ADDENDUM

TO THE

BIOLOGICAL AND WETLANDS ASSESSMENT

FOR THE

INDIAN VALLEY PROPERTY
TOWN OF MORAGA, CONTRA COSTA COUNTY

Prepared for:

BRUZZONE FAMILY TRUST
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

ATTACHMENT 1. FIGURES

LIST OF ACRONYMS AND DEFINITIONS

2003 Study Area	land that was surveyed in 2003 by Sycamore Associates LLC
2014 Study Area	land that was surveyed in 2014
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDP	Conceptual Development Plan
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
MOSO	Moraga Open Space Ordinance
NPPA	Native Plant Protection Act
PCE	Primary Constituent Element
Program	Bridges' Coast Range Shoulderband Snail Protection and Relocation Program
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
Sycamore	Sycamore Associates LLC
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Wetland Study Area	land that was surveyed in 2014 to determine the extent of USACE jurisdiction

The information provided in this document is intended solely for the use and benefit of the Bruzzone Family Trust.

No other person or entity shall be entitled to rely on the services, opinions, recommendations, plans or specifications provided herein, without the express written consent of Marylee Guinon LLC, 354 Bohemian Highway, Freestone, CA 95472.

1.0 EXECUTIVE SUMMARY

The purpose of this report is to provide an update and augmentation to the report titled, *Biological and Wetlands Assessment for the Indian Valley Property, Moraga, Contra Costa County, California*, prepared by Sycamore Associates LLC (Sycamore) in January 2003 (revised December 31, 2003) (Sycamore 2003b).

Based on a reconnaissance-level biological assessment conducted by Sycamore on October 28, 2002, the Indian Valley Property (Study Area) was found to support an abundance of aquatic features including freshwater marsh and seeps, and ephemeral drainages (no ponds were detected). Indian Creek supported a combination of partially exposed bedrock, cobble, and gravel channel bottom, with areas of potential backwater pools. A majority of Indian Creek was associated with a dense canopy cover, with some areas supporting little to moderate amounts of bankside vegetation, including willow thickets characterized as Central Coast riparian scrub. Sycamore observed seven different vegetation communities including three sensitive vegetation community types which qualify as wetlands or drainages under federal and/or state regulations (coast live oak woodland, Central Coast riparian scrub, and freshwater marsh and seeps).

During comprehensive floristic surveys of the Study Area commencing in March 2003 and completed in August 2003, three special-status plant species were observed along the ridge and upper slopes of the site; no other special-status plant species were observed or expected (Sycamore 2004).

The following special-status wildlife species were considered to have a moderate to high potential to occur within the Study Area:

- California red-legged frog (*Rana aurora draytonii*): based on the presence of on-site aquatic features, and because California red-legged frog were known to occur less than three miles from the Study Area, California red-legged frog was considered to have a high potential to occur on site. A U.S. Fish and Wildlife Service (USFWS) protocol-level Site Assessment was not conducted; however, focused USFWS protocol-level surveys for California red-legged frog were conducted during the summer of 2003. Neither California red-legged frog nor foothill yellow-legged frog was detected on site (Sycamore 2003a).

- Alameda whipsnake (*Masticophis lateralis euryxanthus*): the Study Area occurs within designated Critical Habitat for Alameda whipsnake.

- Bridges' Coast Range shoulderband snail (*Helminthoglypta nickliniana bridgesi*): suitable habitat including grasslands and coast live oak woodlands was present for this species.

- Raptors: special-status raptors known to occur in the region or recorded historically in the vicinity of the Project included Cooper's hawk (*Accipiter cooperii*), golden eagle (*Aquila chrysaetos*), and white-tailed kite (*Elanus leucurus*).

- Non-raptor woodland and grassland bird species: several special-status, non-raptor bird species have potential to occur in the coast live oak woodlands and grassland.

- Special-status bat species: special-status bat species were considered to have a moderate potential to be present within oak woodland on site.

- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*): suitable habitat for the woodrat occurs in coast live oak woodlands on site.

The Property Owner is considering development of the site and requested that the Sycamore report (2003b) be evaluated to determine what updates were needed to bring the study up to current standards. In July 2014, biologists from Marylee Guinon LLC and Olberding Environmental, Inc. evaluated habitat and site conditions, and confirmed Sycamore findings from 2002-2004. This 2014 work resulted in three Addendum reports:

- *Addendum to the California Red-legged Frog Focused Surveys Report for the Indian Valley Project* (Guinon/Olberding 2015a),

- *Addendum to the Botanical Assessment for the Indian Valley Project* (Guinon/Olberding 2015c), and

- *Addendum to the Biological and Wetland Assessment for the Indian Valley Project* (Guinon/Olberding 2015b).

A jurisdictional wetland delineation also was prepared in 2014 (Olberding/Guinon 2014). The wetland delineation was prepared for the portions of the Project site that may be impacted and a small portion of land along Canyon Road that may require improvements (Wetland Study Area).

This Addendum evaluates the adequacy of the previous report, identifies potential impacts, and recommends mitigation measures that should be implemented to reduce potential impacts to a less-than-significant level. It should be noted that any development of the site would be designed to protect the physical and biological resources of the site including the ridgeline, steep slopes, Indian Creek and its associated riparian corridor, wetlands and drainages, and biological movement corridors.

It also should be noted that the following terminology is used in this report:

- 2003 Study Area is the approximate 400 acres studied in the Sycamore reports (Sycamore 2003a, 2003b, 2004).

- 2014 Study Area includes the approximate 400 acres studied in the Sycamore reports plus an additional area to the east, including a portion of the Canyon Road right-of-way that may be impacted due to infrastructure improvements required to support development of the site.

- Wetland Study Area is the area in which wetlands were delineated in the report titled, *U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project* (Olberding Environmental, Inc. and Marylee Guinon LLC 2014).

- The Project Site consists of approximately 141 acres with an additional 2.3 acres along Canyon Road.

This Addendum includes a review of the previous reports and other pertinent literature, an updated California Natural Diversity Data Base (CNDDB) search (California Department of Fish and Wildlife 2014), and the results of reconnaissance-level surveys conducted by qualified biologists in 2014.

Potential impacts resulting from the proposed development include fill in wetlands, removal of riparian vegetation and other sensitive natural communities, loss of native vegetation, possible loss of individuals of special-status plant species, possible loss of special-status wildlife species, and potential loss of active raptor, migratory bird nests and other sensitive nesting species.

Mitigation recommended to reduce these potential impacts to a less-than-significant level is identified below.

- Conduct a wetland delineation to identify wetlands and waters subject to jurisdiction by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW).

- Obtain a Clean Water Act Section 404 permit from the USACE, a Clean Water Act Section 401 water quality certification from the RWQCB, and a streambed alteration agreement from the CDFW to impact jurisdictional wetlands and waters of the U.S. and State.

- Replace the loss of jurisdictional wetlands by restoring, preserving, and managing wetland habitats in perpetuity.

- Prepare a Biological Assessment to allow the USACE to consult with the USFWS for potential impacts to federally-listed species (California red-legged frog and Alameda whipsnake).

- Obtain an Incidental Take Permit from the CDFW for potential impacts to state-listed species (Alameda whipsnake).

- Preserve and manage open space lands provided as species mitigation in perpetuity.

- Replace the loss of sensitive natural communities by restoring, preserving and managing habitat for sensitive biological resources in perpetuity.

- Remove vegetation within areas to be developed outside of the bird breeding season (i.e. generally from September 1 to January 31).

- Conduct pre-construction botanical surveys for listed plant species within 18 months prior to any ground disturbing activities. If state- or federally-listed plant species are detected, consult with the U.S. Fish and Wildlife Service (USFWS) and/or California

Department of Fish and Wildlife (CDFW), develop feasible take avoidance, minimization and mitigation measures that may include restoration of removed populations.

- Conduct pre-construction wildlife surveys for nesting raptors, migratory non-raptor woodland and grassland birds, special-status bat species, Bridges' Coast Range shoulderband snail, San Francisco dusky-footed woodrat and other sensitive species and avoid active nests during the breeding season.

A summary of potential biological impacts, level of significance before implementation of the recommended mitigation, recommended mitigation, and level of significance after implementation of the recommended mitigation is presented in Table 1. Implementation of the recommended mitigation measures would reduce all identified impacts to a less-than-significant level.

Table 1. Summary of Potential Biological Resources Impacts, Significance and Recommended Mitigation

Impact	Level of Significance Before Mitigation	Mitigation	Level of Significance After Mitigation
Loss of sensitive natural communities: coast live oak woodland, Central Coast riparian scrub, freshwater marsh and seeps.	Potentially Significant	Restore sensitive habitats (coast live oak woodland, Central Coast riparian scrub, freshwater marsh and seeps) at a 2:1 ratio to ensure no net loss of habitat.	Less than significant
Loss of wetland and riparian habitats.	Potentially Significant	Obtain permits and authorizations from the USACE, CDFW, and RWQCB and restore wetland habitat at a 2:1 ratio to ensure no net loss of habitat.	Less than significant
Loss of trees. Abandoned orchard walnut trees are addressed by arborist pursuant to Town Tree Ordinance under separate cover.	Potentially Significant	Replace trees and restore sensitive habitats (coast live oak woodland and isolated oaks, northern coyote brush scrub, and Central Coast riparian scrub) at a 2:1 ratio to ensure no net loss of habitat.	Less than significant
Potential loss of special-status plant species.	Potentially Significant	Conduct pre-construction botanical surveys within 18-months of construction, and restore removed populations at a 2:1 ratio to ensure no net loss of habitat.	Less than significant
Potential loss of special-status wildlife species.	Potentially Significant	Consult with CDFW and USFWS; provide compensatory habitat mitigation; and implement measures during construction to avoid and minimize potential impacts.	Less than significant
Loss of designated Critical Habitat for Alameda whipsnake.	Significant	Consult with USFWS; provide compensatory habitat mitigation; and implement measures during construction to avoid and minimize impacts.	Less than significant

Table 1. Summary of Potential Biological Resources Impacts, Significance and Recommended Mitigation			
Impact	**Level of Significance Before Mitigation**	**Mitigation**	**Level of Significance After Mitigation**
Potential loss of active raptor nests, migratory bird nests and native wildlife nursery sites.	Potentially Significant	Conduct pre-construction surveys for nesting raptors, migratory birds, special-status bats and other nesting wildlife species.	Less than significant
Potential disruption to wildlife migration or travel corridors during construction.	Less than significant	No mitigation is required.	Less than significant

2.0 SUMMARY OF THE 2003 SYCAMORE REPORT

This section summarizes information contained in the *Biological and Wetlands Assessment for the Indian Valley Property, Moraga, Contra Costa County, California*, report prepared by Sycamore Associates LLC (Sycamore) in January 2003 (revised December 31, 2003) (Sycamore 2003b).

2.1 Introduction

In 2002, Sycamore conducted a reconnaissance-level biological and wetlands assessment for the Indian Valley property located within the southwestern limits of the Town of Moraga, in southwestern Contra Costa County (Attachment 1, Figure 1; all figures are contained in Attachment 1). The reconnaissance survey was intended only as an initial evaluation of on-site habitat types and an assessment of the potential for occurrence of special-status plant and wildlife species. During the initial 2002 site visit, the entire Study Area was traversed on foot and by four-wheel drive vehicle. Following Sycamore recommendations, focused botanical and wildlife surveys were conducted subsequent to the reconnaissance-level site evaluation. More detailed discussions of the methods used and results of those surveys are presented in other reports (Sycamore 2003a, 2003b, 2004). Based on the protocol surveys conducted by Sycamore and an assessment of habitats within the Study Area in 2002 and 2003, certain special-status plant and wildlife species are not expected to occur or can be entirely ruled out.

A preliminary reconnaissance for potential jurisdictional wetlands and waters also was performed concurrently with the site surveys in 2002 and 2003 (Sycamore 2003b); however, a formal wetland delineation and jurisdictional determination was not conducted at that time.

The Indian Valley property is located within Indian Valley in the Town of Moraga (Figure 2). Indian Creek, a blue-line stream that carries flowing water during most of the year, is the main aquatic feature on site. It flows more or less south a short distance before emptying into San Leandro Creek, immediately north of Upper San Leandro Reservoir. The valley supports an abundance of aquatic features including perennial seeps and springs that feed into the main

branch of the creek. Conditions on the property are shown on a 2010 aerial photograph (Figure 3). The site is within the Oakland East quadrangle, Township 1 South, Range 3 West, Sections 13, 14, 23 and 24 and Township 1S, Range 2 West, Section 19 (Figure 4).

The Indian Valley property is located in the southwest corner of the Town of Moraga. The property is located approximately one mile west of downtown Moraga and approximately three-quarters of a mile east of Redwood Regional Park. The site is accessible via Canyon Road. The property is biologically connected to the 241-acre Huckleberry Botanic Regional Preserve, the 660-acre Sibley Volcanic Regional Preserve, and several other protected open space lands (Figure 2). Sparse rural residential development in the community of Canyon is located beyond the northwestern boundary. To the east, beyond the crest of Gudde Ridge, dense residential developments associated with Moraga Country Club are present. Watershed lands owned and managed by East Bay Municipal Utility District (EBMUD) for Upper San Leandro Reservoir are present immediately to the south and west.

2.2 Study Area Description

The site is located along Indian Creek, a headwater tributary to San Leandro Creek. Topography consists of valley bottomlands to steeply sloping hills ranging in elevation between 550 feet to 1,070 feet above mean sea level. The valley supports an abundance of aquatic features including perennial seeps and springs that contribute flows to Indian Creek. A few seeps and small, ephemeral streams also were present on the eastern flanks of Gudde Ridge above the Moraga Valley. Indian Creek is represented as a dashed "blue-line" on the USGS Oakland East 7.5-minute quadrangle indicating it is an intermittent stream. The creek flows more or less southeast and off site into San Leandro Creek, just north of Upper San Leandro Reservoir.

Vegetation within the Study Area (modified since the 2002 – 2003 Sycamore surveys), as confirmed by surveys conducted in 2014, is dominated by non-native annual grassland (Figure 5). Other vegetation communities identified on site include coast live oak woodland and isolated oaks, northern coyote brush scrub, undifferentiated scrub, sage scrub, an abandoned orchard with associated ruderal vegetation, Central Coast riparian scrub and freshwater marsh and seeps. Plant species detected at the site based on surveys conducted from March to August 2003 are listed in Appendix A to the Sycamore botanical report (2004).

Based on site visits conducted in July 2014, minor changes to the vegetation communities and aquatic features found on site in 2003 were identified and the Study Area was expanded to include a portion of Canyon Road right-of-way that may be needed for infrastructure improvements. Updates to the aquatic features included the mapping from a jurisdictional wetland delineation conducted in July 2014.

A single residence is located at the southwestern portion of the property, with associated outbuildings, livestock corrals and cattle ranching operation. Historically, the site has been used as a walnut orchard and as pastureland for cattle.

2.3 Habitat Assessment

A reconnaissance-level biological assessment conducted for the property on October 28, 2002, found an abundance of aquatic features including freshwater marsh and seeps, and ephemeral

drainages (Sycamore 2003b). No stock ponds (potential frog breeding habitat) were detected during the 2002 or 2003 surveys. However, Indian Creek supported a combination of partially exposed bedrock, cobble, and gravel channel bottom, with areas of potential backwater pools. A majority of the Indian Creek was associated with a dense canopy cover, with some areas supporting little to moderate amounts of bankside vegetation, including willow thickets characterized as Central Coast riparian scrub. These aquatic features of Indian Creek were thought to provide suitable breeding, dispersal and aestivation habitat for California red-legged frog. Based on surveys conducted in 2014, these habitat conditions have not changed.

The remainder of the 2003 Study Area outside the Indian Creek corridor did not provide breeding habitat; however, it did provide potential dispersal and aestivation habitat for the frog. Several drainages that flow into Indian Creek provided potential dispersal habitat for the frog. The freshwater marshes and seeps in the upper watershed, especially in perennially saturated areas, provided potential aestivation and refugia habitat for the frog.

The vegetation communities within the Study Area included suitable habitat for the Alameda whipsnake. The USFWS has identified the following Primary Constituent Elements (PCEs) essential for the conservation of the Alameda whipsnake: northern coyote brush scrub, sage scrub and undifferentiated scrub (PCE 1); woodland and annual grassland adjacent to scrub communities or rock outcrops (PCE 2); and rock outcrops (PCE 3). These PCEs are further described later in this report.

The Primary Habitat for the snake occurs on the ridge and upper slopes while the Secondary Habitat for the snake occurs throughout the remainder of the Study Area. Additionally, the entire Study Area is in USFWS designated Critical Habitat for Alameda whipsnake. Based on reported occurrences within the regional vicinity and the presence of suitable habitat, the Alameda whipsnake species is considered to have a moderate to high potential to occur on site.

2.4 Methods

In 2002, Sycamore conducted a reconnaissance-level biological and wetlands assessment for the approximately 400-acre Indian Valley property. The reconnaissance survey was intended only as an initial evaluation of on-site wetlands and other habitat types, and an assessment of the potential for occurrence of special-status plant and wildlife species. During the initial site 2002 visit, the entire Study Area was traversed on foot and by four-wheel drive vehicle.

2.5 Results and Recommendations of the 2003 Sycamore Report

Following Sycamore recommendations, focused botanical and wildlife surveys were conducted subsequent to the reconnaissance-level site evaluation. More detailed discussions of the methods used and results of those surveys are presented in other reports (Sycamore 2003a, 2003b, 2004). Based on the surveys conducted by Sycamore and an assessment of habitats within the Study Area in 2002 and 2003, certain special-status plant and animal species are not expected to occur or can be entirely ruled out.

No California red-legged frog or foothill yellow-legged frog was detected within the 2003 Study Area. Amphibians that were detected within the Study Area included Pacific treefrog (*Hyla*

regilla) adults and tadpoles, bullfrog tadpoles (*Rana catesbeiana*), and numerous California newt (*Taricha torosa*) larvae.

Other wildlife species observed incidentally by sight or sign included dark-eyed junco (*Junco hyemalis*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), spotted towhee (*Pipilo maculatus*), American goldfinch (*Carduelis iristis*), red-tailed hawk (*Buteo jamaicensis*), Steller's jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*), turkey vulture (*Cathartes aura*), western fence lizard (*Sceloporus occidentalis*), house wren (*Troglodytes aedon*), orange-crowned warbler (*Vermivora celata*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), black-tailed deer (*Odocoileus hemionus*) and woodrat (*Neotoma fuscipes*).

Although California red-legged frog and foothill yellow-legged frog were not found on site during the 2003 focused protocol-level surveys, Sycamore recommended conducted pre-construction surveys for California red-legged frog within two weeks prior to any ground-disturbing activities as a precautionary measure. Pre-construction surveys for foothill yellow-legged frog were recommended to be conducted concurrently.

3.0 PROJECT DESCRIPTION

3.1 Summary of the Project

The Conceptual Development Plan (CDP) application for the Indian Valley Project proposes 71 single-family homes clustered within a semi-rural setting, along with approximately 1.5 miles of public trails, utility, water quality, storm drainage and landscape improvements (Figure 6). The proposed Project utilizes approximately 141 acres of the approximately 450 acres owned by the Bruzzone Family, located on the north side of Canyon Road in Moraga. It also identifies limited improvements for Canyon Road. The remaining approximately 312 acres of the Bruzzone Family Holdings would continue to be used for agricultural and open space purposes, consistent with applicable provisions of the Moraga Open Space Ordinance of 1986 (MOSO), and are not a part of the CDP application for the Indian Valley Project.

The proposed residential lots range in net area from just over 10,000 square feet to almost 4.7 acres, with an average size of 24,242 square feet. All 71 lots are organized along a central spine roadway ("Indian Creek Way") within the central, lower valley portion of the Project Site where the average predevelopment slope is less than 8 percent. The residential lots, site grading and related improvements are clustered east of the Indian Creek riparian corridor, and substantially below (west of) Indian Ridge. Common areas within the Project Site would be owned and managed by a homeowners association, with responsibility for slope maintenance immediately beyond the private lots assigned to a geological hazard abatement district (or "GHAD"). Impacts to habitat resources within the Project Site would be mitigated in accordance with state and federal resource agency standards. Compensatory habitat mitigation, including protection through recordation of an easement, may be provided on a portion of the remaining Bruzzone Family Holdings directly adjoining the Project Site or an alternative offsite location.

3.2 Constraints-based Design

The Property Owner is proposing development to accommodate traditional detached single-family residences in a semi-rural setting. Working closely with a team of planners, architects, landscape architects, engineers, biologists and resource specialists, the following constraints were identified and used to guide the design of the Project:

- Recognize the physical constraints of the site including steep slopes and areas requiring geotechnical slope stabilization.
- Protect and preserve the high-quality biological resources of the site and, to the maximum extent feasible, avoid and minimize impacts to riparian habitat, oak woodland, wetlands and jurisdictional waters.
- Protect and preserve high-quality open space that may provide potential habitat for special-status plant and wildlife species.
- Protect and preserve high-quality biological movement corridors on the site including Indian Creek, drainages, and upper elevations that connect the site to conserved and protected properties to the south, west and Upper San Leandro Reservoir.
- Minimize the visual impacts of any development by preserving and protecting the ridgeline.
- Provide safe and adequate on-site and off-site roadways and public trails.
- Provide emergency access to serve as an evacuation route and emergency vehicle ingress/egress.
- Comply with the Town of Moraga requirements related to development services including water supply, wastewater treatment and disposal, storm drainage design, and water quality guidelines.
- Provide single-family housing to help meet Moraga's housing needs.

The constraints-based design results in avoidance and protection of the highest quality biological resources on site. These include the mile-long riparian corridor along Indian Creek, the upper slopes and ridgeline, and many of the drainage corridors originating on the ridge and upper slopes that drain to Indian Creek. These protected resources include regionally significant wildlife corridor connections to open space lands to the west, south and east, and north-south biological corridor connections from the ridgeline to the creek; the known locations of special-status plant species documented during surveys conducted in 2003; and high-quality core habitat for Alameda whipsnake.

4.0 REGULATORY FRAMEWORK

This section explains the regulatory context of the biological and wetlands assessment review, including applicable laws and regulations that were applied to the field investigations and analysis of potential Project impacts.

4.1 Section 404 of the Clean Water Act

Section 404 of the Clean Water Act gives the U.S. Environmental Protection Agency (EPA) and the USACE regulatory and permitting authority over the discharge of dredged or fill material into "waters of the United States". A summary of the definition "waters of the U.S." in 33 CFR Part 328.3(a) includes: (1) waters used for commerce; (2) interstate waters and wetlands; (3) "other waters" such as intrastate lakes, rivers, streams (including intermittent streams), and wetlands; (4) impoundments of waters; (5) tributaries to the above waters; (6) territorial seas; and (7) wetlands adjacent to waters.

The limits of USACE jurisdiction in non-tidal waters extends to the Ordinary High Water Mark (OHWM) which is defined at 33 CFR 328.3(e) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Wetlands are defined at 33 C.F.R. 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." To be classified as a wetland, the watercourse must exhibit hydrophytic vegetation and hydric soils.

Some areas that meet the technical criteria for wetlands or waters may not be considered jurisdictional under the Clean Water Act. Wetlands created by either intentional or incidental human activities that may have developed some characteristics of natural wetlands are generally not considered jurisdictional. Examples of man-created wetlands generally not considered jurisdictional include drainage ditches excavated in uplands, depressions within construction areas, and irrigated wetlands.

Some isolated wetlands also may be considered outside Corps' jurisdiction as a result of the Supreme Court's decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers* (531 U.S. 159 (2001)). Isolated wetlands and waters are those areas that do not have a surface or groundwater connection to, and are not adjacent to, a "navigable waters of the U.S.", and do not otherwise exhibit an interstate commerce connection.

The site is known to contain wetlands and waters; therefore, in 2014 a jurisdictional wetland delineation was conducted to delineate potential wetlands and waters subject to jurisdiction by the USACE.

Also, as part of the regulations governing implementation of the Clean Water Act, the USACE is required to consult with the USFWS regarding potential impacts to species listed or proposed for listing under the federal ESA. Implementation of the proposed Project has the potential to affect federally listed species; therefore, the USACE is required to consult with the USFWS under Section 7 of the ESA.

4.2 Section 401 of the Clean Water Act

Section 401 of the Clean Water Act (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a water quality certification. The responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (Water Boards).

The Water Boards define a wetland area as follows: An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area either lacks vegetation or the vegetation is dominated by hydrophytes.

In practice, the Water Boards review wetland delineations, and sometimes conduct field verifications as appropriate. However, the Water Boards shall rely on the Corps' approved wetland delineation within the boundaries of the waters of the United States. As necessary, the procedures established by the Corps shall be adjusted appropriately to allow for the delineation of non-vegetated wetlands, as defined under the Water Boards wetland definition. (State Water Resources Control Board 2013).

The site is known to contain wetlands and waters subject to jurisdiction under sections 404 and 401 of the Clean Water Act; therefore, qualified biologists should conduct a survey to delineate potential wetlands and waters subject to jurisdiction by the RWQCB.

4.3 Fish and Game Code Section 1600

Under sections 1600-1616 of the Fish and Game Code, streams, lakes and riparian vegetation that provides habitat for fish and other wildlife species are subject to jurisdiction by the CDFW. Lake or Streambed Alteration Agreements are typically required for activities such as excavation or placement of fill within a stream channel, vegetation clearing, installation (and sometimes operation) of structures that divert the flow of water, installation of culverts and bridge supports, cofferdams for construction dewatering, bank reinforcement and similar activities.

"Stream" is not defined in the Fish and Game Code and CDFW has not promulgated any regulation that defines "stream." However, the Fish and Game Commission has defined "stream" in section 1.72 in Title 14 of the California Code of Regulations as follows:

> [A] body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. In addition, the term stream can include ephemeral streams,

> dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife.

CDFW has interpreted the term "streambed" to encompass all portions of the bed, banks, and channel of any stream, including intermittent and ephemeral streams, extending laterally to the upland edge of riparian vegetation. In the case of watercourses with vegetated floodplains, this interpretation often results in an asserted geographic jurisdictional area that is much wider than the active channel of the stream and extends to the point which there is no evidence of a defined bed and bank, and riparian vegetation is not present.

The site is known to contain wetlands and waters subject to jurisdiction under sections 1600-1616 of the Fish and Game Code; therefore, qualified biologists should conduct a survey to delineate potential wetlands, waters and riparian habitat subject to jurisdiction by the CDFW.

4.4 Federal and California Endangered Species Acts

The federal ESA of 1973 prohibits federal agencies from authorizing, permitting, or funding any action that would jeopardize the continued existence of a plant or animal species listed or a candidate for listing as Threatened or Endangered under the ESA. If a federal agency is involved with a proposed action or project that may adversely affect a listed plant or animal, that agency must enter into consultation with the USFWS or National Marine Fisheries Service under Section 7 of the ESA. If a federal agency is not involved with a proposed project or action that may adversely affect a listed plant or animal, the project consults with the USFWS and/or National Marine Fisheries Service under Section 10 of the ESA.

Two federally-listed species, California red-legged frog and Alameda whipsnake, may be present on site; therefore, the USACE must consult with the USFWS under section 7 of the ESA.

The State of California enacted similar laws to the ESA, the California Native Plant Protection Act (NPPA) in 1977 and the California Endangered Species Act (CESA) in 1984. CESA also uses the categories of “threatened” and “endangered” species. The California Department of Fish and Wildlife (CDFW) implements the CESA. During the California Environmental Quality Act (CEQA) review process, CDFW is given the opportunity to comment on the potential impacts of a proposed project on plants, wildlife and sensitive natural communities.

State-listed species that may be present on site include Alameda whipsnake; therefore, the applicant must obtain an Incidental Take Permit (ITP) from the CDFW. Sections 2081(b) and (c) of the CESA allow CDFW to issue an ITP for a state-listed threatened and endangered species only if specific criteria are met; the criteria are summarized below and reiterated in Title 14 CCR, Sections 783.4(a) and (b):

1. The authorized take is incidental to an otherwise lawful activity;

2. The impacts of the authorized take are minimized and fully mitigated;

3. The measures required to minimize and fully mitigate the impacts of the authorized take:

a. are roughly proportional in extent to the impact of the taking on the species,
b. maintain the applicant's objectives to the greatest extent possible, and
c. are capable of successful implementation;

4. Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and

5. Issuance of the permit will not jeopardize the continued existence of a state-listed species.

The terms and conditions of the ITP are determined by CDFW and must ensure that the issuance criteria in items 1 through 5 above are met.

Other species included as special-status species include California Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue USFWS Birds of Conservation Concern, and CDFW special-status invertebrates. In addition to regulations for special-status species, most birds, including non-special-status species, are protected under the Migratory Bird Treaty Act (MBTA). Plant species on the California Native Plant Society (CNPS) Rank 1 or 2 are also considered special-status plant species.

4.5 Critical Habitat

Critical Habitat is a term defined and used in the ESA as a specific geographic area that contains the Primary Constituent Elements (PCEs) essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS and/or National Marine Fisheries Service to ensure that any activities or projects they permit, authorize, fund or carry out will not jeopardize the survival of a threatened or endangered species. Consultations for species with designated Critical Habitat also require that their activities or projects do not adversely modify designated Critical Habitat to the point that it will no longer aid in the species' recovery.

The site is designated Critical Habitat for Alameda whipsnake by the USFWS; therefore, the USACE must consult with the USFWS regarding the loss of Critical Habitat during the section 7 ESA consultation process. The site is located approximately five miles from designated Critical Habitat for California red-legged frog; therefore, no loss of Critical Habitat for California red-legged frog would result from implementation of the Project.

5.0 TOWN OF MORAGA REGULATORY FRAMEWORK

5.1 Moraga 2002 General Plan

The Town of Moraga 2002 General Plan includes several goals and policies related to the conservation or preservation of biological resources. The 2002 General Plan Diagram designates the lower elevations of the Study Area for residential use. A portion of Indian Creek and the upper elevations along Indian Ridge are designated Open Space or MOSO (Moraga Open Space Ordinance) Open Space. There are no mixed use areas, parks, or community or educational land use designations within the Study Area.

5.2 MOSO Open Space District

The purpose of the MOSO Open Space District is to identify and regulate, when appropriate, lands that are in public ownership or are subject to an open space easement, development rights dedication or other enforceable restriction that regulates the use of the property from being utilized as other lands in private ownership. The MOSO district also may be used to identify and regulate residual parcels and those lands that have low development capability and are characterized by such factors as steep slopes, unstable soils, fault zones or high visibility.

5.3 Moraga Tree Preservation Ordinance

The Moraga 2002 General Plan includes policies for the preservation of trees and tree-covered areas. Policy OS2.8 Tree Preservation states, "Preserve and protect trees wherever they are located in the community as they contribute to the beauty and environmental quality of the Town." This policy is implemented through the Moraga Tree Preservation Ordinance. Policy OS2.9 Tree-covered Areas states, "Preserve or substantially maintain in their present form certain tree-covered areas, especially with respect to their value as wildlife habitats, even if development in those areas is permitted. Give preference to the retention of original growth over replanting."

Ordinance 182 and Moraga Municipal Code Chapter 12 (Section 12.12.030) establish permit requirements for the removal of native trees, orchard trees or trees of historic significance. The tree preservation ordinance requires any person who desires to cut down, destroy or remove a general tree, a native tree, an orchard tree or a tree of historic significance, located either on public or private property, to obtain a permit from the Planning Director. "Trees" are defined as live woody plants having a single trunk diameter of five inches or more measured three feet above the natural grade or, if having multiple trunks, a total perimeter of forty inches or more measured three feet above the natural grade. There are established four classes of trees: general, native, orchard and trees of historic significance.

A. A general tree is a tree other than a native tree, an orchard tree or tree of historic significance.

B. A native tree is a tree, which is native to California and indigenous to the Moraga area, the most common being the bay, oak, redwood, toyan and the knobcone pine.

C. An orchard tree or trees are fruit or nut trees planted for commercial agricultural purposes.

D. A tree of historic significance as a tree having historic value related to the heritage of the town and designated by action of the town council.

Arborist reports are required when development or construction encroaches within the dripline of any regulated tree. The location of trees is required for grading plans and building permit applications.

There are hundreds of trees on the property subject to regulation under the Town of Moraga tree preservation ordinance. The Project Applicant would be required to hire a certified arborist to

prepare a tree survey and arborist report to identify trees subject to regulation by the Town of Moraga.

5.4 Moraga CEQA Evaluation Criteria

Criteria described in Table 2 are used to determine if the Project will have a significant impact on biological resources.

Table 2. CEQA Evaluation Criteria with Points of Significance

Evaluation Criteria	As Measured by	Point of Significance	Justification
1. Will the Project result in a substantial loss of native vegetation or wildlife populations?	Proportion of habitat or population affected	Local viability of species or habitat threatened	CEQA Checklist IV(d); Moraga General Plan Policies CD1.1, CD1.4 – CD1.5, OS2.1, OS2.8-2.9
2. Will the Project cause a permanent loss of sensitive natural communities?	Acres of sensitive community lost	Net loss of sensitive community	CEQA Checklist IV(b); CEQA (Article 5, §15065); CDFG (F&G §1900-1913); CDFG Interim Wildlife/Hardwood Management Guidelines (Feb. 1, 1989); CDFG (2007a); Moraga General Plan Policies CD1.1, CD1.4 – 1.6, OS2.2 – OS2.3, and OS2.9
3. Will the Project result in a net loss of wetlands, streams or other waters of the U.S.?	Acreage or volume of excavation or fill in waters of the U.S.	Net loss of waters of the U.S.	CEQA Checklist IV(b-c); CWA §404(b)(1) and §401; PCWQCA; Moraga General Plan Policies CD1.1, CD1.4, OS2.1 – 2.2, and OS3.4 – 3.6
4. Will the Project cause a loss of individuals or populations of special-status plant species?	Number of plant species or populations lost	More than 15% of known occurrences or populations in Project vicinity	CEQA Checklist IV(a); F&G §1900-1913; CEQA (Article 5, §15065)
5. Will the Project cause a loss of individuals or habitat of endangered, threatened, rare, or fully protected wildlife?	Number of individuals or acres of occupied or Critical Habitat lost	Greater than 0 individuals, occupied habitat, or Critical Habitat.	CEQA Checklist IV(a); ESA, CESA; CEQA (§15065); F&G §2081 and 3511; and Moraga General Plan Policy OS2.1.
6. Will the Project cause a loss of active raptor nests, migratory bird nests, or native wildlife nursery sites?	Number of active nesting or breeding sites.	Greater than 0 active nesting or breeding sites removed.	CEQA Checklist IV(d); Fish and Game Code Sections 3503, 3505, 3513 and 3800; Moraga General Plan Policies OS2.1 and OS2.9.
7. Will the Project substantially block or disrupt wildlife or fish migration or travel corridors?	Number of corridors substantially blocked or disrupted.	Greater than 0 corridors blocked to key species.	CEQA Checklist IV(d); Moraga General Plan Policy OS2.5.

Table 2. CEQA Evaluation Criteria with Points of Significance			
Evaluation Criteria	**As Measured by**	**Point of Significance**	**Justification**
8. Will the Project conflict with local policies or ordinances for the protection of biological resources?	Number of plans under which a conflict will result.	Conflicts with one or more plan.	CEQA Checklist IV(e); Moraga Tree Ordinance; Moraga General Plan Policies CD1.2, CD1.4-1.6, OS2.1-2.3, OS2.7-2.9, OS3.4-3.6, Moraga Ordinance 182.
9. Will the Project conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan?	Number of plans under which a conflict will result.	Conflicts with one or more plan.	CEQA Checklist IV(f) and X(c).

6.0 REVIEW OF SYCAMORE REPORTS AND RECOMMENDATIONS

Based on review of the previous reports prepared by Sycamore (2003a, 2003b, 2004), review of the potential development as identified by the Property Owner, and additional surveys conducted in 2014, it was determined that the following should be addressed in this Addendum:

- A review of biological resources under the California Environmental Quality Act (CEQA).
- An updated CNDDB search to identify special-status plant and wildlife occurrences within 5 miles and the last 10 years.
- Results of site visits conducted in 2014 that assessed the Study Area for the (1) potential wetlands/waters subject to jurisdiction by the USACE, RWQCB and CDFW; (2) presence of sensitive natural communities protected by state and federal regulations; and (3) potential to support special-status plant and wildlife species.
- Potential impacts to biological resources including wetlands, special-status plant and wildlife species, and sensitive natural communities should be identified, and the significance of potential impacts under CEQA should be identified.
- Mitigation measures to avoid or reduce potential impacts to a less-than-significant level should be identified.

It should be noted that the Study Area described in the Sycamore reports was approximately 400 acres and did not extend southeast to Canyon Road. The Study Area as described in this Addendum was modified since the Sycamore 2002-2003 surveys, and includes a portion of Canyon Road and Canyon Road right-of-way that may be needed for infrastructure improvements.

6.1 Methods

In June 2014, the potential occurrence of special-status plant and wildlife species in the Study Area was evaluated through a literature and database search. A database search for known occurrences of special-status plants and wildlife focused on the Oakland East quadrangle and in particular the 5-mile radius surrounding the Study Area. Recent environmental documents prepared by the Town of Moraga also were reviewed. Additionally, several site visits were conducted and aerial photographs of the Study Area were reviewed to determine if any unique wetland features and/or aquatic habitats were present in the Study Area.

On July 1, 2014, Olberding Environmental biologists Jeff Olberding, Chad Aakre, and Marc Beccio, and Marylee Guinon with Marylee Guinon LLC, conducted a site visit to determine (1) whether vegetation communities previously identified by Sycamore were still present within the Study Area; (2) if site conditions previously described by Sycamore were still accurate; (3) if existing conditions provided suitable habitat for any special-status plant or wildlife species; (4) if sensitive natural communities previously identified and described by Sycamore were still accurate; and (5) the extent of wetlands and waters that would be considered potentially subject to jurisdiction by the USACE, RWQCB and CDFW. This site visit was supplemented by an additional site visit conducted by Chad Aakre and Marylee Guinon on July 15, 2014.

The property occurs within the *San Francisco Bay Area* sub-region of the California Floristic Province (Baldwin, et al. 2012). In classifying the habitat types found on the property, generalized plant community classification schema were used (Sawyer, Keeler-Wolf, and Evens 2009). The property lies within the San Pablo Bay South USGS Hydrological Unit Code 18050002 (USGS 2014).

Photographs taken during the July 2014 site visits can be found in the *U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project, Contra Costa County, California* (Olberding/Guinon 2014).

Prior to the site visit, the following documents also were reviewed:

- *Biological and Wetlands Assessment for the Indian Valley Property, Moraga, Contra Costa County* (Sycamore 2003b),
- *California Red-legged Frog Focused Surveys for the Indian Valley Property, Moraga, Contra Costa County, California* (Sycamore 2003a),
- *Botanical Assessment of the Indian Valley Property, Moraga, Contra Costa County, California* (Sycamore 2004), and
- Custom Soil Resources Report, Soil Map (Natural Resources Conservation Service 2014) and soils map information contained in the Soil Survey of Contra Costa County, California (Soil Conservation Service 1972).

The vegetation communities and aquatic features found on site in 2003 were updated based on the 2014 site visits and include the area along Canyon Road that may be needed for infrastructure improvements.

6.2 Vegetation Communities and Aquatic Features

Vegetation communities within the 2014 Study Area (modified since the 2002 – 2003 Sycamore surveys) as confirmed by surveys conducted in 2014 is dominated by non-native annual grassland. Other vegetation communities identified on site include coast live oak woodland and isolated oaks, northern coyote brush scrub, undifferentiated scrub, sage scrub, an abandoned orchard with associated ruderal vegetation, Central Coast riparian scrub and freshwater marsh and seeps. Plant species detected based on surveys conducted from March to August 2003 are listed in Appendix A to the Sycamore botanical report (2004).

Based on site visits conducted in July 2014, minor changes to the vegetation communities and aquatic features were identified and the Study Area was expanded to include a portion of the Canyon Road right-of-way that may be needed for infrastructure improvements. Updates to the aquatic features included the mapping from a jurisdictional wetland delineation conducted in July 2014.

Table 3 provides an estimate of the area of each vegetation community observed in the Study Area in 2014.

Non-Native Annual Grassland

Non-native annual grassland is generally found in open areas in valleys and foothills throughout coastal and interior California (Holland 1986). It typically occurs on soils consisting of fine-textured loams or clays that are somewhat poorly drained. This vegetation type is dominated by non-native annual grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, that have replaced native perennial grasslands and scrub as a result of ranching operations. Scattered native wildflower species, representing remnants of the original vegetation may also be common.

Within the 2014 Study Area, non-native annual grassland intergrades freely with northern coyote brush scrub and sage scrub, as well as the ruderal vegetation in the understory of the abandoned orchard. Non-native annual grassland as found on site conforms to the California annual grassland series as described in Sawyer and Keeler-Wolf (1995), and would be classified as an upland following Cowardin, *et al.* (1979).

Table 3. Vegetation Communities and Aquatic Features within the Project Site and Remainder Bruzzone Family Holdings

Vegetation Community Type	Project Site (acres)	Remainder Bruzzone Family Holdings (acres)	Total (acres)
Non-native annual grassland	102.57	126.10	228.67
Coast live oak woodland and isolated oaks (Sensitive Natural Community)	4.21	103.97	108.18
Northern coyote brush scrub	7.10	64.90	72.00
Abandoned orchard with associated ruderal vegetation	21.51	0.89	22.40
Central Coast riparian scrub (Sensitive Natural Community)	1.78	5.74	7.52
Freshwater marsh and seeps (a) (Sensitive Natural Community)	3.67	5.11	8.78
Sage scrub and undifferentiated scrub	0.06	4.99	5.05
Total	**140.9**	**311.7**	**452.60**

(a) Referred to as seasonal wetland in the *U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project, Contra Costa County, California*. (Olberding/Guinon 2014).

Notes:

1. This table does not identify land outside Bruzzone Family Holdings that may be needed for Canyon Road improvements.
2. All numbers are rounded to the nearest hundredth.

Sources:

Sycamore 2003b as supplemented by site visits conducted in 2014 (Guinon/Olberding 2014b).

P/A Design Resources, Inc. design drawings dated June 22, 2015.

Rusch pers. comm.

Central Coast Riparian Scrub

Central coast riparian scrub typically consists of a scrubby streamside, open to impenetrable thickets composed primarily of any of several species of willows. This vegetation community occurs close to river channels and near the coast on fine-grained sand and gravel bars with a high water table. It is distributed along most perennial and many intermittent streams of the South Coast Ranges, from the Bay Area to near Point Conception (Holland 1986). Central Coast riparian scrub is generally regarded as early seral, meaning that it typically precedes the development of other riparian woodland or forest communities in the absence of severe flooding. However, outside of riparian situations, that is, near groundwater seeps, willow-dominated scrub represents a relatively stable vegetation community and is not considered seral.

Central Coast riparian scrub as found on site generally conforms to the arroyo or red willow series as described in Sawyer and Keeler-Wolf (1995), and would be classified as a palustrine shrub-scrub wetland following Cowardin, *et al.* (1979).

Coast Live Oak Woodland

Coast live oak woodland is typically found on north-facing slopes and shaded ravines in the southern and inland portions of the state and on more exposed, mesic sites in the north. This community is dominated by coast live oak (*Quercus agrifolia*), which frequently occurs in pure, dense stands with a closed canopy. Coast live oak woodland is restricted primarily to the coast side of the state and is distributed from Sonoma County to Baja California. It occurs throughout the outer South Coast ranges and coastal slopes of the Transverse and Peninsular ranges, usually below 4,000 feet in elevation.

On site, this vegetation type conforms to the coast live oak series as described by Sawyer and Keeler-Wolf (1995) and would be considered as an upland as classified in Cowardin, *et al.* (1979).

In 2014, biologists included isolated oaks in this vegetation community category, as reflected in the updated vegetation communities map (Figure 5).

Freshwater Marsh and Seeps

Freshwater seeps consist of areas with permanently or seasonally saturated soils, generally lacking appreciable surface flows, and typically supporting few to several perennial and annual herbaceous hydrophytic plant species. Within the 2014 Study Area, most freshwater seeps closely resemble freshwater marshes in terms of species composition, supporting characteristic low, emergent species. On site, these two vegetation community types intergrade. Where small thickets of arroyo willow, red willow, or white alder encroach on the margin of freshwater seeps, this community intergrades with Central Coast riparian scrub.

On site, freshwater seeps and freshwater marshes are located principally along permanently or semi-permanently saturated portions of drainages, often fanning out upon reaching the valley bottom. Many on-site seeps originate high on hillsides where the geologic contact between the Moraga and Orinda formations forces water to the surface.

Within the 2014 Study Area, most areas of freshwater seep and freshwater marsh do not correspond *per se* to any particular series described by Sawyer and Keeler-Wolf (1995), although some portions would conform to the cattail series. Following Cowardin, *et al,* (1979), these vegetation communities would be classified as palustrine emergent wetlands.

Northern Coyote Brush Scrub

Northern coyote brush scrub is considered a sub-type of northern (Franciscan) coastal scrub. It differs primarily by the dominance of coyote brush (*Baccharis pilularis*). This scrub type consists of low shrubs 1-6 feet tall with a well-developed herbaceous or low woody understory. Vegetative cover is mostly dense with scattered grassy openings. Northern (Franciscan) coastal scrub is best developed on windy, exposed sites with shallow, rocky soils. An increase in soil

depth and moisture availability seems to favor dominance by coyote brush. This vegetation community is distributed in patches from southern Oregon to Point Sur, Monterey County (Holland 1986).

Within the 2014 Study Area, scattered well-developed stands of northern coyote brush scrub are present on both eastern and western slopes of Gudde Ridge on the eastern portion of the site, as well as on the western side of Indian Creek. Elsewhere on site northern coyote brush scrub occurs in small dense patches and is also interspersed throughout other communities often forming an ecotone between non-native annual grassland and coast live oak woodland.

Sage Scrub

Sage scrub consists of a dense to sparse cover of low shrubs up to three feet high. It occurs in inland locations well beyond the coastal fog incursion zone. It is typically found on shallow, rocky soils on hot southern exposures. This vegetation community is distributed in patches along the Inner Coast Ranges from Mount Diablo in Contra Costa County south to the Cholame Hills in northern San Luis Obispo County (Holland 1986). This shrub canopy typically consists of fewer shrub species than other coastal scrub communities but may exhibit a greater diversity of perennial herbs.

On the steep, southwest facing slopes of Gudde Ridge, northern coyote brush scrub and sage scrub freely intergrade, making their separation as distinct communities impractical. Areas within the 2014 Study Area that support northern coyote brush scrub and sage scrub have been mapped as undifferentiated scrub.

Abandoned Orchard and Ruderal Habitat

Ruderal habitat is that from which the native vegetation has been completely removed by grading, cultivation, or other surface disturbances. Such areas, if left undeveloped, may become recolonized by invasive exotic species as well as native species. The native vegetation may ultimately become at least partially restored if the soils are left intact and there is no further disturbance.

Numerous areas on site have been severely disturbed by grading and cultivation activities. Remnant groups of black walnut trees are present in the valley bottom of the property, once a large orchard that has since been abandoned. When the vegetation communities map was updated in 2014, based on the 2014 field surveys, many of the walnut orchard trees had apparently died since the Sycamore mapping effort, and these areas were more accurately described as non-native grassland habitat (Figure 5).

6.3 Special-Status Species

Based on a review of the CNDDB (2002) and various reports and information, the Sycamore reports identified and discussed special-status plant and wildlife species that had some potential to occur in the Study Area. The following sections summarize information contained in the Sycamore reports and provide updated information based on a review of the CNDDB (California Department of Fish and Wildlife 2014) and relevant literature.

6.3.1 Special-Status Plants

Sycamore (2003b and 2004) identified a total of 22 special-status plant species with at least some potential to occur within the region; however, eight species were considered to have no potential to occur on site due to lack of suitable habitat, the fact that they would have been detectable during the reconnaissance-level survey, or are considered out of range. Based on the presence of potentially suitable habitat for the remaining 14 species, focused botanical surveys were conducted on site during seasons appropriate for the detection of any potentially occurring species. During the course of the surveys conducted in 2003, no federally- or state-listed Endangered or Threatened plant species were detected within the Study Area, and none were expected.

Three populations of California Native Plant Society (CNPS) listed plant species were detected within the Study Area during the 2003 surveys: bent-flowered fiddleneck (*Amsinckia lunaris*, CNPS List 1B), robust monardella (*Monardella villosa* ssp. *globosa*, CNPS List 1B), and Oakland star-tulip (*Calochortus umbellatus*, CNPS List 4) (Figure 7). No other special-status plant species were detected on site, and none were expected.

In June 2014, the potential occurrence of special-status plants in the Study Area was evaluated through a literature and database search. Database searches for known occurrences of special-status plants focused on the Oakland East quadrangle and in particular the 5-mile radius surrounding the Study Area. Recent environmental documents prepared by the Town of Moraga also were reviewed and aerial photographs of the Study Area were reviewed. The site surveys conducted for the wetland delineation included surveys for special-status plants. No special-status plants were observed during the wetland delineation field work conducted in July 2014.

Based on the previous surveys conducted by Sycamore, and review of the CNDDB (California Department of Fish and Wildlife 2014) search, the following special-status plant species have been documented within five miles of the Study Area within the last 10 years: most beautiful jewelflower, bent-flowered fiddleneck, western leatherwood, pallid manzanita, Oregon meconella, robust monardella, Oakland star-tulip, Tiburon buckwheat, and Diablo helianthella (Figure 8). Descriptions of special-status plant species identified in the Study Area and with potential to occur in the Study Area are described in Table 4.

Table 4. Special-Status Plants Potentially Present in the Study Area			
Scientific Name **Common Name**	**Status**	**Flowering Period**	**Potential for Occurrence On Site and Habitat**
Special-Status Plants Identified in the 2003 Study Area			
Amsinckia lunaris bent-flowered fiddleneck	Fed: -- State: CEQA CNPS: List 1B.2	March - June	Detected during 2003 surveys. Mapped at nine locations on site. Annual herb found in open woods, valley/foothill grasslands.
Calochortus umbellatus Oakland star-tulip	Fed: -- State: CEQA CNPS: List 4.2	March – May	Detected during 2003 surveys. Mapped at two locations on site. Perennial bulbiferous herb in often serpentinite broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland from Lake to Stanislaus counties
Monardella villosa ssp. *globosa* robust monardella	Fed: -- State: CEQA CNPS: List 1B.2	June – July	Detected during 2003 surveys. Mapped at twelve locations on site. Rhizomatous herb in broadleaf upland forest openings, chaparral, woodlands, coastal scrub and grasslands in Coast Range from Bay Area to Humboldt
Other Special-Status Plants with Potential to Occur in the 2014 Study Area			
Arctostaphylos pallida pallid manzanita	Fed: T State: E CNPS: List 1B.1	December – March	None: no suitable habitat detected on site. Would have been detected during comprehensive 2003 surveys. Evergreen shrub in broadleaf upland forest, woodlands, chaparral in western Contra Costa and northwestern Alameda County
Calochortus pulchellus Mount Diablo fairy-lantern	Fed: -- State: CEQA CNPS: List 1B.2	April – June	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Perennial herb (bulbiferous) found in chaparral, cismontane woodland, valley/foothill grassland.
Centromadia parryi ssp. congdonii Congdon's tarplant	Fed: SC State: CEQA CNPS: List 1B.1	June – November	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in valley foothills grasslands on alkaline soils.

Table 4. Special-Status Plants Potentially Present in the Study Area			
Scientific Name **Common Name**	**Status**	**Flowering Period**	**Potential for Occurrence On Site and Habitat**
Dirca occidentalis western leatherwood	Fed: -- State: CEQA CNPS: List 1B.2	January – April	None: suitable habitat present on site but not detected during comprehensive surveys in 2003. Deciduous shrub in broadleaf upland forest, closed-cone coniferous forest, chaparral, woodlands, riparian woodlands, and North Coast coniferous forests around the Bay Area
Erodium macrophyllum round-leaved filaree	Fed: -- State: CEQA CNPS: List 1B.1	March – May	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in cismontane woodland, valley and foothill grasslands, on clay soil.
Eriogonum luteolum var. *caninum* Tiburon buckwheat	Fed: -- State: CEQA CNPS: List 1B.2	May – September	None: no suitable habitat on site. Annual herb in chaparral, coastal prairie, woodlands, and grasslands in sandy, gravelly, and serpentine soils in the Bay Area
Frittllaria liliacea fragrant fritillary	Fed: SC State: CEQA CNPS: List 1B.2	February – April	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Perennial herb (bulbiferous) found in coastal prairie, coastal scrub, valley/foothill grassland near the coast, on clay or serpetinite.
Helianthella castanea Diablo helianthella	Fed: -- State: CEQA CNPS: List 1B.2	April – June	None: suitable habitat present on site but not detected during comprehensive surveys in 2003. Perennial herb in broadleaf upland forests, chaparral, woodlands, coastal scrub, riparian woodlands, and grasslands in mostly the East Bay
Holocarpha macradenia Santa Cruz tarplant	Fed: T State: E CNPS: List 1B.1	June – October	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in coastal prairie, valley/foothill grassland, often on heavy clay soils.
Juglans californica var. hindsii Northern California black walnut	Fed: SC State: CEQA CNPS: List 1B.1	April – May	None: planted orchard stock present during 2003 surveys. Natural populations not present. Deciduous tree found in riparian forests and riparian woodlands.
Lasthenia conjugens Contra Costa goldfields	Fed: E State: CEQA CNPS: List 1B.1	March – June	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in mesic sites in valley/foothill grassland, vernal pools.

Table 4. Special-Status Plants Potentially Present in the Study Area			
Scientific Name **Common Name**	**Status**	**Flowering Period**	**Potential for Occurrence On Site and Habitat**
Meconella oregana Oregon meconella	Fed: -- State: CEQA CNPS: List 1B.1	March – April	Annual herb in coastal prairie and scrub in East Bay
Monardella antonina ssp. antonina San Antonio Hills monardella	Fed: -- State: -- CNPS: List 3	June – August	None: suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Perennial herb (rhizomatous) found in chaparral and cismontane woodland.
Streptanthus albidus ssp*. peramoenus* most beautiful jewel-flower	Fed: -- State: CEQA CNPS: List 1B.2	April – June	None: marginally suitable habitat on site. Would have been detectable during comprehensive 2003 surveys. Annual herb in chaparral, woodlands, and grasslands in serpentine soils, Bay Area to Central Coast
Viburnum ellipticum oval-leaved viburnum	Fed: -- State: CEQA CNPS: List 2B.3	May – June	None: suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Deciduous shrub found in chaparral, cismontane woodland, lower montane coniferous forests.

Listing Status

-- = no status

SC = Species of Concern

T = Threatened

E = Endangered

CEQA = should be evaluated in CEQA environmental documents

CNPS California Rare Plant Rank

1A: Presumed extinct in California.

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

2: Rare, threatened, or endangered in California, but more common elsewhere.

3: More information is needed about this plant (Review List).

4: Plants of Limited Distribution – A Watch List.

CNPS Threat Ranks

0.1 = seriously threatened in California (high degree/immediacy of threat).

0.2 = fairly threatened in California (moderate degree/immediacy of threat).

0.3 = not very threatened in California (low degree/immediacy of threats or no current threats known).

6.3.2 Special-Status Wildlife Potentially Affected by the Project

In 2003, Sycamore identified a total of 21 special-status wildlife species with at least some potential to occur within the region. Species not expected to be present included bay checkerspot butterfly (no suitable habitat present on site and no known occurrences in the vicinity), callippe silverspot butterfly (no suitable larval food plants and no known occurrences in the vicinity) and California tiger salamander (no suitable upland habitat and no known occurrences in the vicinity).

The Sycamore report (2003b) acknowledged the moderate potential presence of a resident, landlocked population of steelhead/rainbow trout. Steelhead were known to occur in the San Leandro Creek watershed upstream of the San Leandro Reservoir, including Indian Creek upstream of the confluence with San Leandro Creek, less than one mile southwest of the Study Area. As verified during surveys conducted in 2014, Indian Creek supports gravel beds and root-wad structures and is considered to provide potentially suitable spawning and foraging habitat for steelhead. Areas potentially supporting backwater pools also were present. Given the proximity of known occurrences within the San Leandro watershed, and the presence of potentially suitable habitat, steelhead has a moderate potential to be present in the Study Area.

Steelhead that exist in the San Francisco Bay are part of the Central California Coast Evolutionarily Significant Unit. However, the National Marine Fisheries Service considered the Lake Chabot Dam, downstream of the San Leandro Reservoir, to be the uppermost extent of Critical Habitat for the Central California Coast Steelhead Evolutionarily Significant Unit (Sycamore 2003b), as the dam represents a permanent barrier to movement. The Study Area is not within Critical Habitat for the species, and the landlocked resident population of steelhead is not afforded any protection under state or federal law and does not require review under CEQA.

The potential for western pond turtle to occur on site was considered to be low due to the minimal opportunities for basking along Indian Creek due to the shading of the creek by extensive riparian habitat.

Those species considered to have a moderate to high potential to occur within the 2014 Study Area are discussed below.

<u>California Red-Legged Frog – federally-listed Threatened and California Species of Special Concern</u>

Based on the presence of on-site aquatic features and because California red-legged frog were known to occur less than three miles from the Study Area, in 2003, California red-legged frog was considered to have a high potential to occur on site. As the presence of California red-legged frog in the region was well documented and potentially suitable breeding, refugia, and dispersal habitat was present, a USFWS protocol-level Site Assessment was not deemed necessary. Focused USFWS protocol-level surveys for California red-legged frog and foothill yellow-legged frog conducted during the summer of 2003 did not detect either California red-legged frog or foothill yellow-legged frog.

The site is located approximately five miles from designated Critical Habitat for California red-legged frog; therefore, no loss of Critical Habitat for California red-legged frog will result from implementation of the Project (Figure 9).

The USFWS has identified the following PCEs for California red-legged frog habitat:

PCE 1: Aquatic breeding habitat that typically become inundated during winter rains and holds water for a minimum of 20 weeks in all but the driest of years.

PCE 2: Aquatic non-breeding habitat similar to breeding habitat but may not hold water long enough for successful breeding but provides shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult California red-legged frog.

PCE 3: Upland habitat adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of 1 mile in most cases (i.e. depending on surrounding landscape and dispersal barriers) including various vegetational types such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance for the California red-legged frog.

PCE 4: Dispersal habitat within and between occupied or previously occupied sites that is located within 1 mile of each other, and that supports movement between such sites.

Alameda Whipsnake – federally and state listed as Threatened

Alameda whipsnake has a moderate to high potential to occur in the Study Area due to the fact that the entire site lies within USFWS designated Critical Habitat for Alameda whipsnake (Figure 10). The USFWS has identified the following PCEs of Critical Habitat for the Alameda whipsnake:

PCE 1: Scrub communities with a mosaic of open and closed canopy which is used by the Alameda whipsnake to provide shelter from predators, temperature regulation by providing sunny and shady locations, prey-viewing opportunities, and nesting habitat and substrate. These features contribute to support a prey base consisting of western fence lizards and other prey species such as skinks, frogs, snakes, and birds. These areas are the core areas where Alameda whipsnakes reside most frequently and are used for retreats (shelter), thermoregulation, foraging, and provide additional prey population support functions.

PCE 2: Other lands adjacent to the Alameda whipsnake's home range as described in PCE 1 composed of either one or both woodland or annual grassland vegetation. These habitats provide opportunities for:

a) Foraging by allowing snakes to come in contact with and visualize, track, and capture prey (especially western fence lizards along with other prey such as skinks, frogs, birds);

b) Short and long distance dispersal within, between, or to adjacent to areas containing essential features (i.e., PCE 1 or PCE 3); and

c) Contact with other Alameda whipsnakes for mating and reproduction.

PCE 3: Rock outcrops, talus, and small mammal burrows within the essential core scrub or adjacent areas containing essential features identified in PCE 1 and 2: Rock outcrops, talus, and small mammal burrows within either rock outcrops or grassland or other habitats identified in PCE 2 located in close proximity to or embedded within those essential core scrub/shrub areas (PCE 1) and intervening non-scrub communities (PCE 2) that support a prey base, are PCE 3. These areas are used for retreats (shelter), hibernacula, foraging, dispersal, mating, and provide additional prey population support functions.

The site is designated Critical Habitat for Alameda whipsnake by the USFWS; therefore, the USACE must consult with the USFWS regarding the loss of Critical Habitat during the section 7 ESA consultation process.

Bridges' Coast Range Shoulderband Snail – federal Species of Concern

Bridges' Coast Range shoulderband snail is considered rare under the CNDDB ranking codes and "data deficient," because little is known about its specific habitat requirements, taxonomic status and historic range. The snail has no state or federal legal protection, but is considered sufficiently rare to be evaluated in CEQA environmental documents. The snail inhabits open hill sides and oak woodlands, and is typically found under woody debris, vegetation, and decomposing organic matter in open hillsides, fallow pastures, under tall grass and weeds, or among rock piles. Suitable habitat includes grasslands and coast live oak woodland in the Study Area.

Raptors

Special-status raptors that may occur in the Study Area or Project vicinity include Cooper's hawk (*Accipiter cooperii*) – California Species of Special Concern, golden eagle (*Aquila chrysaetos*) – California Species of Special Concern and California Fully Protected Species, and white-tailed kite (*Elanus leucurus*) – federal Species of Concern and a California Fully Protected Species. Raptors are protected under the Fish and Game Code section 3503.5 that prohibits the take, possession or destruction of raptors and their eggs and nests. Active nests are protected under the MBTA. Golden eagle and white-tailed kite are Fully Protected under section 3511 of the Fish and Game Code.

Tree nesting raptors, including golden eagle, white-tailed kite, Cooper's hawk, and sharp-shinned hawk may nest in the trees in the Study Area.

Non-raptor Migratory Woodland and Grassland Bird Species

Several special-status, non-raptor migratory birds have moderate to high potential to nest in existing vegetation (grassland, trees and shrubs) on site. Active nests are protected under section 3513 of the Fish and Game Code and/or MBTA. Non-raptor woodland bird species that might nest in the Study Area include loggerhead shrike (*Lanius ludovicianus*). Grassland nesting species that might nest in the Study Area include western meadowlark.

Bats

Special-status bat species have a moderate potential to be present within oak woodland on site. Depending on the species and environmental conditions, bats may use old wooden structures, tree bank, tree cavities, and branches for roosting and denning.

San Francisco Dusky-Footed Woodrat – California Species of Special Concern

The San Francisco dusky-footed woodrat is a medium-sized rodent, about the size of an adult rat, with a body around 7 inches long, nose to rump, and a furred tail. They live in a variety of brushy and forested habitats and are herbivores that eat grasses, leaves, fresh fruits, small bulbs, bark, flowers, nuts, and acorns. Suitable habitat for the woodrat occurs in the coast live oak woodland and Central Coast riparian scrub habitat along Indian Creek. A woodrat nest was found in Indian Creek during surveys conducted in July 2014.

In June 2014, the potential occurrence of special-status wildlife in the Study Area was evaluated through a literature and database search. Database searches for known occurrences of special-status wildlife focused on the Oakland East quadrangle and in particular the 5-mile radius surrounding the Study Area (Figure 11). Recent environmental documents prepared by the Town of Moraga also were reviewed. Additionally, several site visits were conducted.

Descriptions of special-status wildlife species identified in the Study Area and/or with potential to occur in the Study Area in 2014 are described in Table 5.

Table 5. Special-Status Wildlife Potentially Present in the 2014 Study Area

Common Name ***Scientific Name***	**Status**	**Habitat in Study Area**	**Occurrence in Study Area**
Invertebrates			
Bay checkerspot butterfly *Euphydryas editha bayensis*	Fed: T State: --	None	Unlikely: no suitable serpentine habitat present. Considered extinct in the local region.
Callippe silverspot butterfly *Speyeria callippe callippe*	Fed: E State: --	None	Unlikely: no suitable habitat present. Callippe silverspot is not known to occur in Contra Costa County.

Table 5. Special-Status Wildlife Potentially Present in the 2014 Study Area			
Common Name ***Scientific Name***	**Status**	**Habitat in Study Area**	**Occurrence in Study Area**
Bridges' Coast Range shoulderband snail *Helminthoglypta nicklinana bridgesi*	Fed: -- State: --	Habitat occurs in coast live oak woodland and adjacent grasslands. Typically found in rocky areas.	Moderate: suitable habitat present. Known from Contra Costa and Alameda Counties. Typically found in moist, often riparian areas, under rocks, woody debris or accumulated leaf mold.
Fish			
Steelhead *Oncorhynchus mykiss*	Fed: -- State: --	Present in cold water riverine habitats with gravel beds and root wads.	Unlikely: landlocked population known to occur in Indian Creek downstream of the Study Area. A hanging culvert 785 feet upstream of the confluence of Indian Creek with Upper San Leandro Creek acts as a total barrier (EBMUD 2011).
Amphibians			
California tiger salamander *Ambystoma californiense*	Fed: T State: T	No breeding habitat found on site. Only sparse gopher activity (gopher burrows, mounds) detected.	Unlikely: no suitable breeding or aestivation habitat present; considered extirpated from the Project vicinity.
California red-legged frog *Rana aurora draytonii*	Fed: T State: SSC	Suitable breeding, foraging, over-wintering and dispersal habitat occurs in riparian habitat and ponds in vicinity.	Moderate to High: no suitable breeding habitat present on site; however, suitable breeding habitat present in Indian Creek at Canyon Road. Suitable dispersal and refugia habitat present on site. Not found during USFWS protocol-level surveys conducted in 2003.
Foothill yellow-legged frog *Rana boylii*	Fed: -- State: SSC	Moderately suitable habitat in Indian Creek.	Low: suitable habitat present. Not found during USFWS protocol-level surveys conducted in 2003 for California red-legged frog.
Reptiles			
Alameda whipsnake *Masticophis lateralis euryxanthus*	Fed: T State: T	Study Area supports an abundance of PCEs including scrub, grassland and woodland required by Alameda whipsnake.	Moderate to High: suitable mosaic of habitats present, adjacent to open space lands supporting suitable habitat, and documented occurrences. Study Area is in USFWS designated Critical Habitat.

Table 5. Special-Status Wildlife Potentially Present in the 2014 Study Area			
Common Name ***Scientific Name***	**Status**	**Habitat in Study Area**	**Occurrence in Study Area**
Western pond turtle *Clemmys marmorata*	Fed: -- State: SSC	Marginal habitat occurs in Indian Creek.	Low: marginally suitable basking sites present in Indian Creek. Prefers permanent hydrology in streams or irrigation ditches with basking sites and a vegetated shoreline. Not observed during surveys.
Birds			
Cooper's hawk *Accipiter cooperii*	Fed: -- State: SSC	Suitable nesting habitat in woodland and foraging habitat in grasslands.	High: suitable nesting and foraging habitat present.
Sharp-shinned hawk *Accipiter striatus*	Fed: -- State: SSC	Suitable overwintering and foraging habitat in grasslands.	Moderate to High: suitable over-wintering habitat present. Does not breed in the San Francisco Bay Area.
Golden eagle *Aquila chrysaetos*	Fed: -- State: --	Suitable nesting habitat in woodland and foraging habitat in grasslands.	Moderate: suitable nesting and foraging habitat present.
Burrowing owl *Athene cunicularia*	Fed: -- State: --	Suitable grassland habitat, however, absence of ground squirrel activity and ground squirrel burrows.	Unlikely: no ground squirrel activity or burrows detected. Not observed during 2014 surveys and considered unlikely to occur.
Northern harrier *Circus cyaneus*	Fed: -- State: SSC	Potential foraging habitat occurs in grasslands.	Moderate: not expected to nest on site; suitable foraging habitat present.
White-tailed kite *Elanus leucurus*	Fed: -- State: FP	Suitable nesting habitat occurs in coast live oak woodlands, especially along streams.	Possible: potentially suitable breeding and foraging habitat is present on site.
Loggerhead shrike *Lanius ludovicianus*	Fed: BCC State: SSC	Suitable nesting habitat occurs in coast live oak woodland.	Possible: the site provides suitable nesting and foraging habitat.
Western meadowlark *Sturnella neglecta*	Fed: -- State: --	Suitable nesting and foraging habitat occurs in grasslands.	
Mammals			
Pallid bat *Antrozous pallidus*	Fed: -- State: SSC WBWG High Priority	Suitable roosting habitat occurs in coast live oak woodland along streams.	Moderate: suitable roosting habitat present

Table 5. Special-Status Wildlife Potentially Present in the 2014 Study Area			
Common Name ***Scientific Name***	**Status**	**Habitat in Study Area**	**Occurrence in Study Area**
Townsend's big-eared bat *Corynorhinus townsendii*	Fed: -- State: SSC WBWG High Priority	Suitable roosting habitat occurs in coast live oak woodland along streams and in culverts and other structures.	Possible: suitable foraging habitat present.
Western mastiff bat *Eumops perotis californicus*	Fed: -- State: SSC WBWG High Priority	Suitable roosting habitat occurs in coast live oak woodland along streams, and in culverts and other structures.	Possible: suitable foraging habitat present.
Silver-haired bat *Lasionycteris noctivagans*	Fed: -- State: -- WBWG Medium Priority	Roosts in buildings, under bridges, tree cavities, and under bark spaces and rock crevices. May roost in tree cavities and under bark spaces in mature and senescent trees in the area.	Possible: suitable foraging habitat present.
Western red bat *Lasiurus blossevillii*	Fed: -- State: SSC WBWG High Priority	Roosts in trees and shrubs, especially edge habitats such as riparian woodlands. May roost in trees in the coast live oak woodlands in the area.	Possible: suitable foraging habitat present.
Hoary bat *Lasiurus cinereus*	Fed: -- State: -- WBWG Medium Priority	Roosts in trees and shrubs, especially edge habitats such as riparian woodlands. May roost in trees in the coast live oak woodlands in the area.	Possible: suitable foraging habitat present.
Western small-footed myotis *Myotis ciliolabrum*	Fed: -- State: -- WBWG Medium Priority	Roosts in buildings, under bridges, tree cavities, and under bark spaces and rock crevices. May roost in culverts and tree cavities and under bark spaces in mature and senescent trees in the area.	Possible: suitable foraging habitat present.
Long-eared bat *Myotis evotis*	Fed: -- State: -- WBWG Medium Priority	Roosts in trees, rock outcrops, and buildings. Suitable roosting habitat occurs in coast live oak woodland along streams.	Moderate: suitable roosting habitat present
Little brown bat *Myotis lucifugus*	Fed: -- State: -- WBWG Medium Priority	Roosts in trees, rock outcrops, and buildings. May roost in trees in the coast live oak woodlands, and forage in the riparian and wetland habitats in the area.	Possible: suitable foraging habitat present.

Table 5. Special-Status Wildlife Potentially Present in the 2014 Study Area			
Common Name ***Scientific Name***	**Status**	**Habitat in Study Area**	**Occurrence in Study Area**
Fringed myotis bat *Myotis thysanodes*	Fed: -- State: -- WBWG High Priority	Roosts in trees, rock outcrops, and buildings. Suitable roosting habitat occurs in coast live oak woodland along streams.	Moderate: suitable roosting habitat present
Long-legged myotis *Myotis volans*	Fed: -- State: -- WBWG High Priority	Roosts in trees, rock outcrops, and buildings. May roost in trees in the coast live oak woodlands, especially under the bark spaces of mature or senescent trees and forage in the riparian and wetland habitats in the area.	Possible: suitable foraging habitat present.
Yuma myotis bat *Myotis yumanensis*	Fed: -- State: -- WBWG Low-Medium Priority	Suitable roosting habitat occurs in coast live oak woodland along streams. Roosts in buildings, under bridges, tree cavities, and under bark spaces and rock crevices. May roost in culverts and tree cavities and under bark spaces in mature and senescent trees.	Moderate: suitable roosting habitat present
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	Fed: -- State: SSC	Inhabits forests with moderately open canopy and dense to moderately dense understory vegetation. Occurs in forested areas around Moraga. Suitable habitat occurs in coast live oak woodland.	High: a woodrat nest was observed during the site visit conducted on July 15, 2014.
American badger *Taxidea taxus*	Fed: -- State: SSC	Suitable denning and foraging habitat occurs in grasslands.	Unlikely: requires abundant burrowing mammals (food source) and loose, friable soils. No badger dens were observed during 2014 surveys.

Table 5. Special-Status Wildlife Potentially Present in the 2014 Study Area			
Common Name ***Scientific Name***	**Status**	**Habitat in Study Area**	**Occurrence in Study Area**
Listing Status -- = no status T = Threatened under ESA or CESA E = Endangered under ESA or CESA BCC = USFWS Birds of Conservation Concern, migratory or no migratory bird species that represent the highest conservation priorities and draw attention to species in need of conservation action. SSC = California Species of Special Concern as determined by CDFW because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. WL = on the CDFG "Watch List" of species that 1) were on previous SSC; or 2) were previously state or federally listed; or 3) are "FP". FP = Fully Protected species under Fish and Game Code Sections 35121 (birds), 4700 (mammals), 5050 (reptiles and amphibians) and 5515 (fish). WBWG – Listed by the Western Bat Working Group (WBWG) because it is imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.			

6.4 Potential Impacts

A residential development Project would include grading, road, utility and infrastructure construction and development of homes, public trails, storm water detention basins, etc. Construction would result in the conversion of some of the undeveloped land to developed uses, including home parcels, stormwater retention/detention basins, and other infrastructure (Table 6). Approximately 62.9 acres of habitat would be permanently impacted, and an additional 59.5 acres would be temporarily impacted. In addition to land permanently converted to developed uses, remedial grading would be required to stabilize portions of the site. Areas requiring temporary grading for slope stabilization would be hydroseeded and restored to grassland; therefore, impacts to these areas are considered temporary.

The proposed development of the Indian Valley property has been designed to avoid and minimize impacts to the highest quality biological resources on site including the Indian Creek riparian corridor, upper slopes and ridgeline, and drainage stream corridors that flow from the upper watershed and into Indian Creek. Storm drain outfalls are designed to outflow to Indian Creek outside the actual creek channel via existing drainages. Several biological corridors are preserved, originating from the ridge to the northeast of the Project Boundary and connecting to Indian Creek to the southwest. Potential California red-legged frog and other wildlife will be able to move freely through these biological corridors. The important biological movement corridors along the preserved Indian Creek corridor and along the ridge of the property are also preserved (Figure 12).

Table 6. Development Impact Summary	
	Acres
Project Site	
Permanent impacts (houses, roads, infrastructure, etc.)	62.9
Temporary impacts (GHAD and Open Space)	59.5
Subtotal	122.4
No impacts (GHAD and Open Space)	18.5
Total Project Site	**140.9**
Remainder of Bruzzone Family Holdings	311.7
Canyon Road	
Permanent impacts (includes 0.51 acres of pavement)	1.3
Temporary impacts	1.0
TOTAL	**454.9**
Note: All numbers are rounded to the nearest hundredth. Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.	

Impact 1: Loss of sensitive habitats (coast live oak woodland, Central Coast riparian scrub, freshwater marsh and seeps). This impact is considered potentially significant due to the high wildlife values of these habitats.

Implementation of a residential development Project would result in the conversion of undeveloped land to developed uses. Most of the impacts would occur to non-native annual grassland needed to construct the housing units and related infrastructure; however, the following impacts are anticipated to sensitive habitats (Table 7):

- 1.81 acres of coast live oak woodland,
- 1.03 acres of Central Coast riparian scrub, and
- 2.92 acres of freshwater marsh and seeps.

Table 7. Estimated Impacts to Various Vegetation Community Types

Vegetation Community Type	Project Site					Remainder Bruzzone Family Holdings (acres)	Canyon Road Right-of-Way	
	Permanent Impacts (acres)	Temporary Impacts (GHAD and Open Space) (acres)	Subtotal (acres)	No Impact (GHAD and Open Space) (acres)	Total (acres)		Permanent Impacts (acres)	Temporary Impacts (acres)
Non-native annual grassland	45.11	44.89	90.0	12.57	102.57	126.10	0.46	0.85
Coast live oak woodland and isolated oaks (Sensitive Natural Community)	0.10	1.64	1.74	2.47	4.21	103.97	0.07	0
Northern coyote brush scrub	0.52	5.00	5.52	1.58	7.10	64.90	0.18	0.15
Abandoned orchard with associated ruderal vegetation	15.71	5.53	21.24	0.27	21.51	0.89	0	0
Central Coast riparian scrub (Sensitive Natural Community)	0.54	0.41	0.95	0.83	1.78	5.74	0.08	0
Freshwater marsh and seeps (a) (Sensitive Natural Community)	0.92	2.00	2.92	0.75	3.67	5.11	0	0
Sage scrub and undifferentiated scrub	0	0.03	0.03	0.03	0.06	4.99	0	0
Total	**62.9**	**59.5**	**122.4**	**18.5**	**140.9**	**311.7**	**1.30***	**1.0**

(a) Referred to as seasonal wetland in the *U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project, Contra Costa County, California*. (Olberding/Guinon 2014).

Notes: *Permanent impacts to Canyon Road right-of-way include 0.51 acres of pavement.

All numbers are rounded to the nearest hundredth.

Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.

Impact 2: Loss of wetland and riparian habitats. This impact is considered potentially significant because these habitats are regulated by the state and federal agencies and have high wildlife values.

Implementation of a residential development Project would result in permanent and temporary impacts to wetland and riparian habitats in order to construct the Project. The estimated amount of impact is wetlands/waters regulated by the USACE is 3.213 acres (4,007 linear feet) acres (Table 8). The estimated amount of impact to riparian habitats is 1.03 acres (Table 7).

Impact 3: Loss of trees. This impact is considered potentially significant because trees are protected by Town ordinance and have high scenic and wildlife values.

The Project Applicant will be required to hire an arborist to prepare an arborist report for the Project. The study area for the arborist report will focus on the area proposed for development. The number of trees to be removed cannot be estimated without an arborist report; however, the Project Applicant will be required to preserve trees within the development area where feasible. The Project Applicant will be required to mitigate for the loss of trees in accordance with Town requirements.

Impact 4: Potential loss of special-status plant species. This impact is considered potentially significant because special-status plants are locally rare.

A reconnaissance-level survey of the Study Area and floristic surveys for special-status plants conducted by Sycamore in 2002 and 2003 documented the presence of three special-status plant species: robust monardella (CNPS List 1B.2), bent-flowered fiddleneck (CNPS List 1B.2), and Oakland star-tulip (CNPS List 4.2). These species were found primarily along the ridgeline in the sage scrub, coast live oak woodland, and northern coyote brush scrub habitats.

Implementation of a residential development Project may result in direct (e.g. removal of plants) and/or indirect effects (e.g. changes in drainage patterns or erosion that results in plants dying) to individuals of locally rare plant species including bent-flowered fiddleneck, Oakland star-tulip and robust monardella.

Most of the potential habitat for most locally rare species is located outside of the proposed development area and would not be affected during construction.

Impact 5: Potential loss of special-status wildlife species. This impact is considered potentially significant because special-status wildlife are protected by state and federal law.

Implementation of the Project may affect individuals and will affect habitat for special-status wildlife species. Potentially affected species include the California red-legged frog, Alameda whipsnake, Bridges' Coast Range shoulderband snail, raptors and non-raptor woodland and grassland bird species, bats and San Francisco dusky-footed woodrat.

Table 8. Estimated Impacts to Wetlands/Waters Regulated by the USACE

Wetland/Habitat Type	Amount Present in Wetland Delineation Area (acres and linear feet)	Estimated Impacts (acres and linear feet)						Subtotal Impacts	Avoided
		Road/ Culvert Upgrade	Canyon Road Widening	Civil Grading (temporary)	Civil Grading (permanent)	Remedial Grading (temporary)	Bridge		
Seasonal wetlands (freshwater marsh and seeps)	9.186 ac	0	0	0.79 ac	0.77 ac	1.21 ac	0.15 ac	2.92 ac	6.27 ac
Intermittent drainages (includes Indian Creek)	1.714 ac 18,119 lf	0.010 ac 88 lf	0.041 ac 1,120 lf	0.061 ac 781 lf	0.113 ac 1,356 lf	0.009 ac 127 lf	0.044 ac 535 lf	0.278 ac 4,007 lf	1.436 ac 14,112 lf
Perennial drainage (Moraga Creek)	0.137 ac 121 lf	0	0	0	0	0	0	0	0.137 ac 121 lf
Pool	0.015 ac	0.015 ac	0	0	0	0	0	0.015 ac	0
Total	**11.052 ac 18,240 lf**	**0.025 ac 88 lf**	**0.041 ac 1,120 lf**	**0.851 ac 781 lf**	**0.883 ac 1,356 lf**	**1.219 ac 127 lf**	**0.194 ac 535 lf**	**3.213 ac 4,007 lf**	**7.483 ac 14,233 lf**

* Source: Olberding/Guinon. 2014. *U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project, Contra Costa County, California*.

Notes: All numbers are rounded to the nearest hundredth.

Impacts estimated based on Preliminary Jurisdictional Delineation that has not been verified by the USACE.

Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.

Potential California red-legged frog breeding, dispersal and aestivation habitat is located within the Indian Creek channel. The biologists conducting the wetland delineation in 2014 limited their surveys of Indian Creek to all locations where the tributaries from the Study Area flow into Indian Creek and at the culvert crossing of Indian Creek along Canyon Road. In 2014, qualified biologists identified one pool in Indian Creek just downstream of Canyon Road within the road right-of-way that provides potential breeding habitat for California red-legged frog. The remainder of the 2014 Study Area outside the Indian Creek corridor does not provide breeding habitat; however, it does provide potential dispersal and aestivation habitat for the frog. Several drainages that flow into Indian Creek also provide potential dispersal habitat for the frog. The freshwater marshes and seeps in the upper watershed, especially in perennially saturated areas, provide potential aestivation and refugia habitat for the frog.

The only potential California red-legged frog breeding habitat found during 2014 surveys of Indian Creek is located in a small scour pool in Indian Creek just downstream of Canyon Road (no stock ponds are found on site). It is not known whether improvements to Canyon Road would impact this pool. Implementation of the Project would, however, result in the loss of potential California red-legged frog dispersal and aestivation habitat. The freshwater marshes and seeps in the upper watershed, especially in perennially saturated areas, provide potential aestivation and refugia habitat for the frog; however, these areas are not proposed for development.

If California red-legged frog are present within the development area, implementation of the Project may result in direct (e.g. mortality) and/or indirect effects (e.g. temporary disturbances due to noise and construction activity) to the species. Incidental take of frog could occur as a result of heavy construction equipment and Project construction. The species could be run over, buried, or crushed by equipment during construction.

Implementation of a residential development Project would result in permanent impacts to 63.69 acres and temporary impacts to an additional 60.5 acres of potential California red-legged frog dispersal and aestivation habitat (Table 9). As part of the Clean Water Act Section 404 permitting process, the USACE is required to consult with the USFWS under the federal ESA to avoid and minimize effects on federally-listed species (California red-legged frog). The exact mitigation requirements, including compensatory mitigation, would be determined through the section 7 consultation process.

Table 9. Estimated Impacts and Compensatory Habitat Mitigation for Loss of Potential California Red-legged Frog Habitat			
Impact Type	**Acres**	**Anticipated Compensation Ratio**	**Estimated Compensatory Habitat Mitigation Required (acres)**
Permanent Impacts			
Development (houses, roads, infrastructure, etc.)	62.9	3:1	188.7
Canyon Road widening (does not include impacts to pavement)	0.79	3:1	2.37
Subtotal	**63.69**		**191.07**
Temporary Impacts			
Remedial grading and/or temporary disturbance areas, including GHAD and Open Space areas, restored to grassland	59.5	1:1	59.5
Canyon Road widening	1.0	1:1	1.0
Subtotal	**60.5**		**60.5**
TOTAL	**124.19**		**251.57**
No Impact			
No Impact areas within Project Site	18.5	No mitigation required	0
Remainder of Bruzzone Family Holdings	311.7	No mitigation required	0
TOTAL	**330.2**		
Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.			

Grading and construction activities would result in habitat loss and possibly result in direct mortalities of Alameda whipsnake unless protective measures and mitigation is implemented. The Study Area contains habitats considered optimal for Alameda whipsnake and contains the physical and biological features essential to the conservation of the whipsnake (Primary Constituent Elements). The core areas where Alameda whipsnakes reside most frequently and are used for retreats (shelter), thermoregulation, foraging, and provide additional prey population support functions are the scrub communities with a mosaic of open and closed canopy which support a prey base.

Incidental take of Alameda whipsnake could occur as a result of heavy construction equipment and construction. Use of heavy construction equipment in or near upland areas may harass, injure or kill Alameda whipsnake. The species may be run over, buried, or crushed by equipment

moving on roads and trails to and from the construction areas. Noise and vibration associated with construction may also harass the species.

Anticipated mitigation for the loss of Alameda whipsnake habitat includes the permanent protection and management of high-quality Alameda whipsnake habitat. The exact amount of mitigation would be determined by the USFWS and CDFW through the permitting process; however, anticipated impacts and anticipated compensation ratios are presented in Table 10.

Table 10. Estimated Impacts and Compensatory Habitat Mitigation for Loss of Potential Alameda Whipsnake Habitat

Impact Type	Acres	Anticipated Compensation Ratio	Estimated Compensatory Habitat Mitigation Required (acres)
Permanent Impacts			
Development (houses, roads, infrastructure, etc.)	62.9	3:1	188.7
Canyon Road widening (does not include impacts to pavement)	0.79	3:1	2.37
Subtotal	**63.69**		**191.07**
Temporary Impacts			
Remedial grading and/or temporary disturbance areas, including GHAD and Open Space areas, restored to grassland	59.5	1:1	59.5
Canyon Road widening	1.0	1:1	1.0
Subtotal	**60.5**		**60.5**
TOTAL	**124.19**		**251.57**
No Impact			
No Impact areas within Project Site	18.5	No mitigation required	0
Remainder of Bruzzone Family Holdings	311.7	No mitigation required	0
TOTAL	**330.2**		
Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.			

As part of the Clean Water Act Section 404 permitting, the USACE is required to consult with the USFWS under the section 7 of the ESA to avoid and minimize effects on federally-listed species (Alameda whipsnake and California red-legged frog) and loss of designated Critical Habitat for Alameda whipsnake. The Project Applicant is also required to apply for an Incidental

Take Permit under the CESA to avoid and minimize impacts on state-listed species (Alameda whipsnake).

Impact 6: Loss of Critical Habitat for Alameda whipsnake. This impact is considered significant because Critical Habitat for Alameda whipsnake is designated by the USFWS and protected by federal law.

The Study Area is located in designated Critical Habitat (Unit 2) for Alameda whipsnake (Figure 10). Loss of this Critical Habitat is not likely to jeopardize the continued existence of Alameda whipsnake populations in the Project vicinity; however, implementation of the Project would result in increased human presence and associated noise, light and glare, and domestic and possibly feral animals which may further degrade habitat for special-status species.

Impact 7: Potential loss of active raptor nests, migratory bird nests and native wildlife nursery sites. This impact is considered significant because raptors, migratory birds and native wildlife nursery sites are protected by state and federal law.

Implementation of the Project would result in grading and construction activities that may adversely affect active raptor nests, migratory bird nests, and native wildlife nursery sites. Vegetation removal has the potential to remove nesting and denning sites. Construction-related impacts include noise, light, glare, vibration and other activities that have the potential to disrupt nesting behavior. Migratory birds are protected under the MBTA and active raptor nests are protected under the Fish and Game Code.

Nesting and roosting habitat for special-status bird species and bats occurs in the various habitats including non-native annual grassland, coast live oak woodland, Central Coast riparian scrub, and northern coyote brush scrub. Construction would require the removal of grasslands, trees, and shrubs that provide nesting and roosting habitat for these species.

Potential construction impacts include the destruction of occupied nests and roosts, direct mortalities of eggs and young, and possible abandonment of active nests and roosts due to construction-related impacts such as noise and vibration. Development would permanently remove breeding and foraging habitat for a variety of raptors, migratory passerines, and bats. The habitats found in the Study Area provide suitable breeding and foraging opportunities for a variety of species including raptors (Cooper's hawk, sharp-shinned hawk, golden eagle, northern harrier, white-tailed kite), bats, and passerines.

Impact 8: Potential temporary disruption to biological migration and travel corridors during construction. This impact is considered less than significant because the impacts would be temporary and the ridge, drainages, and riparian corridors are not proposed for development.

The Study Area is considered an important wildlife movement/migration route for local wildlife. Wildlife movement includes migration (usually one direction per season), inter-population movement (long-term genetic exchange), and small travel pathways (daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily

home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow between populations.

The important regional biological movement/migration corridors found in the Study Area include:

- Indian Creek is an important wildlife corridor that provides a key link between undeveloped lands to the northwest, west, and south. Indian Creek flows below Canyon Road via a large 60-inch culvert. This aquatic and riparian corridor is likely utilized by a variety of aquatic and terrestrial wildlife species. The constraints-based design preserves the riparian corridor. Storm drain outfalls are designed to outflow to Indian Creek outside the actual creek channel via existing drainages.

- The upper slopes and ridgeline provide an important wildlife corridor that also connects undeveloped and protected lands to the northwest with EBMUD regional protected open space to the southeast. The constraints-based design preserves the upper slopes and ridgeline.

- The drainage stream corridors that flow from the upper watershed and into Indian Creek connect the protected ridgeline to the Indian Creek riparian corridor and facilitate the movement of plant and wildlife species. The constraints-based design preserves many of these drainages.

The most important biological movement corridors are found along the Indian Creek corridor and along Indian Ridge (Figure 12).

Implementation of the Project would result in potential temporary disruption to biological migration and travel corridors during construction; however, no impacts are anticipated along the majority of the wildlife movements corridors found along the Indian Creek, Indian Ridge, and the drainages.

The proposed Project would not inhibit movement of wildlife species; therefore, the impact is considered less than significant and no mitigation is required.

6.5 Recommended Mitigation Measures

Implementation of the following mitigation measures will reduce potential impacts to a less-than-significant level.

Mitigation 1: Restore sensitive habitats (coast live oak woodland, northern coyote brush scrub and Central Coast riparian scrub) at a 2:1 ratio to ensure no net loss of habitat.

The Project Applicant shall retain a qualified biologist/restoration specialist to develop and implement plans to restore and establish sensitive habitats at a ratio of 2 acres restored/created to 1 acre impacted. Restored/created habitats shall be located in permanently protected open space

and planted during the first fall season following completion of grading and other construction-related ground disturbance. Planted vegetation shall be maintained by the Project Applicant for a minimum of five years after planting or longer until plants are established. Restoration mitigation sites will be protected by a deed restriction to preserve them in perpetuity.

Mitigation 2: Obtain permits and authorizations from the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board and restore wetland habitat at a 2:1 ratio to ensure no net loss of habitat.

The Project Applicant shall retain a qualified wetland consultant to delineate USACE Waters of the U.S. and RWQCB Waters of the State according to the methods outlined in the USACE *Wetland Delineation Manual* (USACE 1987), the *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region* (USACE 2008), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008). CDFW jurisdiction should be delineated by measuring the outer width and length boundaries of on-site streambeds, which consist of either the top of bank measurement (bankfull width) or the extent of associated riparian vegetation. In accordance with state and federal law, and prior to the issuance of a grading permit, the Project Applicant shall obtain a Clean Water Act Section 404 permit from the USACE, a Clean Water Act Section 401 water quality certification from the RWQCB, and a Section 1600 streambed alteration agreement from the CDFW.

The Project Applicant shall retain a qualified wetland consultant and restoration specialist to prepare and implement plans to restore and establish wetland habitats at a 2:1 ratio. The Town of Moraga shall review and approve the restoration plan prior to issuing a Grading Permit. Restored habitats shall be located in permanently protected open space and constructed during the first fall season following completion of grading and other construction-related ground disturbance. The wetland habitats shall be maintained by the Project Applicant for a minimum of five years. The restored wetland habitats shall be protected by deed restriction to protect them in perpetuity.

Mitigation 3: Replace trees and restore sensitive habitats (coast live oak woodland, northern coyote brush scrub, and Central Coast riparian scrub) at a 2:1 ratio to ensure no net loss of habitat.

This mitigation is described in Mitigation 1.

Mitigation 4: Avoid and minimize impacts to trees during construction.

The Project Applicant shall retain a qualified arborist to conduct a tree survey and prepare an arborist report identifying trees that may be subject to impact on the Project site. In accordance with Moraga Ordinance 183 regarding tree preservation, the following measures should be implemented to avoid and reduce impacts to trees that would be preserved during construction.

1. A qualified, certified arborist shall review project plans (demolition, grading, utility, landscape, and irrigation plans) for consistency with actual tree counts and locations to accurately determine which trees are at risk of injury during construction. The arborist

shall make recommendations for tree preservation and tree preservation notes shall be included on construction plans.

2. A fenced or otherwise delineated tree protection zone shall be established around the edge of the drip line of affected trees to ensure grading, excavation, material storage, or other construction activities are excluded within this area. No excess soil, chemicals, debris, equipment, or other materials shall be dumped or stored within the tree protection zone. Underground utilities shall not be placed within the tree protection zone, and trenching for irrigation systems would not be permitted within the tree protection zone.

3. Herbicides placed under paving materials must be safe for use around trees and labeled for that use.

4. Prior to construction, a certified arborist shall review work procedures and tree protection with the construction superintendent.

5. Prior to construction, a certified arborist shall prune trees to be preserved for construction access in accordance with the Tree Pruning Guidelines of the International Society of Arboriculture. Brush shall be chipped and spread beneath the trees within the tree protection zone. Any additional pruning needed during construction shall be performed by a certified arborist and not by construction personnel.

6. During construction, no grading, construction, demolition, or other work shall occur within the tree protection zone. Any modification to the tree protection zone must be approved and monitored by a certified arborist.

7. Lime application shall not occur within 50 feet of any trees as it is toxic to tree roots.

8. If root pruning is required for construction purposes, the activity shall receive prior approval and be monitored by a certified arborist.

9. Supplemental irrigation shall be applied as determined by a certified arborist.

10. If injury occurs to a tree during construction, a certified arborist shall inspect the damage and recommend/apply appropriate treatments as soon as possible.

11. Tree health and structural stability shall be monitored by a certified arborist during and following construction. Occasional pruning, fertilization, mulch, pest management, replanting, and irrigation may be required and shall be implemented as determined by a certified arborist.

Mitigation 5: Conduct pre-construction botanical surveys and restore removed populations at a 2:1 ratio to ensure no net loss of habitat.

The Project Applicant shall retain a qualified botanist to conduct pre-construction botanical surveys of the construction footprint according to CDFW and USFWS protocols. The surveys shall be floristic in nature and conducted during the period necessary to identify special-status

plant species with potential to occur. The floristic surveys will be considered valid for 18 months. If more than 18 months pass between the time of the surveys and construction, additional surveys will be required. If locally rare or CNPS ranked plant species are detected, removed populations shall be restored and established with other native habitats such that there is no net loss of the number of individuals or extent of removed populations.

If state- or federally-listed species are detected, the Project Applicant shall consult with the CDFW and/or the USFWS as required to develop feasible take avoidance, minimization, and mitigation measures. Potential mitigation measures may include restoration of removed populations such that there is no net loss of individuals of special-status plants. In the event there is a plant mitigation program, the restoration area will be protected by a deed restriction to protect the plants in perpetuity. Copies of botanical reports and permits shall be provided to the Town of Moraga prior to issuance of a Grading Permit.

Mitigation 6: The Project Applicant will prepare a Biological Assessment to allow the U.S. Army Corps of Engineers to consult with the U.S. Fish and Wildlife Service under section 7 of the federal Endangered Species Act for potential impacts to federally-listed species (California red-legged frog and Alameda whipsnake) and Critical Habitat for Alameda whipsnake. The Project Applicant will also prepare an Incidental Take Permit application under the California Endangered Species Act for potential impacts to state listed species (Alameda whipsnake). The U.S. Fish and Wildlife will issue a Biological Opinion or letter of concurrence prior to construction. The California Department of Fish and Wildlife will issue an Incidental Take Permit prior to construction.

The Project Applicant shall retain qualified biologists to prepare a Biological Assessment to initiate consultation with the USFWS for potential effects on California red-legged frog, Alameda whipsnake, and effects on Critical Habitat for Alameda whipsnake. The qualified biologists also must prepare an Incidental Take Permit application to submit to CDFW for potential effects on Alameda whipsnake. The Project Applicant and biologists will work with the USFWS and CDFW to develop measures to prevent the loss of individuals and occupied or designated Critical Habitat. Copies of reports, agency consultation, and permits, as applicable, shall be provided to the Town of Moraga prior to issuing a grading permit.

The Project Applicant will compensate for harm resulting from adverse effects to the state and federally-listed species (Alameda whipsnake and California red-legged frog) and the adverse effects to Critical Habitat for Alameda whipsnake by providing appropriate compensatory habitat. The amount of compensatory habitat mitigation will be based on the amount of permanent and temporary loss of habitat for each species.

Typical measures to avoid and minimize effects on Alameda whipsnake include (these measures may be modified during consultation with the USFWS and CDFW):

1. Avoid rock outcroppings to the maximum extent feasible.

2. Initial brush clearing and surface grading shall only take place between June 15 and October 31, when the whipsnake is more active and less likely to be impacted.

3. Pre-construction surveys by a qualified wildlife biologist shall be conducted no more than 24 hours prior to clearing and grubbing the site. If no Alameda whipsnake are encountered, the site is considered ready for construction. If Alameda whipsnake are encountered, the USFWS and CDFW will be consulted for further instructions.

4. A biologist approved by the USFWS and CDFW will be on site during ground-disturbing activities that have the potential to adversely affect habitat for Alameda whipsnake. If special-status species are discovered during these activities, the Service-approved biologist will halt all work within 250 feet of the species to ensure that no take of Alameda whipsnake occurs. The biological monitor also shall relocate other wildlife species to designated refugia during removal of surface vegetation.

5. Environmentally sensitive areas adjacent to but outside of the construction footprint shall be designated as such on the construction plans. The environmentally sensitive areas shall be protected from encroachment by construction workers and equipment by orange construction fencing.

6. To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day with plywood or other suitable material, or provided with one or more escape ramps constructed of earth fill or wooden plants.

7. Plastic monofilament netting (erosion control matting) or similar material will not be used in the Project Boundary because Alameda whipsnake can become entangled and trapped in it. Alternative materials such as coconut coir matting or pacified hydroseeding compounds will be used.

8. All construction workers will attend mandatory worker environmental awareness training program to be given by a biologist approved by the USFWS and CDFW. The program will focus on the potential special-status species that may be present on the Project site. The program will include an explanation of federal and state laws protecting these listed species as well as the importance of compliance with these laws. Documentation of the trainings, including sign-in sheets, will be kept on file and provided to the USFWS, CDFW and the Town of Moraga with the monthly reports.

9. Monthly construction monitoring reports shall be prepared by the biological monitor and submitted to the USFWS, CDFW and the Town of Moraga.

Typical measures to avoid and minimize effects on California red-legged frog during construction include the following (these measures may be modified by the USFWS during consultation):

1. Pre-construction surveys by a qualified wildlife biologist will be conducted no more than 48 hours prior to clearing and grubbing the site (e.g. two night surveys immediately prior

to construction or as otherwise required by the USFWS). If no California red-legged frogs are encountered, the site is considered ready for construction. If California red-legged frogs are encountered, work must stop immediately and the USFWS will be consulted for further instructions.

2. To the extent practicable, initial ground-disturbing activities will be avoided between November 1 and March 31 to avoid the period when California red-legged frogs are most likely to be moving through upland areas. When ground-disturbing activities must take place between November 1 and March 31, daily monitoring will occur for California red-legged frogs.

3. Environmentally sensitive areas adjacent to, but outside of, the construction footprint will be designated as such on the construction plans. The environmentally sensitive areas will be protected from encroachment by construction workers and equipment by orange construction fencing.

4. To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day with plywood or other suitable material, or provided with one or more escape ramps constructed of earth fill or wooden plants.

5. Plastic monofilament netting (erosion control matting) or similar material will not be used in the Project area because wildlife can become entangled and trapped in it. Alternative materials such as coconut coir matting or pacified hydroseeding compounds will be used.

6. All construction workers will attend mandatory worker environmental awareness training program to be given by a USFWS-approved biologist. The program will focus on the potential special-status species that may be present on the Project site. The program will include an explanation of federal and state laws protecting these listed species as well as the importance of compliance with these laws. Documentation of the trainings, including sign-in sheets, will be kept on file and provided to the USFWS, CDFW, and the Town of Moraga with the monthly reports.

7. Wildlife exclusionary fencing will be placed at the edge of active construction areas (cleared by biological surveys) in areas identified as California red-legged frog habitat. The fencing is intended to restrict frog access from the adjacent upland and riparian habitat. The fence will consist of taut silt fabric, 24 inches high, stacked at 10-foot intervals, with the bottom buried 6 inches below grade. The wildlife exclusion fence will remain in place throughout the duration of construction activities and will be regularly inspected and fully maintained. The fence will be completely removed upon completion of Project-related activities within these areas and the areas returned to preconstruction conditions or better.

8. Within and adjacent to California red-legged frog habitat, all construction equipment or construction debris left overnight will be inspected for California red-legged frogs by the

USFWS-approved biologist prior to beginning of each day's activities and prior to being moved.

9. Nighttime construction will be minimized.

10. Vehicle and equipment speed will be limited to 20 miles per hour in unpaved portions of the Project site.

11. No pets will be permitted in the Project site.

12. Monthly construction monitoring reports will be prepared by the biological monitor and submitted to the USFWS and the Town of Moraga.

13. Any grading and construction in Indian Creek for storm drain outfalls or culvert work will occur after the peak season of California red-legged frog dispersal (after May 1).

Mitigation 7: Consult with CDFW and USFWS for potential impacts to federally- and state-listed species (California red-legged frog and Alameda whipsnake); provide compensatory habitat mitigation; and implement measures during construction to avoid and minimize impacts.

This mitigation measure is described under Mitigation 6.

Mitigation 8: Conduct pre-construction surveys for nesting raptors, migratory birds, bats and other nesting wildlife species.

The Project Applicant shall retain a qualified biologist to conduct pre-construction surveys for raptors, migratory birds and bats. The qualified biologist will implement impact avoidance, minimization and mitigation measures for nesting birds and bat denning sites that may include the following measures.

1. Where feasible, land-clearing activities (grading, grubbing, and clearing of vegetation or the removal or trimming of trees) shall be performed during the non-nesting season for most birds, generally between September 1 and January 30, or when a qualified biologist determines that no active nests are present in the construction area.

2. If land-clearing activities occurs between February 1 and August 31, a qualified biologist to conduct pre-construction surveys for nesting raptors and migratory birds. Pre-construction surveys are valid for 14 days from the survey date. Should work commence later than 14 days from the survey date, surveys should be repeated.

3. The survey area shall cover all areas that will be affected by construction activity including grassland, trees and scrub habitat and include a 250-foot buffer zone around the limits of work.

4. If active raptor or migratory bird nests are detected, the qualified biologist shall consult with the CDFW and/or USFWS to determine appropriate temporary protective breeding

season buffers to avoid direct or indirect mortality of these birds, nests and young. The buffer distances will be dependent on the species, surrounding vegetation and topography. Nest sites may be disturbed after a qualified biologist determines that no direct or indirect impacts would cause nest abandonment or mortality to young.

5. A qualified bat biologist shall conduct pre-construction surveys for bats before the demolition of any structures, removal of trees or large snags. Pre-construction surveys are valid for 30 days from the survey date. Should work commence later than 30 days from the survey date, surveys should be repeated. It is recommended that any tree removal be performed during the non-roosting season (approximately September 1 to October 31). If evidence of bats is observed during work activities, work in the vicinity of the bats shall be halted and a qualified bat biologist consulted to determine appropriate mitigation.

6. If evidence of bat roosting is observed during the maternity roosting season (generally April 1 to August 31), a qualified bat biologist shall consult with CDFW to determine an appropriate buffer that will remain in place until the end of the maternity roosting season. The size of the buffer will be determined by the type of bat observed, topography, slope, aspect, surrounding vegetation, sensitivity of roost, type of potential disturbance, etc. If no active roosts are identified, construction activities may commence as planned. If roosts are disturbed or destroyed, the qualified bat biologist shall consult with CDFW.

The qualified biologist will implement the following impact avoidance, minimization and mitigation measures to avoid possible loss of the Bridges' Coast Range shoulderband snail, if present on the site.

1. A qualified entomologist or invertebrate biologist shall conduct a pre-construction survey to verify whether this subspecies is present or absent on the site. The survey shall be conducted during the time of year when snails are most easily detected, generally during the late winter and early spring (February through May) in advance of construction. Following completion of the pre-construction surveys, a report of findings shall be prepared by the qualified entomologist/invertebrate biologist and submitted to the Town of Moraga for review prior to initiation of vegetation removal and construction. The report shall either confirm absence of this subspecies from the site or, if individuals are encountered, shall follow details of the Program as outlined below. If absent, no additional mitigation is required. If present, a Bridges' Coast Range Shoulderband Snail Protection and Relocation Program (Program) shall be prepared by the qualified entomologist or invertebrate biologist and implemented as part of the Project. The Program shall contain the following provisions and performance standards.

    a. Temporary measures shall be implemented during construction to prevent this subspecies from dispersing from preserved occupied habitat into areas to be graded and disturbed during construction. A secured containment area with fencing shall be created along the riparian corridor to prevent dispersal into the construction zone.

b. Individuals of the subspecies located within the limits of construction shall be collected and temporarily relocated by the qualified entomologist/invertebrate biologist to the preserved habitat prior to any vegetation removal or grading on the site.

c. A worker training program shall be given by the qualified entomologist/invertebrate biologist to all construction personnel. The training shall describe and include photographs of the subspecies and its vulnerability, explain the importance of avoiding inadvertent take, and instruct personnel on what to do if additional individuals of the subspecies are encountered during construction.

d. Temporary construction disturbance within the riparian corridor required for construction of the storm drain outfalls shall be overseen by the qualified entomologist/invertebrate biologist to ensure activities do not adversely affect individuals of the subspecies.

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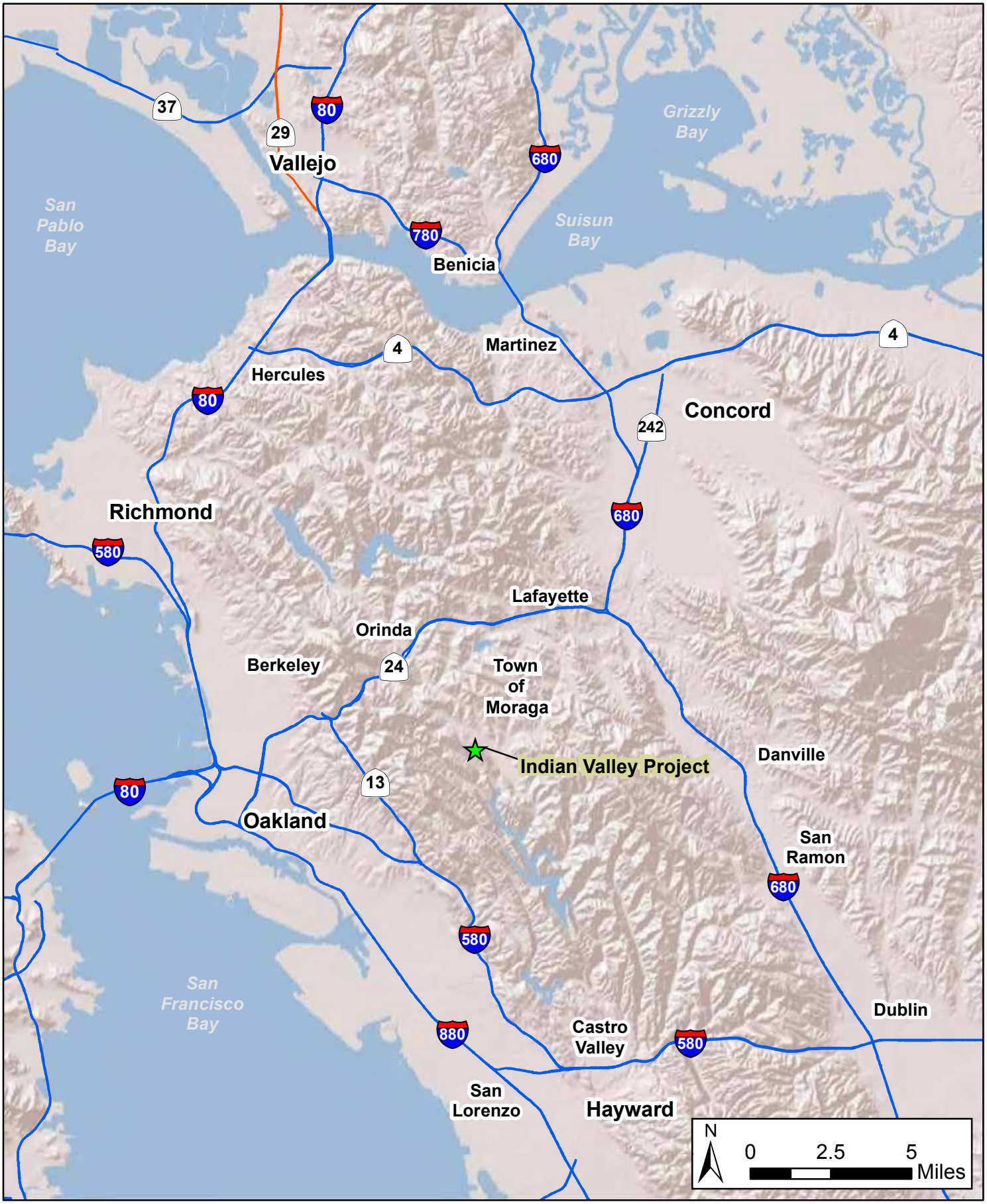
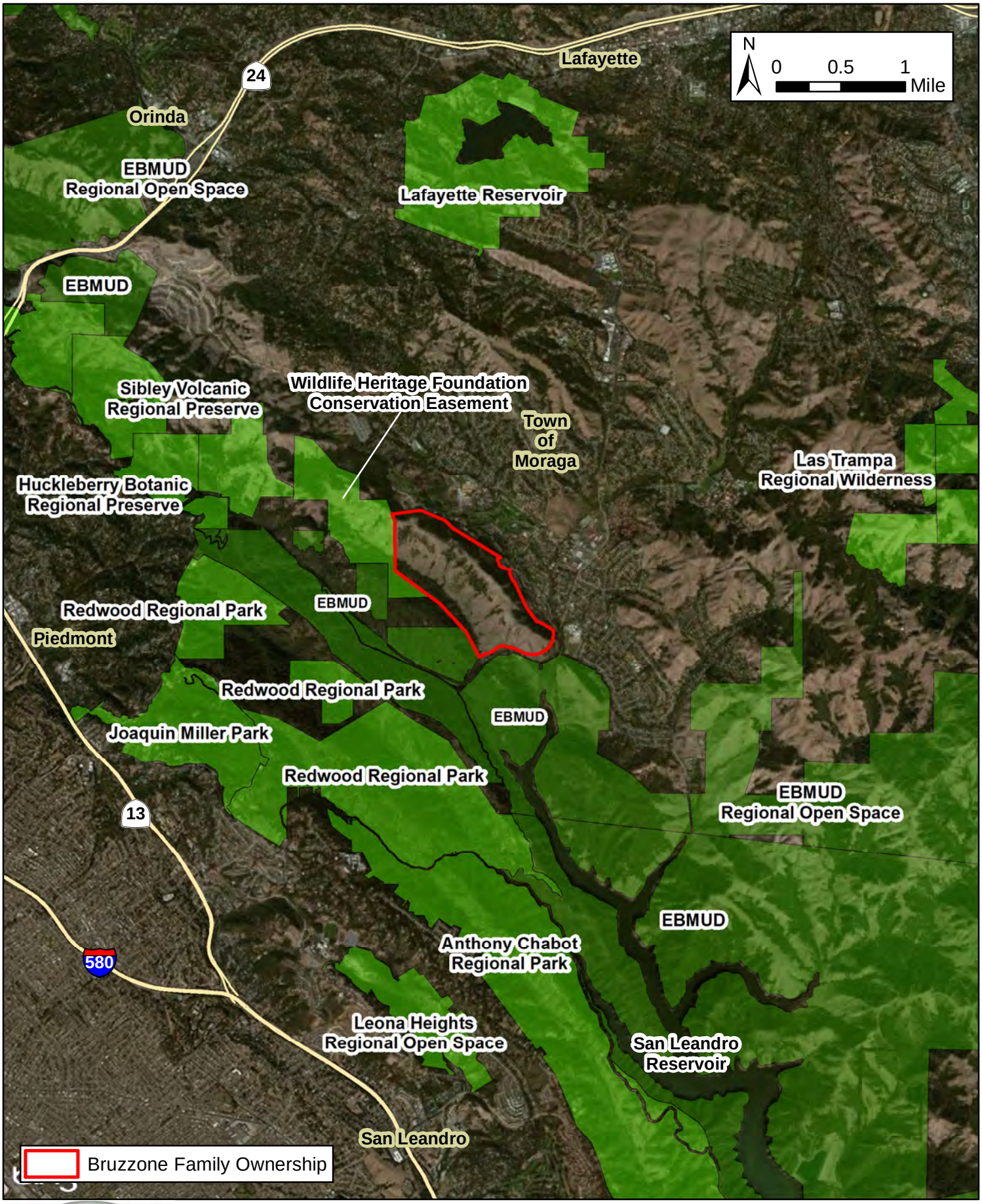
Attachment 1

Figures



193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 1: Regional Map
Indian Valley Project



193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

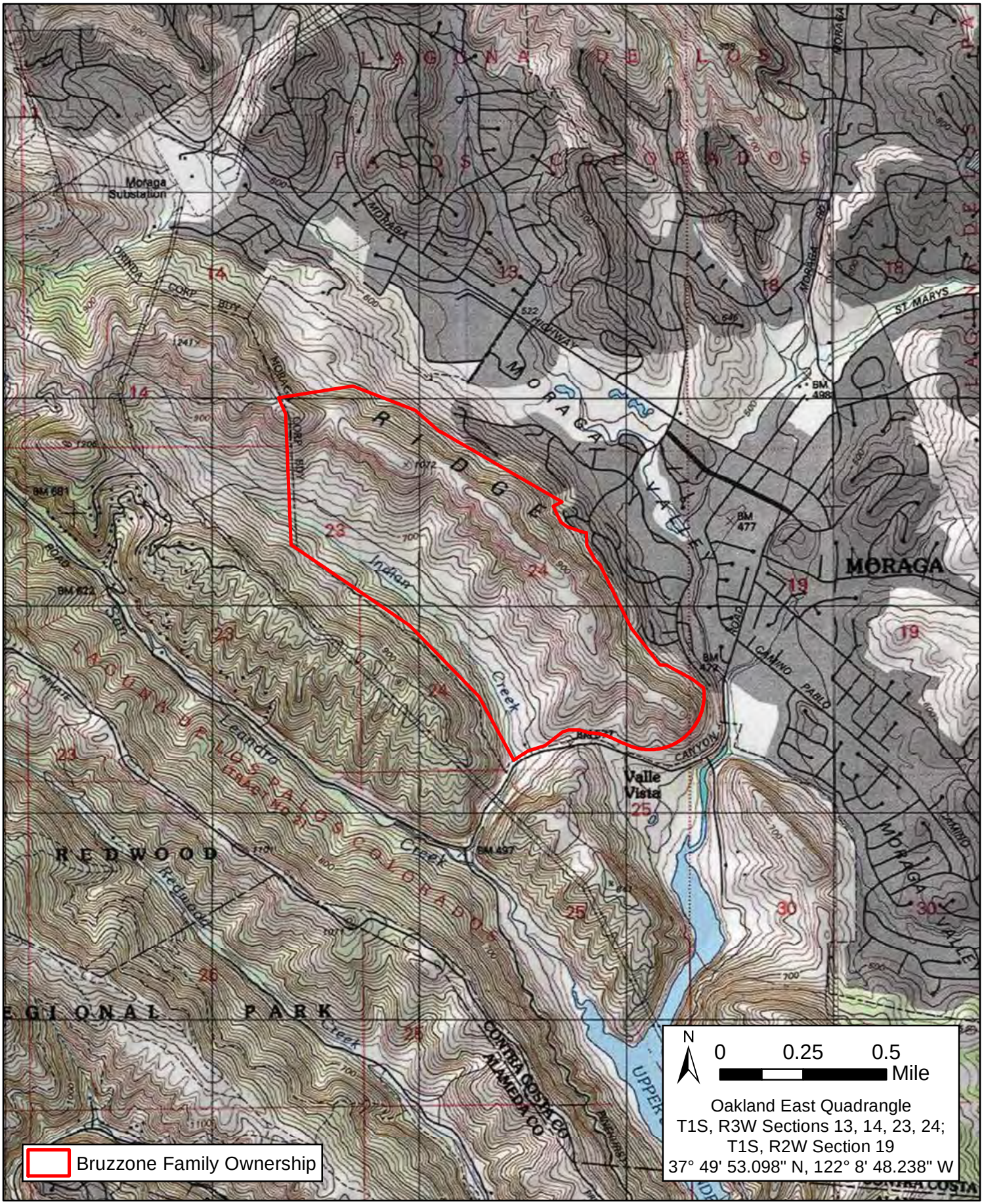
Figure 2: Project Vicinity
Indian Valley Project

Imagery Source and Date: ESRI/Bing; 11/02/2010

OLBERDING ENVIRONMENTAL INC.
193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 3: Aerial Map
Indian Valley Project

Aerial Image Source and Date: Digital Globe; 06/09/2014



193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 4: USGS Topographic Map
Indian Valley Project

Bruzzone Family Ownership
Freshwater Marsh/Seep
Unvegetated Waters
Non-native Annual Grasslands
Abandoned Orchard
Central Coast Riparian Scrub
Coast Live Oak Woodland and Isolated Oaks
Freshwater Marsh/Seep
Northern Coyote Brush Scrub
Sage Scrub
Undifferentiated Scrub

N
0 0.1 0.2 Mile

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Folsom, CA 95630
Phone: (916) 985-1188

Figure 5: Vegetation Communities and Aquatic Features of Indian Valley
Indian Valley Project

Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

INDIAN VALLEY

TOWN OF MORAGA, CALIFORNIA

PROJECT IMPACT EXHIBIT

JUNE 22, 2015

1" = 300'

0 150 300 600

CONTOUR INTERVAL = 5'

INDICATES PERMANENT IMPACTS		
PROJECT (DEVELOPED)	= 51.1 ACRES	
PROJECT (PUBLIC R/W)	= 1.3 ACRES	
TOTAL	52.4	
INDICATES TEMPORARY IMPACTS		
PROJECT (OPEN SPACE)	= 59.5 ACRES	
PROJECT (PUBLIC R/W)	= 1.0 ACRES	
TOTAL	60.5	
INDICATES PERMANENT IMPACTS		
PROJECT (OPENSPACE)	= 11.8 ACRES	
TOTAL	11.8	
INDICATES NO IMPACTS		
PROJECT (OPENSPACE)	= 18.5 ACRES	
TOTAL	18.5	

Figure 6: Indian Valley Project Impact Exhibit

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Special-status Species Population Data		
Ben-flowered Fiddleneck *(Amsinckia lunaris)* CNPS List 1B		
Population ID	**Number of Individuals**	**Survey Date**
A-1	~500	4/10/2003
A-2	~60	4/10/2003
A-3	~300	4/10/2003
A-4	~70	4/10/2003
A-5	~80	4/10/2003
A-6	~150	4/10/2003
A-7	~200	4/10/2003
A-8	~90	4/10/2003
A-9	~50	4/10/2003
Oakland Star Tulip *(Calochortus umbellatus)* CNPS List 4		
Population ID	**Number of Individuals**	**Survey Date**
C-1	~4	4/10/2003
C-2	~140	4/10/2003
Robust Monardella *(Monardella villosa ssp. Globosa)* CNPS List 1B		
Population ID	**Number of Individuals**	**Survey Date**
M-1	1	7/3/2003
M-2	2	7/3/2003
M-3	1	7/3/2003
M-4	4	7/3/2003
M-5	1	7/3/2003
M-6	1	7/3/2003
M-7	1	7/3/2003
M-8	1	7/3/2003
M-9	1	7/3/2003
M-10	1	7/3/2003
M-11	1	7/3/2003
M-12	1	7/3/2003

Bruzzone Family Ownership
Bent-flowered fiddleneck (Amsinckia lunaris) CNPS List 1B
Oakland star tulip (Calochortus umbellatus) CNPS List 4
Robust monardella (Monardella villosa ssp. globosa) CNPS List 1B

N 0 0.1 0.2 Mile

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Figure 7: Special-status Plants Found During Surveys Conducted in 2003 Indian Valley Project

Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

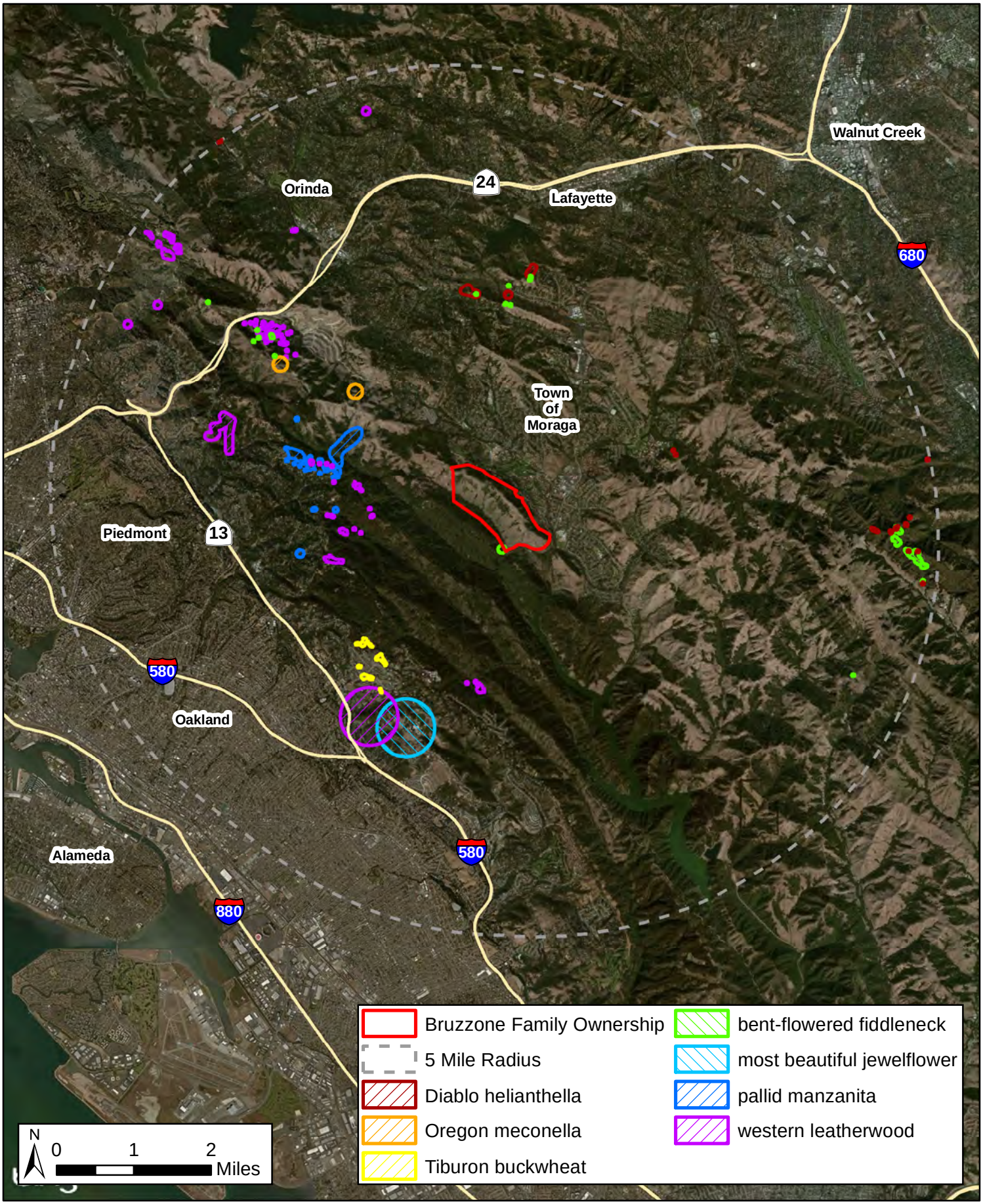

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Figure 8: CNDDB Plant Occurrences Within 5 Miles and 10 Years Indian Valley Project

Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

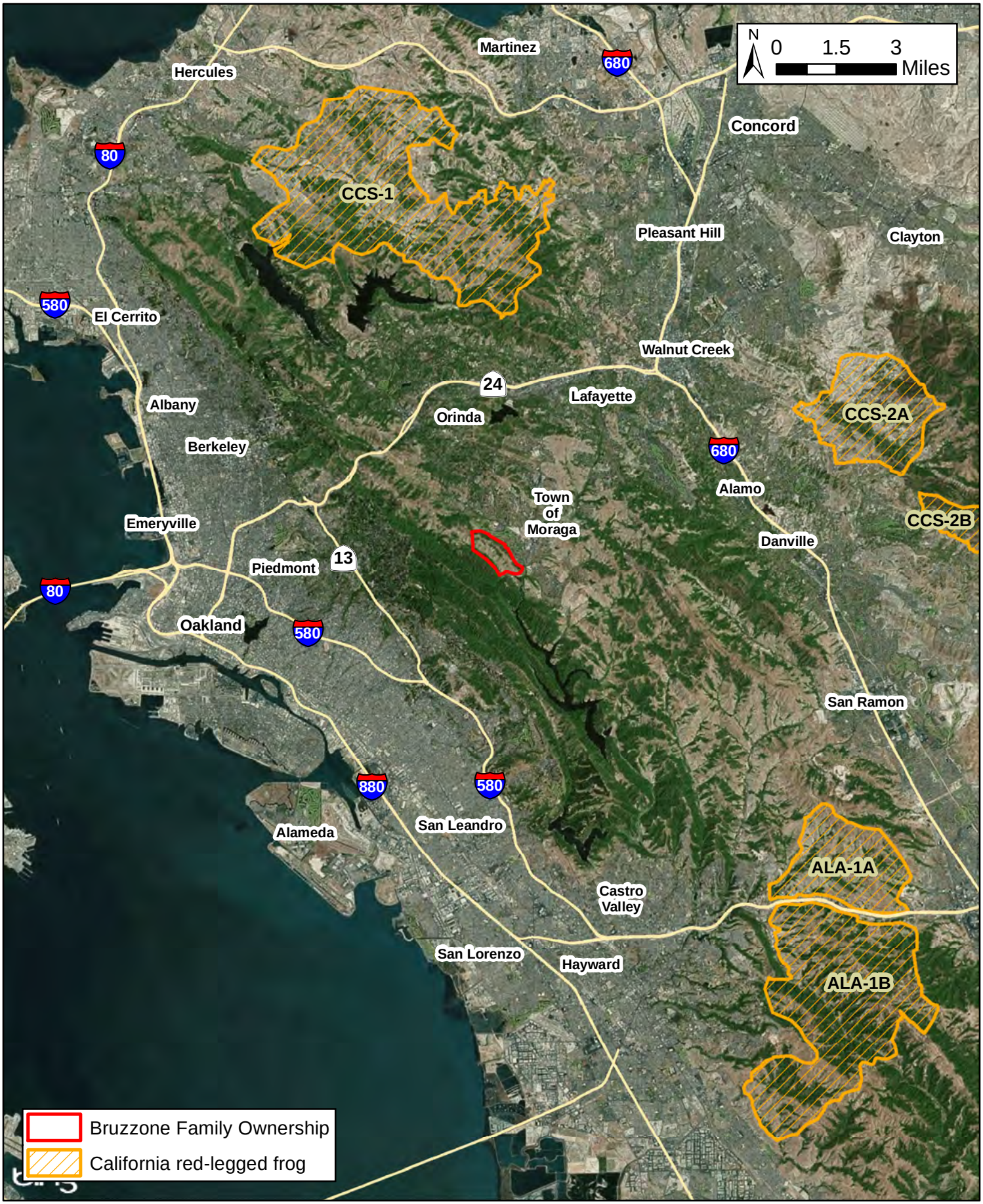

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Figure 9: USFWS California Red-legged Frog Critical Habitat Indian Valley Project

Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

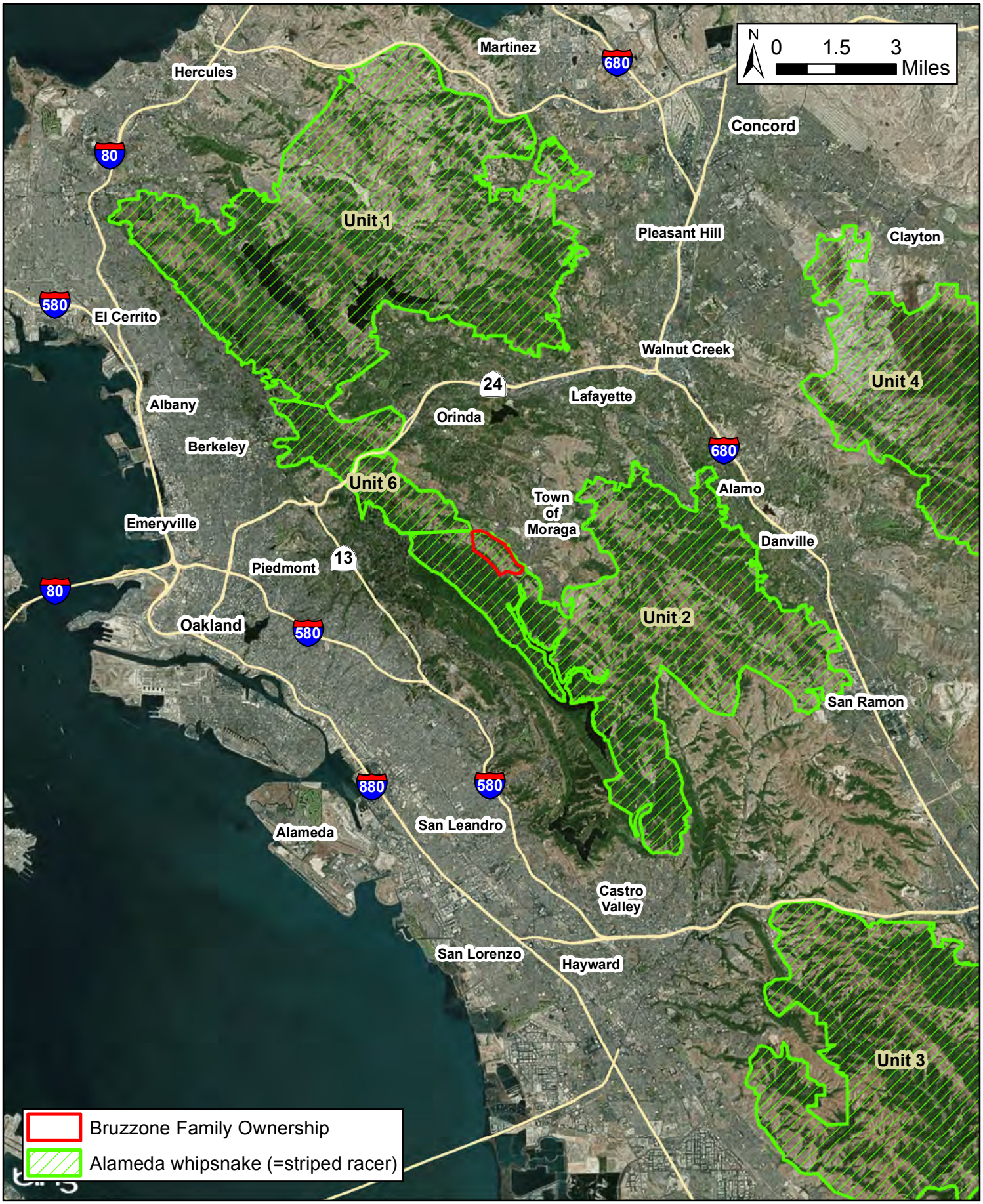

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Figure 10: USFWS Alameda Whipsnake Critical Habitat
Indian Valley Project

Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

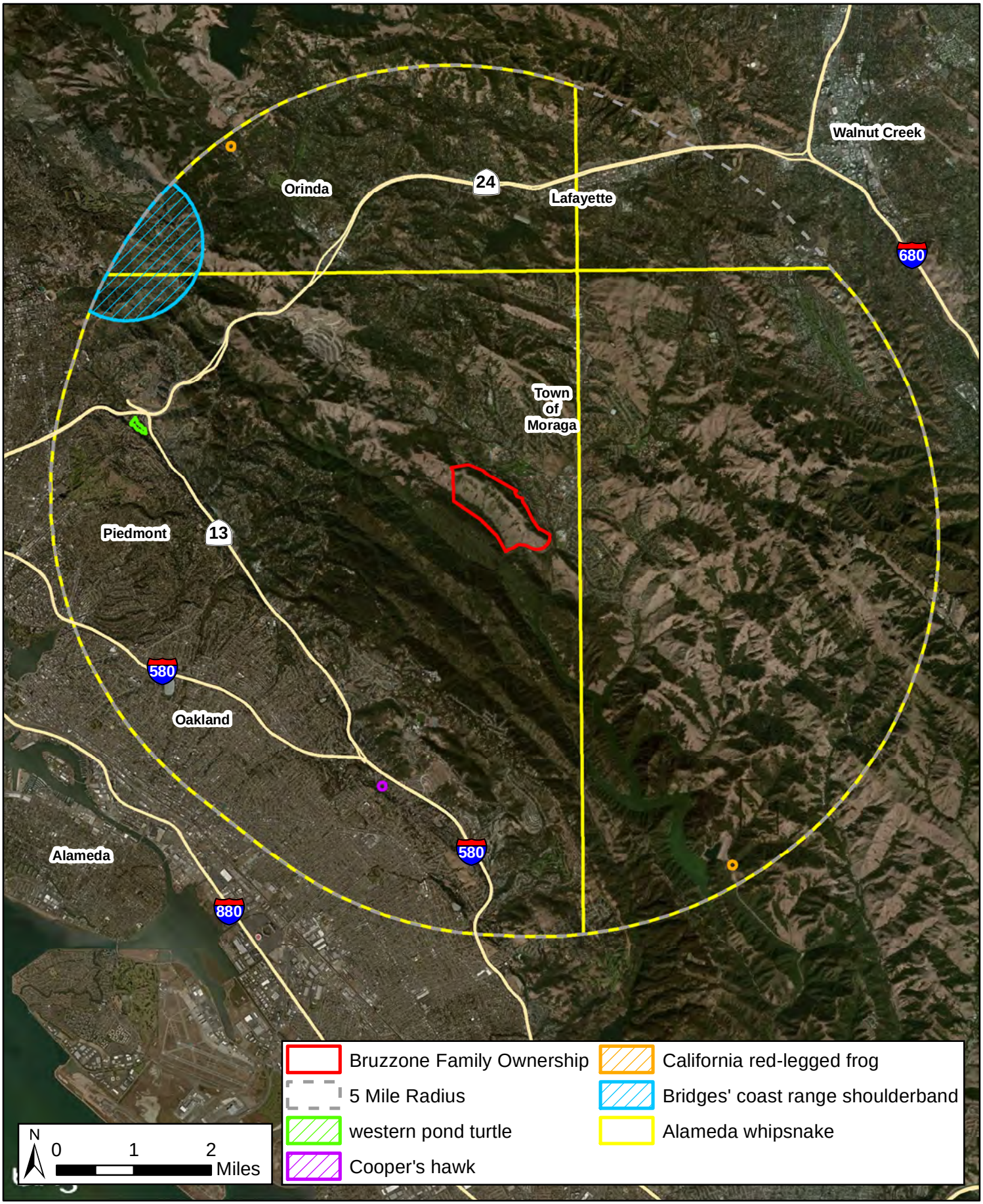

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Figure 11: CNDDB Wildlife Occurrences Within 5 Miles and 10 Years Indian Valley Project

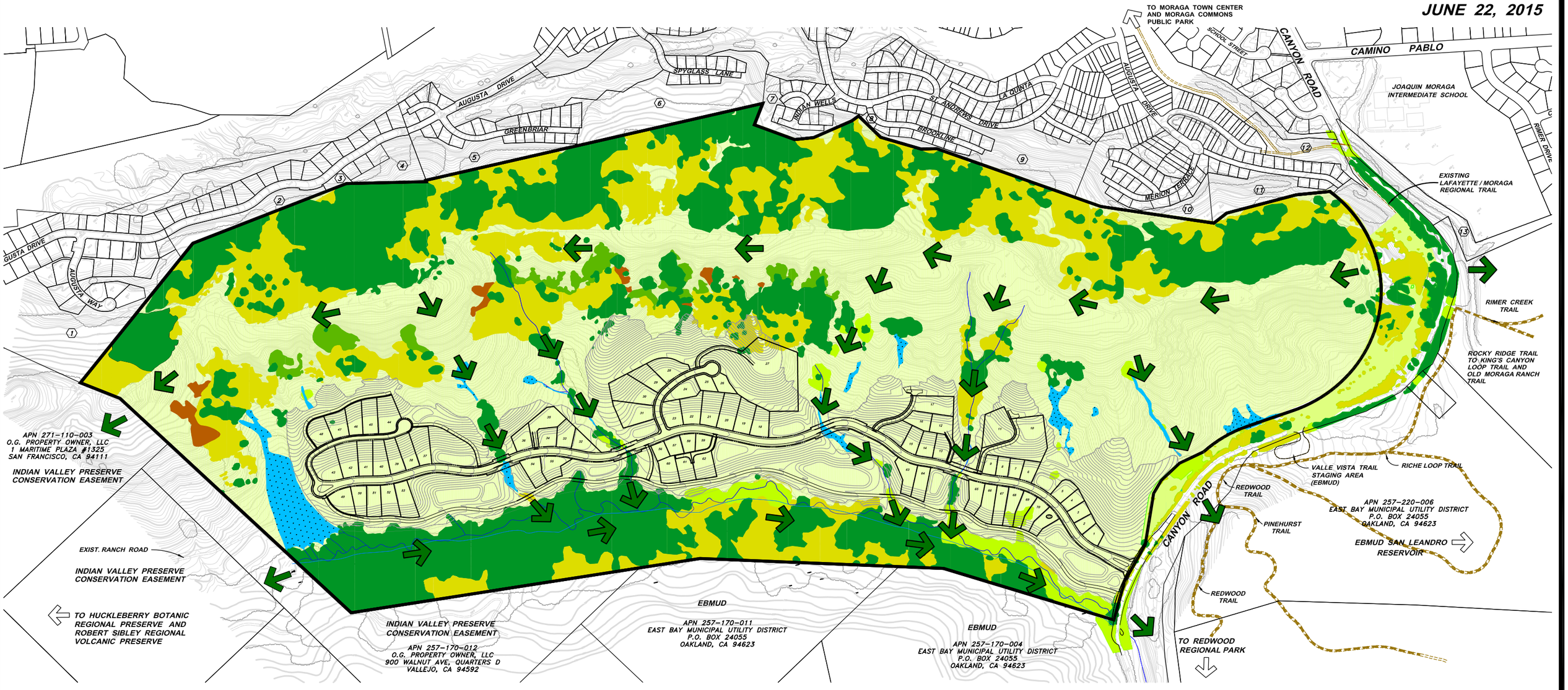
Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

INDIAN VALLEY

TOWN OF MORAGA, CALIFORNIA

WILDLIFE AVOIDANCE & BIOLOGICAL MOVEMENT CORRIDOR EXHIBIT

JUNE 22, 2015



LEGEND

- NATURAL DRAINAGE COURSE (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- SEEP (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- COAST LIVE OAK WOODLAND (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- NON-NATIVE ANNUAL GRASSLAND (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- COYOTE BRUSH SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- FRESHWATER MARSH SEEP (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- SAGE SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- CENTRAL COAST RIPARIAN SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- UNDIFFERENTIATED SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)

0 300 600

KEY **LEGEND**

INDICATES BIOLOGICAL WILDLIFE MOVEMENT CORRIDORS
(NOTE: MOVEMENT FLOWS IN BOTH DIRECTIONS)

Figure 12: Wildlife Avoidance & Biological Movement Corridor Exhibit

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