The three cajuput paperbark tree evaluated were in good condition with healthy growth. These trees seemed to be thriving with little maintenance. These trees ranged in diameter from 16 to 35 inches. Alternatively, the three sweetgums assessed were in fair condition. Trees had diameters of 12, 14, and 15 inches.

Of the three European white birch assessed two were in poor condition, tree #95 was in fair condition.

Photo 7. Loquat #46 had failed in two places at the base and the lowest branch had split out.



Ten species were represented by two trees (red flowering gum, Mexican fan palm, almond, cherry, Chinese pistache, fruitless white mulberry, Italian buckthorn, loquat, mulberry, and Raywood ash). Four species had both trees in poor condition, cherry, fruitless white mulberry, mulberry, and Raywood ash. Almond and loquat both had one tree in poor condition and one in fair condition. Loquat #46 had healthy vigorous growth but had failed and was growing while resting on the ground (Photo 7). Both of the Chinese pistache and Italian buckthorn trees were in fair condition. Red flowering gum had one tree in good condition and one tree in fair condition. Both Mexican fan palms were in good condition.

Hollywood juniper #86 was in good condition. The tree was mature with three trunks of 27, 13, and 12 inches.

Purpleleaf plum #30, hollyleaf cherry #50, goldenrain tree #57, Leyland cypress #108, and European hackberry #230 were in fair condition. Hollyleaf cherry #50 had a single stem of 19 inches. The other four trees had multiple stems ranging in diameter from 2 to 9 inches.

Santa Clara County Heritage Tree Ordinance

Santa Clara County Code, Section C16-2, describes *Protected* trees as any tree having a main trunk or stem measuring 37.7 inches or greater in circumference or 12 inches or more in diameter at a height of 4.5 feet above ground level. Multi-trunk trees require a total of 75.4 inches in circumference (24 inches or more of the diameter) of all trunks. All trees on public property are *Protected*. Given this definition, 158 trees qualify as *Protected*. Individual delineations are described in the **Tree Assessment** (see *Exhibits*). Protected trees are regulated by Santa Clara County and cannot be removed without a permit.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment, and perform well in the landscape. Our goal is to identify trees that have the potential for long-term health, structural stability, and longevity within the proposed development.

Evaluation of suitability for preservation considers several factors as listed below:

- **Tree health**
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees. Some trees at the site had thrived with little to no maintenance, and several trees had either died or were in very poor health (e.g. mulberries #143 and 144).
- **Structural integrity**
Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely. Italian stone pine #191 had partially failed and was resting in the crown of a neighboring tree. Loquat #46 had also failed and was resting on the ground.
- **Species response**
There is a wide variation in the response of individual species to construction impacts and changes in the environment. For example, London plane and coast redwood are tolerant of root severance and general construction impacts. Italian stone pine is moderately tolerant.
- **Tree age and longevity**
Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change. Most trees at the site were semi-mature or mature.
- **Invasiveness**
Species that spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (<http://www.cal-ipc.org/paf/>) lists species identified as being invasive. Mountain View (Santa Clara County) is part of the Central West Floristic Province. Glossy privet and purpleleaf plum have limited invasive potential. Mexican fan palm has moderate invasive potential.

Each tree was rated for suitability for preservation based on its age, health, structural condition, and ability to safely coexist within a development environment (Table 2, next page). We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend the retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

**Table 2: Tree Suitability for Preservation
Ames Research Center, Mountain View (Santa Clara County), CA**

High	These are trees with good health and structural stability that have the potential for longevity at the site. Fourteen (14) trees had high suitability for preservation represented by the following species: cork oak, Canary Island pine, blue Atlas cedar, cajeput paperbark tree, coast redwood, and crape myrtle.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring and may have shorter lifespans than those in the “high” category. Eighty-eight (88) trees had moderate suitability for preservation represented by the following species: 17 London planes; 11 Canary Island pines; eight coast redwoods; eight Italian stone pine; five glossy privet; five American arborvitae; five evergreen ashes; four Coulter pines; three tarata pittosporums; three Arizona cypresses; three sweetgums; three weeping willows; two cork oaks; two blue Atlas cedars; two Mexican fan palms; goldenrain tree #57; Hollywood juniper #86; Chinese pistache #89; evergreen pear #100; Leyland cypress #108; loquat #178; and red flowering gum #214.
Low	Trees in this category are in poor health or have significant defects in structure that cannot be mitigated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. One hundred forty-one (141) trees had low suitability for preservation represented by the following species: 48 London planes; 29 glossy privets; eight tulip trees; eight Victorian box trees; seven coast redwoods; four carobs; three European white birch; three Canary Island pines; three evergreen pears; two almonds; two cherries; two fruitless white mulberries; two Italian buckthorns; two Raywood ashes; two Italian stone pines; two American arborvitaes; purpleleaf plum #30; red ironbark #37; hollyleaf cherry #50; honey locust #52; Chinese pistache #88; evergreen ash #102; Fremont cottonwood #141; tarata pittosporum #213; European hackberry #230; incense cedar #97; loquat #46; and red flowering gum #66.

Note: Trees #92 and 132 were dead, and excluded from this table.

Preliminary Evaluation of Impacts and Recommendations

Appropriate tree retention requires a practical match between the location and intensity of construction activities with the quality and health of trees. The **Tree Assessment Form** was the reference point for tree condition and quality. I reviewed the Tree Removal sheet dated August 23, 2024, to evaluate impacts to trees. Plans are in the preliminary stages of development. As such, recommendations for preservation and removal are preliminary. Final disposition should be reevaluated when grading, utility, and landscape plans are available.

Plans depict the demolition of the existing structures and construction of six new structures, walkways, roadways, and new plant material. The proposed plans leave little space for preservation of trees. Based on my evaluation of the proposed site plan, 18 (all *Protected*) appear to be within the construction area but can potentially be preserved. The remaining 227 trees (140 *Protected*) will be removed. However, I recommend reviewing locations of cork oaks for possible preservation. Disposition and Tree Protection Zone (TPZ) recommendations can be found in on below. Approximate Individual Tree Disposition can be found in the **Tree Disposition Table** (see *Exhibits*).

Cork oak #87 was a specimen tree located close to the edge of a proposed building. I recommend special attention be paid to investigating preservation of this tree. Options to consider may include relocation of the nearest edge of the building or exploratory excavation to investigate the presence and size of roots in the work area. The Preliminary Tree Preservation Guidelines are recommendations for design and development and do not represent requirements from the governing body.

Preliminary Tree Preservation Guidelines

Design recommendations

1. Plot accurate locations of all trees to be preserved on all project plans. Identify the **TREE PROTECTION ZONE** for each tree. Focus on preserving trees that have high suitability for preservation.
2. Any changes to the plans impacting trees should be reviewed by the project arborist with regard to tree impacts. These include, but are not limited to, site plans, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans, and demolition plans.
3. Plan for tree preservation by designing adequate space around trees to be preserved. This is the **TREE PROTECTION ZONE**: No grading, excavation, construction or storage of materials should occur within that zone. Route underground services including utilities, sub-drains, water or sewer around the **TREE PROTECTION ZONE**. For design purposes, the **TREE PROTECTION ZONE** trees shall be defined as the tree dripline.
4. Consider the vertical clearance requirements near trees during design. Avoid designs that would require pruning more than 20% of a tree's canopy.
5. Irrigation systems must be designed so that no trenching severs roots larger than 2 inch in diameter will occur within the **TREE PROTECTION ZONE**.
6. **Tree Preservation Guidelines** prepared by the Project Arborist, which include specifications for tree protection during demolition and construction, should be included on all plans.
7. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.
8. Do not lime the subsoil within 50 feet of any tree. Lime is toxic to tree roots.
9. Ensure adequate but not excessive water is supplied to trees; in most cases occasional irrigation will be required. Avoid directing runoff toward trees.

Tree Protection Zone

1. **A TREE PROTECTION ZONE** shall be identified for each tree to be preserved on the Tree Protection Plan prepared by the project arborist. For cork oak #87 I recommend a 30-foot radius in all directions be used as the **TREE PROTECTION ZONE**.
 - a. Fence all trees to be retained to completely enclose the **TREE PROTECTION ZONE** prior to demolition, grubbing or grading. Fences shall be 6-foot chain link with posts sunk into the ground or equivalent as approved by the City.

- b. Tree protection fences shall be 6-foot-high chain link fencing mounted on 8-foot-tall, 2-inch-diameter galvanized posts, driven 24 inches into the ground, or equivalent as required by the County.
- c. Fences must be installed prior to beginning demolition and must remain until construction is complete.
- d. Fenced areas should be posted with signs stating, "TREE PROTECTION FENCE – DO NOT MOVE OR REMOVE WITHOUT APPROVAL FROM PROJECT ARBORIST".

Pre-demolition and pre-construction treatments and recommendations

1. The demolition and construction superintendents shall meet with the project arborist before beginning work to review all work procedures, access routes, storage areas, and tree protection measures.
2. Where demolition must occur close to trees, such as removing curb and pavement, install temporary trunk protection devices such as winding silt sock wattle can be used. Any low branches that are within the work zone should also be protected with wattle. Remove trunk protection after demolition is completed and install protective fence at the limits of the tree protection zone.

Do not retain wattling around tree trunks for more than 2-3 weeks to avoid damaging trunks from excess moisture.
3. Apply and maintain 4-6 inches wood chip mulch within the **TREE PROTECTION ZONE**. Keep the mulch 2 feet from the base of tree trunks.
4. Tree(s) to be removed that have branches extending into the canopy of tree(s) or located within the **TREE PROTECTION ZONE** of tree(s) to remain shall be removed by a Certified Arborist or Certified Tree Worker and not by the demolition contractor. The Certified Arborist or Certified Tree Worker shall remove the trees in a manner that causes no damage to the tree(s) and understory to remain. Stumps shall be ground below grade.
5. Prune trees to be preserved to clean the crown of dead branches 1 inch and larger in diameter, raise canopies as needed for construction activities.
 - a. Do not remove more than 20-25% of each tree's crown.
 - b. All pruning shall be done by a State of California Licensed Tree Contractor (C61/D49). All pruning shall be done by Certified Arborist or Certified Tree Worker in accordance with the Best Management Practices for Pruning (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300).
 - c. Branches extending into the work area that can remain following demolition shall be tied back and protected from damage.
 - d. While in the tree, the arborist shall perform an aerial inspection to identify any defects, weak branch and trunk attachments and decay not visible from the ground. Any additional work needed to mitigate defects shall be reported to the property owner.
6. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the Project Arborist may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.
7. All down brush and trees shall be removed from the **TREE PROTECTION ZONE** either by hand, or with equipment sitting outside the **TREE PROTECTION ZONE**. Extraction shall occur by lifting

the material out, not by skidding across the ground. Brush shall be chipped and spread beneath the trees within the **TREE PROTECTION ZONE**

8. Structures and underground features to be removed within the **TREE PROTECTION ZONE** shall use equipment that will minimize damage to trees above and below ground, and operate from outside the **TREE PROTECTION ZONE**. Tie back branches and wrap trunks with protective materials to protect from injury as directed by the Project arborist. The Project Arborist shall be on-site during all operations within the **TREE PROTECTION ZONE** to monitor demolition activity.
9. All tree work shall comply with the Migratory Bird Treaty Act as well as California Fish and Wildlife code 3503-3513 to not disturb nesting birds. To the extent feasible tree pruning and removal should be scheduled outside of the breeding season. Breeding bird surveys should be conducted prior to tree work. Qualified biologists should be involved in establishing work buffers for active nests.

Recommendations for tree protection during construction

1. Any approved grading, construction, demolition or other work within the **TREE PROTECTION ZONE** should be monitored by the Project Arborist.
2. All contractors shall conduct operations in a manner that will prevent damage to trees being preserved.
3. Tree protection devices are to remain until all site work has been completed within the work area. Fences or other protection devices may not be relocated or removed without permission of the Project Arborist.
4. Construction trailers, traffic and storage areas must remain outside **TREE PROTECTION ZONE** at all times.
5. Any root pruning required for construction purposes shall receive the prior approval of and be supervised by the project arborist. Roots should be cut with a saw to provide a flat and smooth cut. Removal of roots larger than 2 inches in diameter should be avoided.
6. If roots 2 inches and greater in diameter are encountered during site work and must be cut to complete the construction, the project arborist must be consulted to evaluate effects on the health and stability of the tree and recommend treatment.
7. Any brush clearing required within the **TREE PROTECTION ZONE** shall be accomplished with hand-operated equipment.
8. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the Consulting Arborist may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.
9. Prior to grading or trenching, trees may require root pruning outside the **TREE PROTECTION ZONE**. Any root pruning required for construction purposes shall receive the prior approval of, and be supervised by, the project arborist.
10. Spoil from trench, footing, utility or other excavation shall not be placed within the **TREE PROTECTION ZONE**, neither temporarily nor permanently.
11. All grading within the dripline of trees shall be done using the smallest equipment possible. The equipment shall operate perpendicular to the tree and operate from outside the **TREE PROTECTION ZONE**. Any modifications must be approved and monitored by the Consulting Arborist.
12. All trees shall be irrigated. Each irrigation shall wet the soil within the **TREE PROTECTION ZONE** to a depth of 18 inches.

13. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the project arborist so that appropriate treatments can be applied.
14. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.
15. Trees that accumulate a sufficient quantity of dust on their leaves, limbs and trunk as judged by the Consulting Arborist shall be spray-washed at the direction of the project arborist.

Maintenance of impacted trees

Preserved trees will experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required. In addition, provisions for monitoring both tree health and structural stability following construction must be made a priority. Inspect trees annually and following major storms to identify conditions requiring treatment to manage risk associated with tree failure.

Our procedures included assessing trees for observable defects in structure. This is not to say that trees without significant defects will not fail. Failure of apparently defect-free trees does occur, especially during storm events. Wind forces, for example, can exceed the strength of defect-free wood causing branches and trunks to break. Wind forces coupled with rain can saturate soils, reducing their ability to hold roots, and blow over defect-free trees. Although we cannot predict all failures, identifying those trees with observable defects is a critical component of enhancing public safety.

Furthermore, trees change over time. Our inspections represent the condition of the tree at the time of inspection. As trees age, the likelihood of failure of branches or entire trees increases. Annual tree inspections are recommended to identify changes to tree health and structure. In addition, trees should be inspected after storms of unusual severity to evaluate damage and structural changes. Initiating these inspections is the responsibility of the client and/or tree owner.

If you have any questions regarding my observations or recommendations, please contact me.

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ISA Tree Risk Assessment and Plant Appraisal Qualified



Exhibits

Tree Assessment

Tree Assessment Plan

Tree Disposition

Tree Assessment

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
1	Tulip tree	7	No	2	Low	Missing central leader; narrow upright crown; healthy foliage.
2	London plane	19	Yes	3	Moderate	Multiple attachments arise from 7'; anthrax throughout crown.
3	London plane	11	No	2	Low	Leader topped at 15'; all epicormic growth; new leader leans to west.
4	London plane	16	Yes	2	Low	Leader leans to west; Leader mostly epicormic growth.
5	London plane	10	No	2	Low	Narrow leader; mostly epicormic growth.
6	London plane	11	No	2	Low	Codominant attachments @ 8' & 12'; mostly epicormic growth.
7	London plane	12	Yes	3	Low	Multiple attachments arise from 10' twig and branch die back; anthracnose throughout crown.
8	London plane	16	Yes	2	Low	Leader leans to west; leader mostly epicormic growth.
9	London plane	23	Yes	3	Moderate	Multiple attachments arise from 7'; anthracnose throughout crown; twig and branch dieback.
10	London plane	11	No	3	Moderate	Multiple attachments arise from 10'; anthracnose throughout crown; twig and branch dieback.
11	London plane	10	No	3	Moderate	Codominant attachments arise from 10'; anthracnose throughout crown; twig and branch dieback.
12	London plane	16	Yes	3	Moderate	Multiple attachments arise from 10' & 12'; anthracnose throughout crown; twig and branch dieback.
13	London plane	7	No	2	Low	Multiple attachments arise from 6'; anthracnose throughout crown; twig and branch dieback; mostly dead.
14	London plane	7	No	2	Low	Narrow crown; anthracnose throughout crown; twig and branch dieback; mostly dead.
15	London plane	11	No	3	Moderate	Multiple attachments arise from 10'; anthracnose throughout crown; twig and branch dieback.
16	London plane	7	No	3	Low	Narrow crown leans south; anthracnose throughout crown; twig and branch dieback.
17	London plane	11	No	3	Moderate	Codominant attachments arise from 10'; slight lean south; anthracnose throughout crown; twig and branch dieback.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
18	London plane	18,18,10	Yes	3	Moderate	Multiple attachments arise from base; anthracnose throughout crown; twig and branch dieback.
19	London plane	30	Yes	3	Moderate	Multiple attachments arise from 3'; anthracnose throughout crown; twig and branch dieback; spreading form; Below attachment.
20	London plane	12	Yes	3	Moderate	Codominant trunks arise from 12'; anthracnose throughout crown; twig and branch dieback.
21	London plane	12	Yes	3	Moderate	Codominant trunks arise from 10'; multiple attachments arise from 14'; anthracnose throughout crown; twig and branch dieback.
22	London plane	7	No	3	Low	Narrow crown; suppressed south; anthracnose throughout crown; twig and branch dieback.
23	London plane	7	No	3	Low	Codominant trunks @ 7'; arrow crown; suppressed south; anthracnose throughout crown; twig and branch dieback.
24	London plane	6	No	2	Low	Narrow suppressed crown; anthracnose throughout crown; twig and branch dieback.
25	London plane	8	No	3	Low	Multiple trunks arise from 8'; anthracnose throughout; twig and branch dieback.
26	London plane	13	Yes	3	Low	Multiple trunks arise from 12'; anthracnose throughout; twig and branch dieback.
27	London plane	8	No	3	Low	Narrow crown suppressed north; anthracnose throughout; twig and branch dieback.
28	London plane	8	No	3	Low	Spreading crown suppressed north; anthracnose throughout; twig and branch dieback.
29	London plane	28	Yes	3	Moderate	Multiple attachments arise from 12'; anthracnose throughout crown; twig and branch dieback; spreading form.
30	Purpleleaf plum	9,8,7	Yes	3	Low	Multiple trunks arise from 3'; twig and branch back.
31	London plane	6	No	2	Low	Suppressed north; anthracnose throughout crown; twig and branch dieback.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
32	London plane	28	Yes	3	Moderate	Multiple attachments arise from 6 & 8'; anthracnose throughout crown; twig and branch dieback; spreading form.
33	London plane	17	Yes	3	Moderate	Multiple attachments arise from 6 & 8'; anthracnose throughout crown; twig and branch dieback; spreading form.
34	London plane	7,7	No	2	Low	Multiple attachments arise from 4 & 6'; anthracnose throughout crown; twig and branch dieback; spreading form.
35	London plane	9	No	2	Low	Heavy lean west; anthracnose throughout crown; twig and branch dieback; spreading form; mostly dead .
36	London plane	15	Yes	3	Moderate	Multiple attachments arise from 6 & 7'; anthracnose throughout crown; twig and branch dieback; spreading form.
37	Red ironbark	33	Yes	2	Low	Multiple trunks arise from high in crown; messy structure; twig and branch dieback.
81	Glossy privet	23	Yes	4	Moderate	Multiple branches arise from 6'; good health; spreading round form.
38	Glossy privet	10,9,9,8,7	Yes	3	Moderate	Multiple trunks arise from 2'; suppressed east.
39	Glossy privet	15,13,10,8	Yes	3	Moderate	Multiple trunks arise from 1'; suppressed east.
40	Glossy privet	14,13,10,6	Yes	3	Moderate	Multiple trunks arise from 1'; suppressed east.
42	Coulter pine	33	Yes	4	Moderate	Codominant trunks arise from 15'; branch bows vertical; poor form.
43	Coulter pine	22	Yes	4	Moderate	Narrow upright crown; girdling roots on south and east sides.
44	Coulter pine	14	Yes	4	Moderate	Narrow upright crown; thin.
45	Coulter pine	15	Yes	4	Moderate	Narrow upright crown; thin.
46	Loquat	17	Yes	1	Low	Uprooting north; codominant attachments split at 5'; branch resting on ground; full health crown.
47	Weeping willow	15	Yes	4	Moderate	Multiple trunks arise from 8' & 14'; messy interior crown; weeping to the ground; decay at base on north side.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
48	Tarata pittosporum	8,6	No	3	Moderate	Codominant trunks arise from base; sap sucker evidence; branches topped at 6'.
49	Tarata pittosporum	8	No	3	Moderate	Suppressed north; small cavities with decay on north side of trunk; thin crown.
50	Hollyleaf cherry	19	Yes	3	Low	Leans north away from building; big root flair.
51	Tarata pittosporum	8,6	No	3	Moderate	Codominant trunks arise from base; sap sucker evidence; sweeping base west.
52	Honey locust	12	Yes	2	Low	Multiple trunks arise from 12'; failed branches hanging still attached and growing.
53	Crape myrtle	11	No	4	High	Multiple stems arise from 5'; full round healthy crown; twig dieback.
54	Crape myrtle	10	No	4	High	Multiple stems arise from 5'; full round healthy crown; twig dieback.
55	Crape myrtle	11	No	4	High	Multiple stems arise from 5'; full round healthy crown; twig dieback.
56	Crape myrtle	11	No	4	High	Multiple stems arise from 5'; full round healthy crown; twig dieback.
57	Goldenrain tree	9,8,8,7,7	Yes	3	Moderate	Multiple trunks arise from 2'; scenes in attachments; full healthy growth.
58	Sweetgum	12	Yes	3	Moderate	Codominant trunks arise from 7'; leaves are heavily chlorotic.
59	Sweetgum	14	Yes	3	Moderate	Codominant trunks arise from 9'; leaves are heavily chlorotic; thin.
60	Blue atlas cedar	22	Yes	5	High	Candelabra form; strong attachments; spa sucker evidence; full healthy crown.
61	Victorian box	7	No	2	Low	Partially failed at base; leaning heavily north; upright stem at 6'; mostly dead crown.
179	Victorian box	20	Yes	3	Low	Multiple trunks arise from 4'; thin; suppressed south.
180	Victorian box	21	Yes	3	Low	Codominant trunks arise from 6 & 8'; thin; suppressed south.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
63	Victorian box	10,10,5,4	Yes	2	Low	Multiple trunks arise from base; twig and branch dieback; chlorotic leaves.
65	European white birch	14	Yes	1	Low	Codominant trunks arise from 4'; all but dead.
66	Red flowering gum	35	Yes	3	Low	Multiple trucks arise; seam in attachment to base; thin; twig and branch dieback.
67	Carob	24	Yes	3	Low	Multiple trunks arise from 7'; leans west; thin; branch dieback.
68	Carob	33	Yes	3	Low	Partially failed at base; multiple trunks arise from 6'; leans west; thin; branch dieback.
69	London plane	8	No	3	Low	Upright form; anthracnose throughout crown; poor health.
70	London plane	9	No	3	Low	Wide codominant trunks arise from 6'; anthracnose throughout crown; poor health.
132	Tulip tree	7	--	0	--	Dead.
71	Tulip tree	8	No	3	Low	Codominant stems arise from 7'; dead stem at 10'; aphid damage.
73	London plane	8	No	3	Low	Sinuous crown; anthracnose throughout crown; poor health.
76	Tulip tree	8	No	2	Low	Codominant stems arise from 10'; aphid damage; poor condition.
75	London plane	10	No	3	Low	Sinuous crown; anthracnose throughout crown; poor health.
119	Tulip tree	8	No	2	Low	Codominant stems arise from 7'; 2.5' x 6" wound; aphid damage; thin.
77	Raywood ash	21	Yes	2	Low	Base and trunk engulfed in ivy; multiple branches arise from 12'; branch dieback.
78	Raywood ash	22	Yes	2	Low	Base and trunk engulfed in ivy; multiple branches arise from 7'; branch dieback.
79	Cajeput paperbark tree	35	Yes	4	High	Multiple trunks arise from 6'; crossing and fussed stems; healthy crown.
41	Glossy privet	10,10,8	Yes	3	Moderate	Multiple trunks arise from 1'; suppressed east.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
80	Glossy privet	23	Yes	3	Low	Base and trunk engulfed in ivy; multiple branches arise from 6'; thin; twig and branch dieback.
151	Glossy privet	10,9	No	3	Low	Codominant trunks arise from 1'; suppressed west.
205	Canary Island pine	16	Yes	3	Low	Narrow upright form; suppressed high in crown.
209	Canary Island pine	16	Yes	3	Low	Narrow upright form; suppressed; fused with a branch from tree #206.
85	Blue atlas cedar	24	Yes	5	High	Candelabra form; thin crown; sap sucker evidence.
86	Hollywood juniper	27,13,12	Yes	4	Moderate	Multiple trunks arise from base; suppressed northeast.
87	Cork oak	52	Yes	4	High	Multiple trunks arise from 3'; healthy full crown; buried root crown.
88	Chinese pistache	13	Yes	3	Low	Codominant stem failed leaving 2' wound on southeast; remaining crown is healthy.
89	Chinese pistache	14	Yes	3	Moderate	One sided southwest; healthy crown.
90	Cork oak	23	Yes	4	Moderate	Codominant 10'; twig dieback; healthy crown.
91	Carob	23,18	Yes	2	Low	Codominant trunks arise from base; base and trunk engulfed in ivy; all epicormic growth.
92	Prunus spp.	14,12,12,8	--	0	--	Dead; base and trunk engulfed in ivy.
93	Carob	15,10,8	Yes	2	Low	Multiple and Codominant trunks arise from base; crossing and fused branches; sap sucker evidence; thin; much of crown is epicormic.
94	Victorian box	7,4,3,3	No	3	Low	Multiple trunk arise from 1'; sinuous branching; chlorotic leaf color.
95	European white birch	12	Yes	3	Low	Heavy lean south; thin crown.
96	European white birch	9	No	2	Low	Multiple stems arise from 7'; dead branches; thin crown.
97	Incense cedar	17,16	Yes	2	Low	Codominant trunks arise from 1 & 6'; one of three stems is dead; mostly dead.

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98	Arizona cypress	25	Yes	4	Moderate	Straight up trunk; slight lean south; good health growth.
99	Evergreen ash	44	Yes	3	Moderate	Multiple trunks arise from 12'; full spreading crown; twig and branch dieback.
100	Evergreen pear	17	Yes	3	Moderate	Codominant trunks arise from 7'; suppressed east; seam and included bark in attachment.
101	Mexican fan palm	18	Yes	4	Moderate	12' brown trunk; skirt to the ground.
102	Evergreen ash	32	Yes	3	Low	Multiple trunks arise from 7'; twig and branch dieback; somewhat thin.
103	Evergreen ash	31	Yes	3	Moderate	Multiple trunks arise from 9'; major seam in attachment; somewhat thin.
104	Cajeput paperbark tree	28	Yes	4	High	Codominant trunks arise from 7 & 9'; minimal lower branching; healthy upper crown.
105	Cajeput paperbark tree	16	Yes	4	High	Codominant and multiple trunks arise from 8 & 9'; minimal lower branching; healthy upper crown.
106	Evergreen ash	22,21	Yes	3	Moderate	Two main stems arise at 2'; Northern stem multiple attachments arise from 6'; thin.
107	Evergreen ash	36	Yes	3	Moderate	Multiple trunks arise from 6'; fused attachments and stems.
108	Leyland cypress	14,12	Yes	3	Moderate	Codominant trunks arise from 2'; slight leans south; thin.
109	Arizona cypress	19,16	Yes	4	Moderate	Codominant trunks arise 3'; healthy crown.
110	Evergreen ash	32	Yes	3	Moderate	Multiple trunks arise from 6'; fused attachments and stems; base and root flair being girdled on north side of tree.
111	Weeping willow	21	Yes	3	Moderate	Multiple trunks arise from 10 & 12'; messy interior crown; weeping to the ground; no root flair cavity at base completely decayed; undermined.
112	Weeping willow	23	Yes	3	Moderate	Multiple trunks arise from 10&12'; messy interior crown; weeping to the ground; no root flair cavity at base completely decayed; undermined on both north and south sides.
113	American arborvitae	12	Yes	3	Moderate	Straight upright trunk; 2'x 3" wide cavity at 5.5' good callous.

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114	Arizona cypress	30	Yes	3	Moderate	North side of trunk decayed; healthy crown; dead stems.
115	American arborvitae	11,8,7	Yes	3	Moderate	Multiple trunks arise from 1'; healthy growth.
116	Italian buckthorn	12,6	No	3	Low	Codominant trunks arise from 2'; leans north; suppressed.
117	Italian buckthorn	6,4	No	3	Low	Codominant trunks arise from base; one sided west; suppressed.
118	Cork oak	23	Yes	4	Moderate	Codominant 10'; twig dieback; healthy crown.
120	Tulip tree	8	No	3	Low	Twig and branch dieback in upper crown; aphid damage; thin.
131	Tulip tree	8	No	2	Low	Lost central leader; twig and branch dieback in upper crown; aphid damage; thin.
121	American arborvitae	7,6,6,6,6	Yes	4	Moderate	Multiple trunks arise from base; base and some of crown enfolded in ivy; healthy round crown.
122	American arborvitae	8,7,7,6,6,4,4	Yes	4	Moderate	Multiple trunks arise from base; base and some of crown enfolded in ivy; healthy round crown.
123	American arborvitae	8,6,5,5,5,4	Yes	4	Moderate	Multiple trunks arise from base; base and some of crown enfolded in ivy; healthy round crown.
124	London plane	12	Yes	2	Low	Multiple attachments arise from 10'; anthracnose throughout crown; major twig and branch dieback.
125	London plane	13	Yes	2	Low	Codominant attachments arise from 7'; anthracnose throughout crown; major twig and branch dieback.
126	London plane	8	No	1	Low	All but dead.
127	London plane	13	Yes	2	Low	Multiple trunks arise 8'; major twig and branch.
128	London plane	9	No	2	Low	Multiple trunks arise 6'; major twig and branch.
129	London plane	12	Yes	2	Low	Multiple trunks arise 6'; major twig and branch.
130	London plane	11	No	2	Low	Multiple trunks arise 10'; major twig and branch.
72	Tulip tree	9	No	2	Low	Missing central leader; aphid damage; small crown.
74	Tulip tree	11	No	3	Low	Upright form; somewhat thin; aphid damage.
133	London plane	13	Yes	3	Low	Multiple attachments arise from 8 & 10'; anthracnose throughout crown; major twig and branch dieback.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
134	London plane	16	Yes	3	Low	Multiple attachments arise from 10 & 12'; anthracnose throughout crown; major twig and branch dieback.
135	London plane	9	No	1	Low	All but dead.
136	London plane	13	Yes	3	Low	Multiple attachments arise from 6 & 8'; anthracnose throughout crown; major twig and branch dieback.
137	London plane	13	Yes	3	Low	Multiple attachments arise from 8'; anthracnose throughout crown; major twig and branch dieback.
138	London plane	13	Yes	3	Low	Upright trunk with a lean to the west in the upper crown; anthracnose throughout crown; major twig and branch dieback.
139	London plane	11	No	3	Low	Slight lean east in upper crown; suppressed east; anthracnose throughout crown; major twig and branch dieback.
140	London plane	9	No	3	Low	Multiple trunks arise from 7'; suppressed east; anthracnose throughout crown; major twig and branch dieback.
141	Fremont cottonwood	40	Yes	2	Low	Dead central leader; major decay at base on west side; stems dieback.
142	Mexican fan palm	18	Yes	4	Moderate	12' brown trunk; skirt to the ground.
143	Mulberry	8	No	1	Low	All but dead.
144	Mulberry	10	No	1	Low	All but dead.
145	American arborvitae	7,7,6,5,5	Yes	3	Low	Multiple trunks arise from base; patchy dieback throughout crown.
146	American arborvitae	7,7,5,5	Yes	3	Low	Failed but living stem on south side held up by tree #146; multiple trunks arise from base; patchy dieback throughout crown.
147	Blue atlas cedar	24,20	Yes	4	Moderate	Codominant stems arise from 1'; branching bows horizontal at 15 to 20'.
148	Blue atlas cedar	31	Yes	3	Moderate	History of branch failure; upright form with horizontal branching.
149	Almond	9,7,6,6	No	3	Low	Multiple trunks arise from base; twig and branch dieback.
150	Almond	18,14	Yes	1	Low	Codominant trunks arise from 2'; mostly dead.
152	Glossy privet	8	No	3	Low	Narrow suppressed crown; growing in a group.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
155	Glossy privet	10,10,7,5	Yes	3	Low	Multiple trunks arise from 1 & 2'; narrow suppressed crown; growing in a group.
156	Glossy privet	7,6,6,5	No	3	Low	Multiple trunks arise from 1'; narrow suppressed crown; growing in a group.
157	Glossy privet	9,6,6	No	3	Low	Multiple trunks arise from 2'; narrow suppressed crown; growing in a group.
161	Glossy privet	5,5,3	No	3	Low	Multiple trunks arise from 2'; narrow suppressed crown; growing in a group.
162	Glossy privet	12,10,8,6,5	Yes	3	Low	Multiple trunks arise from 2'; narrow suppressed crown; growing in a group.
163	Glossy privet	7,4	No	3	Low	Codominant trunks arise from 2'; narrow suppressed crown; growing in a group.
167	Glossy privet	10,7	No	3	Low	Codominant trunks arise from 2'; narrow suppressed crown; growing in a group.
170	Glossy privet	9	No	3	Low	Leaning; narrow suppressed crown; growing in a group.
171	Glossy privet	10	No	3	Low	Leaning; codominant trunks arise from 3.5'; narrow suppressed crown; growing in a group.
172	Glossy privet	7,4	No	3	Low	Wide codominant trunks arise from 1'; narrow suppressed crown; growing in a group.
173	Glossy privet	8	No	3	Low	Leaning; narrow suppressed crown; growing in a group.
174	Glossy privet	11	No	3	Low	Leaning; codominant trunks arise from 4'; narrow suppressed crown; growing in a group.
175	Glossy privet	8	No	3	Low	Single sinuous trunk; high crown.
176	Glossy privet	7,7	No	3	Low	Codominant trunks arise from 1'; narrow suppressed crown; leans west; growing in a group.
153	Glossy privet	10,10,5	Yes	2	Low	Multiple trunks arise from base; narrow suppressed crown; growing in a group.
154	Glossy privet	9,8,6	No	2	Low	Multiple trunks arise from 1'seams to base; narrow suppressed crown; growing in a group.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
158	Glossy privet	9	No	2	Low	Leaning; narrow suppressed crown; growing in a group.
159	Glossy privet	8	No	2	Low	Leaning; narrow suppressed crown; growing in a group.
160	Glossy privet	6,4	No	2	Low	Codominant trunks arise from base; fused stems; narrow suppressed crown; growing in a group.
164	Glossy privet	6	No	2	Low	Leaning; narrow suppressed crown; growing in a group.
165	Glossy privet	8,7,5	Yes	2	Low	Multiple trunks arise from base; narrow suppressed crown; growing in a group.
166	Glossy privet	5	No	2	Low	Sinuous trunk; narrow suppressed crown; growing in a group.
168	Glossy privet	10,7,6	No	2	Low	Multiple trunks arise from 1'; narrow suppressed crown; growing in a group.
169	Glossy privet	10,7,6	No	2	Low	Multiple trunks arise from 1'; narrow suppressed crown; growing in a group.
177	Glossy privet	8,8	No	2	Low	Narrow codominant trunks arise from 1'; narrow suppressed crown; growing in a group.
82	Glossy privet	11	No	1	Low	Multiple branches arise from 6'; all but dead.
178	Loquat	9,8	No	3	Moderate	Codominant trunks arise from 2.5'; seam in attachment; healthy crown.
64	Victorian box	7,6,5	No	2	Low	Multiple trunks arise from 1'; twig and branch dieback; chlorotic leaves; suppressed south.
62	Victorian box	8,8	No	1	Low	Of the four main stems three are dead.
181	Coast redwood	34	Yes	4	High	Typical form and structure; pavement on southside.
182	Coast redwood	32	Yes	4	High	Typical form and structure; pavement on southside.
183	Coast redwood	38	Yes	4	High	Typical form and structure; pavement on southside.
184	Evergreen pear	10	No	3	Low	Multiple trunks arise from 5'; one sided south.
185	Evergreen pear	18	Yes	3	Low	Wide codominant trunks arise from 4'; wound with decay on eastern trunk.
186	Evergreen pear	13,12	Yes	3	Low	Wide codominant trunks arise from 3'; seam in attachment.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
187	London plane	15	Yes	3	Low	Multiple attachments arise from 8'; anthracnose throughout crown; major twig and branch dieback.
188	Canary Island pine	18	Yes	3	Moderate	Narrow upright form; slight lean south.
189	London plane	20	Yes	3	Low	Multiple attachments arise from 12'; anthracnose throughout crown; major twig and branch dieback.
195	Italian stone pine	18	Yes	3	Moderate	Upright narrow suppressed crown; one sided north.
193	Italian stone pine	20	Yes	3	Moderate	Upright narrow suppressed crown.
190	Italian stone pine	21	Yes	3	Moderate	Upright trunk; codominant trunk arise from high in crown; corrected lean.
194	Italian stone pine	31	Yes	3	Moderate	Codominant trunk arise from 10'; west stem leans north.
192	Italian stone pine	32	Yes	3	Moderate	Cracking in trunk; being pushed over by tree #191.
199	Italian stone pine	37	Yes	3	Low	Heavy lean south west; heaving at base on opposite side of lean.
200	Canary Island pine	20	Yes	3	Moderate	Narrow upright form; suppressed south high in crown.
203	Canary Island pine	20	Yes	4	Moderate	Narrow upright form; suppressed east high in crown.
198	London plane	8	No	2	Low	Wide codominant trunks arise from 3'; heavily suppressed; anthracnose throughout crown.
207	Italian stone pine	37	Yes	3	Moderate	Codominant trunks arise from 3'; seam to base; leans west.
208	Canary Island pine	20	Yes	3	Low	Narrow upright form; suppressed.
201	London plane	13	Yes	3	Low	Codominant attachments arise from 12'; anthracnose throughout crown; major twig and branch dieback.
202	London plane	14	Yes	3	Low	Codominant attachments arise from 10'; anthracnose throughout crown; major twig and branch dieback; suppressed.
196	Canary Island pine	22	Yes	3	Moderate	Narrow upright form; slight lean south.
204	Italian stone pine	42	Yes	3	Moderate	Codominant trunks arise from 5,12,&15'; vigorous growth.
236	Canary Island pine	22	Yes	3	Moderate	Crown lifted to 25'; upright form.
206	Italian stone pine	51	Yes	3	Moderate	Wide codominant trunks arise from 3'; seam to base; vigorous growth; fussed branches on north side.

Tree Assessment

Ames Research Center
Mountain View (Santa Clara County), CA
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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
191	Italian stone pine	26,21,18	Yes	1	Low	Heavy lean south west; heaving at base on opposite side of lean; uprooting.
234	Canary Island pine	23	Yes	4	Moderate	Corrected form southwest; strong central leader.
84	Canary Island pine	25	Yes	4	High	Narrow upright form; somewhat suppressed west.
210	London plane	15	Yes	3	Low	Codominant attachments arise from 10'; majorly suppressed south.
211	Cherry	15	Yes	2	Low	Multiple trunks arise from graft at 5'; branch dieback.
212	Cherry	12	Yes	2	Low	No tag; could not see trunk; multiple trunks arise from graft at 5'; branch dieback.
213	Tarata pittosporum	6,6,6,5	No	3	Low	No tag; could not see trunk; multiple trunks arise from base; thin; suppressed east.
214	Red flowering gum	18	Yes	4	Moderate	No tag; could not see trunk; one sided west; suppressed by building.
215	Coast redwood	27,15	Yes	3	Moderate	Codominant attachments arise from 3'; slightly thin.
216	Coast redwood	25	Yes	4	Moderate	Narrow form; slightly thin; lower branches removed.
217	Coast redwood	32,28	Yes	4	Moderate	Codominant attachments arise from 5'.
218	Coast redwood	19,17	Yes	3	Moderate	Codominant attachments arise from 1'; sprouts at base; slightly thin.
219	Coast redwood	23	Yes	2	Low	Extensive dieback; epicormic growth.
220	Coast redwood	15,12	Yes	2	Low	Extensive dieback; 12' stem all but dead.
221	Coast redwood	22	Yes	3	Low	Twiggy growth; thin crown.
222	Coast redwood	36	Yes	4	Moderate	Lost top; otherwise good vigor; twiggy growth.
223	Coast redwood	12	Yes	1	Low	All but dead; sweep at base.
224	Coast redwood	21	Yes	3	Moderate	Slight bow at 5'; slightly thin.
225	Coast redwood	16	Yes	3	Moderate	One-sided west; slightly thin.
226	Coast redwood	31	Yes	3	Low	Thin and twiggy.

Tree Assessment

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
227	Coast redwood	22	Yes	3	Low	Extensive dieback on east side of canopy.
228	Coast redwood	22,15	Yes	2	Low	15" stem all but dead; extensive dieback.
229	Coast redwood	22	Yes	3	Moderate	Minor dieback; lost top.
230	European hackberry	6,4,4,3,2,2	No	3	Low	Multiple attachments arise from base; growing at edge of building; full crown to ground.
197	Canary Island pine	25	Yes	3	Moderate	Narrow upright form.
232	Canary Island pine	27	Yes	3	Moderate	History of branch failure; heavy lateral limbs; drooping branches; full, dense crown.
233	Sweetgum	15	Yes	3	Moderate	Central leader bows south; heavy low lateral at 8'; otherwise good.
231	Canary Island pine	30	Yes	4	Moderate	Codominant high in crown; heavy lateral limbs; full, dense crown; growing on mound in parking island.
235	Fruitless white mulberry	14,11	Yes	2	Low	Codominant attachments arise from 4'; 11" stem is cracked and failing west; thin crown.
83	Canary Island pine	31	Yes	4	Moderate	Narrow codominant trunks arise from 16'; seam and include bark in attachment; healthy.
237	Canary Island pine	36	Yes	3	Moderate	One-sided west; upright form.
238	London plane	13	Yes	2	Low	Very thin; dieback.
239	Fruitless white mulberry	19	Yes	2	Low	Extensive twig and branch dieback; Ganoderma conk on north.
240	London plane	21	Yes	3	Moderate	Multiple attachments arise from 12'; some stems previously removed; full crown; minor dieback.
241	London plane	20	Yes	3	Moderate	Lower branch removed; strong central leader; minor dieback.
242	Victorian box	9,8,8,7,6,5	No	2	Low	Multiple attachments arise from base; extensive dieback.
243	London plane	10	No	2	Low	Poor form and structure; trunk bows at 4'; dieback.
244	London plane	12	Yes	3	Low	Poor form and structure; crown bows south; minor dieback.

Tree Assessment

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
245	London plane	12	Yes	3	Low	Codominant attachments arise from 7'; minor dieback.

Tree Assessment Plan

Berkeley Science Center
Santa Clara, CA

Prepared for:
SKS Partners
San Francisco, CA

August 2024



Notes:
Base map provided by:
BKF
San Francisco, CA

Numbered tree locations are approximate.



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Tree Disposition

Ames Research Center
Mountain View (Santa Clara County), CA
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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Disposition	Comments
1	Tulip tree	7	No	Remove	In building foot print.
2	London plane	19	Yes	Remove	In building foot print.
3	London plane	11	No	Remove	In building foot print.
4	London plane	16	Yes	Remove	In building foot print.
5	London plane	10	No	Remove	In building foot print.
6	London plane	11	No	Remove	In building foot print.
7	London plane	12	Yes	Remove	In building foot print.
8	London plane	16	Yes	Remove	In building foot print.
9	London plane	23	Yes	Remove	In building foot print.
10	London plane	11	No	Remove	In building foot print.
11	London plane	10	No	Remove	In building foot print.
12	London plane	16	Yes	Remove	In building foot print.
13	London plane	7	No	Remove	In building foot print.
14	London plane	7	No	Remove	In building foot print.
15	London plane	11	No	Remove	In building foot print.
16	London plane	7	No	Remove	In building foot print.
17	London plane	11	No	Remove	In building foot print.
18	London plane	18,18,10	Yes	Remove	In building foot print.
19	London plane	30	Yes	Remove	In building foot print.
20	London plane	12	Yes	Remove	In building foot print.
21	London plane	12	Yes	Remove	In building foot print.
22	London plane	7	No	Remove	In building foot print.
23	London plane	7	No	Remove	In building foot print.
24	London plane	6	No	Remove	In building foot print.
25	London plane	8	No	Remove	In building foot print.
26	London plane	13	Yes	Remove	In building foot print.
27	London plane	8	No	Remove	In building foot print.
28	London plane	8	No	Remove	In building foot print.
29	London plane	28	Yes	Remove	In building foot print.
30	Purpleleaf plum	9,8,7	Yes	Remove	In building foot print.
31	London plane	6	No	Remove	In building foot print.
32	London plane	28	Yes	Remove	In building foot print.
33	London plane	17	Yes	Remove	In building foot print.
34	London plane	7,7	No	Remove	In building foot print.
35	London plane	9	No	Remove	In building foot print.
36	London plane	15	Yes	Remove	In building foot print.
37	Red ironbark	33	Yes	Remove	In building foot print.
38	Glossy privet	10,9,9,8,7	Yes	Remove	In building foot print.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Disposition	Comments
39	Glossy privet	15,13,10,8	Yes	Remove	In building foot print.
40	Glossy privet	14,13,10,6	Yes	Remove	In building foot print.
41	Glossy privet	10,10,8	Yes	Remove	In building foot print.
42	Coulter pine	33	Yes	Remove	In building foot print.
43	Coulter pine	22	Yes	Remove	In building foot print.
44	Coulter pine	14	Yes	Remove	In building foot print.
45	Coulter pine	15	Yes	Remove	In building foot print.
46	Loquat	17	Yes	Remove	In building foot print.
47	Weeping willow	15	Yes	Remove	In building foot print.
48	Tarata pittosporum	8,6	No	Remove	In building foot print.
49	Tarata pittosporum	8	No	Remove	In building foot print.
50	Hollyleaf cherry	19	Yes	Remove	In building foot print.
51	Tarata pittosporum	8,6	No	Remove	In building foot print.
52	Honey locust	12	Yes	Remove	In building foot print.
53	Crape myrtle	11	No	Remove	In building foot print.
54	Crape myrtle	10	No	Remove	In building foot print.
55	Crape myrtle	11	No	Remove	In building foot print.
56	Crape myrtle	11	No	Remove	In building foot print.
57	Goldenrain tree	9,8,8,7,7	Yes	Remove	In building foot print.
58	Sweetgum	12	Yes	Remove	In building foot print.
59	Sweetgum	14	Yes	Remove	In building foot print.
60	Blue atlas cedar	22	Yes	Preserve	In planting area, TPZ 15 ft. radius.
61	Victorian box	7	No	Remove	At edge of building, poor condition.
62	Victorian box	8,8	No	Remove	At edge of building, poor condition.
63	Victorian box	10,10,5,4	Yes	Remove	In building foot print.
64	Victorian box	7,6,5	No	Remove	In building foot print.
65	European white birch	14	Yes	Remove	In building foot print.
66	Red flowering gum	35	Yes	Remove	In building foot print.
67	Carob	24	Yes	Remove	In building foot print.
68	Carob	33	Yes	Remove	In building foot print.
69	London plane	8	No	Remove	In building foot print.
70	London plane	9	No	Remove	In building foot print.
71	Tulip tree	8	No	Remove	In building foot print.
72	Tulip tree	9	No	Remove	In building foot print.
73	London plane	8	No	Remove	In building foot print.
74	Tulip tree	11	No	Remove	In building foot print.

Tree Disposition

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Mountain View (Santa Clara County), CA
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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Disposition	Comments
75	London plane	10	No	Remove	In building foot print.
76	Tulip tree	8	No	Remove	In building foot print.
77	Raywood ash	21	Yes	Remove	In building foot print.
78	Raywood ash	22	Yes	Remove	In building foot print.
79	Cajeput paperbark tree	35	Yes	Remove	In building foot print.
80	Glossy privet	23	Yes	Remove	In building foot print.
81	Glossy privet	23	Yes	Remove	In building foot print.
82	Glossy privet	11	No	Remove	In building foot print.
83	Canary Island pine	31	Yes	Remove	In building foot print.
84	Canary Island pine	25	Yes	Remove	In building foot print.
85	Blue atlas cedar	24	Yes	Remove	In building foot print.
86	Hollywood juniper	27,13,12	Yes	Remove	In building foot print.
87	Cork oak	52	Yes	Remove	Consider revising design; TPZ 25 ft. radius.
88	Chinese pistache	13	Yes	Remove	In building foot print.
89	Chinese pistache	14	Yes	Remove	In building foot print.
90	Cork oak	23	Yes	Remove	In building foot print.
91	Carob	23,18	Yes	Remove	In building foot print.
92	Prunus spp.	14,12,12,8	--	Remove	In building foot print.
93	Carob	15,10,8	Yes	Remove	In building foot print.
94	Victorian box	7,4,3,3	No	Remove	In building foot print.
95	European white birch	12	Yes	Remove	In building foot print.
96	European white birch	9	No	Remove	In building foot print.
97	Incense cedar	17,16	Yes	Remove	In building foot print.
98	Arizona cypress	25	Yes	Remove	In building foot print.
99	Evergreen ash	44	Yes	Remove	In building foot print.
100	Evergreen pear	17	Yes	Remove	In building foot print.
101	Mexican fan palm	18	Yes	Preserve	In planting area, TPZ 5 ft. radius.
102	Evergreen ash	32	Yes	Remove	In walkway foot print.
103	Evergreen ash	31	Yes	Preserve	In planting area, TPZ 25 ft. radius.
104	Cajeput paperbark tree	28	Yes	Preserve	Group with #101 and 103, TPZ 20 ft.
105	Cajeput paperbark tree	16	Yes	Remove	In walkway foot print.
106	Evergreen ash	22,21	Yes	Remove	In building foot print.
107	Evergreen ash	36	Yes	Remove	In building foot print.
108	Leyland cypress	14,12	Yes	Remove	In building foot print.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Disposition	Comments
109	Arizona cypress	19,16	Yes	Remove	In building foot print.
110	Evergreen ash	32	Yes	Remove	In walkway foot print.
111	Weeping willow	21	Yes	Preserve	In planting area, TPZ 15 ft. radius.
112	Weeping willow	23	Yes	Remove	In walkway foot print.
113	American arborvitae	12	Yes	Preserve	In planting area, TPZ 15 ft. radius.
114	Arizona cypress	30	Yes	Preserve	In planting area; group as with other trees; TPZ 25 ft. radius.
115	American arborvitae	11,8,7	Yes	Remove	In walkway foot print.
116	Italian buckthorn	12,6	No	Remove	In building foot print.
117	Italian buckthorn	6,4	No	Remove	In building foot print.
118	Cork oak	23	Yes	Remove	Consider revising design; TPZ 20 ft. radius.
119	Tulip tree	8	No	Remove	In building foot print.
120	Tulip tree	8	No	Remove	In building foot print.
121	American arborvitae	7,6,6,6,6	Yes	Remove	In building foot print.
122	American arborvitae	8,7,7,6,6,4,4	Yes	Remove	In building foot print.
123	American arborvitae	8,6,5,5,5,4	Yes	Remove	In building foot print.
124	London plane	12	Yes	Remove	In building foot print.
125	London plane	13	Yes	Remove	In building foot print.
126	London plane	8	No	Remove	In building foot print.
127	London plane	13	Yes	Remove	In building foot print.
128	London plane	9	No	Remove	In building foot print.
129	London plane	12	Yes	Remove	In building foot print.
130	London plane	11	No	Remove	In building foot print.
131	Tulip tree	8	No	Remove	In building foot print.
132	Tulip tree	7	--	Remove	In building foot print.
133	London plane	13	Yes	Remove	In building foot print.
134	London plane	16	Yes	Remove	In building foot print.
135	London plane	9	No	Remove	In building foot print.
136	London plane	13	Yes	Remove	In building foot print.
137	London plane	13	Yes	Remove	In building foot print.
138	London plane	13	Yes	Remove	In building foot print.
139	London plane	11	No	Remove	In building foot print.
140	London plane	9	No	Remove	In building foot print.
141	Fremont cottonwood	40	Yes	Remove	In building foot print.
142	Mexican fan palm	18	Yes	Remove	In building foot print.
143	Mulberry	8	No	Remove	In building foot print.
144	Mulberry	10	No	Remove	In building foot print.

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Disposition	Comments
145	American arborvitae	7,7,6,5,5	Yes	Remove	In building foot print.
146	American arborvitae	7,7,5,5	Yes	Remove	In building foot print.
147	Blue atlas cedar	24,20	Yes	Remove	In building foot print.
148	Blue atlas cedar	31	Yes	Remove	In building foot print.
149	Almond	9,7,6,6	No	Remove	In building foot print.
150	Almond	18,14	Yes	Remove	In building foot print.
151	Glossy privet	10,9	No	Remove	In building foot print.
152	Glossy privet	8	No	Remove	In building foot print.
153	Glossy privet	10,10,5	Yes	Remove	In building foot print.
154	Glossy privet	9,8,6	No	Remove	In building foot print.
155	Glossy privet	10,10,7,5	Yes	Remove	In building foot print.
156	Glossy privet	7,6,6,5	No	Remove	In building foot print.
157	Glossy privet	9,6,6	No	Remove	In building foot print.
158	Glossy privet	9	No	Remove	In building foot print.
159	Glossy privet	8	No	Remove	In building foot print.
160	Glossy privet	6,4	No	Remove	In building foot print.
161	Glossy privet	5,5,3	No	Remove	In building foot print.
162	Glossy privet	12,10,8,6,5	Yes	Remove	In building foot print.
163	Glossy privet	7,4	No	Remove	In building foot print.
164	Glossy privet	6	No	Remove	In building foot print.
165	Glossy privet	8,7,5	Yes	Remove	In building foot print.
166	Glossy privet	5	No	Remove	In building foot print.
167	Glossy privet	10,7	No	Remove	In building foot print.
168	Glossy privet	10,7,6	No	Remove	In building foot print.
169	Glossy privet	10,7,6	No	Remove	In building foot print.
170	Glossy privet	9	No	Remove	In building foot print.
171	Glossy privet	10	No	Remove	In building foot print.
172	Glossy privet	7,4	No	Remove	In building foot print.
173	Glossy privet	8	No	Remove	In building foot print.
174	Glossy privet	11	No	Remove	In building foot print.
175	Glossy privet	8	No	Remove	In building foot print.
176	Glossy privet	7,7	No	Remove	In building foot print.
177	Glossy privet	8,8	No	Remove	In building foot print.
178	Loquat	9,8	No	Remove	In building foot print.
179	Victorian box	20	Yes	Remove	In building foot print.
180	Victorian box	21	Yes	Remove	In building foot print.
181	Coast redwood	34	Yes	Remove	In building foot print.
182	Coast redwood	32	Yes	Remove	In building foot print.

Tree Disposition

Ames Research Center

Mountain View (Santa Clara County), CA

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Disposition	Comments
183	Coast redwood	38	Yes	Remove	In building foot print.
184	Evergreen pear	10	No	Remove	In building foot print.
185	Evergreen pear	18	Yes	Remove	In building foot print.
186	Evergreen pear	13,12	Yes	Remove	In building foot print.
187	London plane	15	Yes	Remove	In building foot print.
188	Canary Island pine	18	Yes	Remove	Could be preserved; TPZ 15 ft. radius.
189	London plane	20	Yes	Remove	Could be preserved; TPZ 15 ft. radius.
190	Italian stone pine	21	Yes	Preserve	In planting area; group as with other trees; TPZ 25 ft. radius.
191	Italian stone pine	26,21,18	Yes	Remove	Remove asap.
192	Italian stone pine	32	Yes	Preserve	After removal of #191 inspect.
193	Italian stone pine	20	Yes	Preserve	In planting area; group as with other trees; TPZ 25 ft. radius.
194	Italian stone pine	31	Yes	Preserve	In planting area; group as with other trees; TPZ 25 ft. radius.
195	Italian stone pine	18	Yes	Remove	In building foot print.
196	Canary Island pine	22	Yes	Remove	In building foot print.
197	Canary Island pine	25	Yes	Remove	In building foot print.
198	London plane	8	No	Remove	In building foot print.
199	Italian stone pine	37	Yes	Remove	In building foot print.
200	Canary Island pine	20	Yes	Preserve	In planting area; group as with other trees; TPZ 25 ft. radius.
201	London plane	13	Yes	Remove	In building foot print.
202	London plane	14	Yes	Remove	In building foot print.
203	Canary Island pine	20	Yes	Remove	In building foot print.
204	Italian stone pine	42	Yes	Remove	In building foot print.
205	Canary Island pine	16	Yes	Remove	In building foot print.
206	Italian stone pine	51	Yes	Remove	In building foot print.
207	Italian stone pine	37	Yes	Remove	In building foot print.
208	Canary Island pine	20	Yes	Remove	In building foot print.
209	Canary Island pine	16	Yes	Remove	In building foot print.
210	London plane	15	Yes	Remove	In building foot print.
211	Cherry	15	Yes	Remove	In building foot print.
212	Cherry	12	Yes	Remove	In building foot print.
213	Tarata pittosporum	6,6,6,5	No	Remove	In building foot print.
214	Red flowering gum	18	Yes	Remove	In building foot print.
215	Coast redwood	27,15	Yes	Remove	In building foot print.
216	Coast redwood	25	Yes	Remove	In building foot print.
217	Coast redwood	32,28	Yes	Remove	In building foot print.

Tree Disposition

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Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Disposition	Comments
218	Coast redwood	19,17	Yes	Remove	In building foot print.
219	Coast redwood	23	Yes	Remove	In building foot print.
220	Coast redwood	15,12	Yes	Remove	In building foot print.
221	Coast redwood	22	Yes	Remove	In building foot print.
222	Coast redwood	36	Yes	Preserve	In open area; group as with other trees; TPZ 25 ft. radius.
223	Coast redwood	12	Yes	Remove	In open area, poor condition.
224	Coast redwood	21	Yes	Preserve	In open area; group as with other trees; TPZ 25 ft. radius.
225	Coast redwood	16	Yes	Remove	In roadway.
226	Coast redwood	31	Yes	Preserve	In open area; group as with other trees; TPZ 25 ft. radius.
227	Coast redwood	22	Yes	Preserve	In open area; group as with other trees; TPZ 25 ft. radius.
228	Coast redwood	22,15	Yes	Preserve	In open area; group as with other trees; TPZ 25 ft. radius.
229	Coast redwood	22	Yes	Preserve	In open area; group as with other trees; TPZ 25 ft. radius.
230	European hackberry	6,4,4,3,2,2	No	Remove	In roadway.
231	Canary Island pine	30	Yes	Remove	In roadway.
232	Canary Island pine	27	Yes	Remove	In roadway.
233	Sweetgum	15	Yes	Remove	In roadway.
234	Canary Island pine	23	Yes	Remove	In roadway.
235	Fruitless white mulberry	14,11	Yes	Remove	In roadway.
236	Canary Island pine	22	Yes	Remove	In roadway.
237	Canary Island pine	36	Yes	Remove	In roadway.
238	London plane	13	Yes	Remove	In roadway.
239	Fruitless white mulberry	19	Yes	Remove	In roadway.
240	London plane	21	Yes	Remove	In roadway.
241	London plane	20	Yes	Remove	In roadway.
242	Victorian box	9,8,8,7,6,5	No	Remove	In roadway.
243	London plane	10	No	Remove	In roadway.
244	London plane	12	Yes	Remove	In roadway.
245	London plane	12	Yes	Remove	In roadway.