

ADDENDUM
TO THE
CALIFORNIA RED-LEGGED FROG FOCUSED
SURVEYS REPORT
FOR THE
INDIAN VALLEY PROPERTY
TOWN OF MORAGA, CONTRA COSTA COUNTY

Prepared for:

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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
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
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
MOSO	Moraga Open Space Ordinance
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
PCE	Primary Constituent Element
RWQCB	Regional Water Quality 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

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

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1.0 EXECUTIVE SUMMARY

The purpose of this report is to provide an update and augmentation to the report titled, *California Red-legged Frog Focused Surveys for the Indian Valley Property, Moraga, Contra Costa County, California*, prepared by Sycamore Associates LLC (Sycamore) in December 2003 (Sycamore 2003a).

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.

The Study Area, including aquatic features found in Indian Creek, was considered to support potentially suitable breeding, dispersal and aestivation habitat for California red-legged frog (*Rana aurora draytonii*) (federally listed as threatened under the federal Endangered Species Act [ESA] and a California Species of Special Concern) and foothill yellow-legged frog (*Rana boylei*) (a California Species of Special Concern).

Both California red-legged frog and foothill yellow-legged frog had been documented less than three and two miles northwest of the Study Area, respectively, within the Gateway Valley in Orinda (California Natural Diversity Data Base [CNDDDB] occurrences as reported in Sycamore 2003a). Therefore, in 2003 based on reported occurrences within the regional vicinity and the presence of potentially suitable habitat on site, both species were considered to have a moderate to high potential to occur within the Study Area and focused surveys for both species were recommended. 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.

The Property Owner is considering development of the site and requested that the Sycamore report (2003a) be evaluated to determine what updates were needed to bring the study up to current standards. 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 Indian Creek and its associated riparian corridor, the steep slopes and ridgeline, wetlands, drainages and other sensitive natural communities, 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 report (2004).
- 2014 Study Area includes the approximate 400 acres studied in the Sycamore report 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.

- 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 report and other pertinent literature, an updated CNDDDB 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 loss of potential dispersal and aestivation habitat, and possible loss of individual California red-legged frogs during construction. It should be noted, however, that no California red-legged frog or foothill yellow-legged frog were detected on site during protocol surveys conducted in 2003, and none were detected on site during the conduct of a jurisdictional wetland delineation by four biologists in 2014.

In 2003, Sycamore biologists surveyed the entire Indian Creek corridor and noted potential California red-legged frog breeding, dispersal and aestivation habitat within the Indian Creek channel. Based on surveys conducted in 2014, these habitat conditions and the potential for breeding frogs in Indian Creek have not changed. 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 a culvert crossing of Indian Creek along Canyon Road. In 2014, biologists identified one pool in Indian Creek just downstream of Canyon Road that provides potential breeding habitat for California red-legged frog. This pool is below the outfall under Canyon Road at the most south east location of the Study Area. The biologists also observed a pond that was constructed adjacent to and west of the 2014 Study Area. The pond appears to lack hydrology and be too shallow to support breeding habitat for the California red-legged frog. Stock ponds were absent from the Study Area in 2003 and 2014.

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 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 proposed development of the Indian Valley property has been designed to avoid and minimize impacts to the Indian Creek corridor. The proposed project (Project) also preserves several of the drainage stream corridors that flow from the upper watershed and into Indian Creek, to the maximum extent possible.

Mitigation measures recommended to reduce potential impacts to California red-legged frog to a less-than-significant level are identified below.

- Prepare a Biological Assessment to allow the U.S. Army Corps of Engineers (USACE) to consult with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the federal Endangered Species Act for potential impacts to California red-legged frog (federally listed species).

- Obtain a Biological Opinion or letter of concurrence from the USFWS prior to construction.
- As required by the USFWS, provide compensatory habitat mitigation for California red-legged frog.
- As required by the USFWS, implement measures before and during construction to avoid and minimize potential impacts to California red-legged frog.
- As required by the USFWS, conduct pre-construction surveys for California red-legged frog prior to any ground disturbing activities.

2.0 SUMMARY OF THE 2003 SYCAMORE REPORT

This section summarizes information contained in the *California Red-legged Frog Focused Surveys for the Indian Valley Property, Moraga, Contra Costa County, California* report prepared by Sycamore in December 2003 (Sycamore 2003a).

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 located 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 plants 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.

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.

A USFWS protocol-level Site Assessment for the California red-legged frog was not conducted for the 2003 Study Area. However, based on a reconnaissance-level biological assessment that was conducted for the property on October 28, 2002, the Study Area was considered to support potentially suitable breeding, dispersal, and aestivation habitat for the California red-legged frog. Based on the findings of that 2002 assessment, focused frog surveys were recommended and conducted in 2003.

2.2 Study Area Description

The site is located along Indian Creek, a headwater tributary to San Leandro Creek. Topography on site 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 are 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 south 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. 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.

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 include 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 seeps, freshwater marsh and ephemeral drainages (Sycamore 2003a). 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, 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.

Based on a review of the CNDDDB in 2003, both California red-legged frog and foothill yellow-legged frog had been reported less than three and two miles northwest of the Study Area, respectively, within the Gateway Valley in Orinda (Sycamore 2003a). Based on reported occurrences within the regional vicinity and the presence of suitable habitat, both species were considered to have a moderate to high potential to occur within the Study Area, and focused surveys were recommended.

2.4 Methods

For the purposes of the Sycamore report (2003a), the “Study Area” included all aquatic features on the property including Indian Creek, its on-site tributaries, and all identified seeps and springs. Surveys were conducted according to the USFWS protocol *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (*Rana aurora draytonii*) (USFWS 1997). Standing and flowing water or subsurface seepage was present within all the aquatic features at the commencement of surveys; however, most aquatic features had dried or nearly dried near the completion of the surveys.

Three Sycamore biologists conducted focused surveys on July 29, 2003, and August 4, 12, and 21, 2003. Daytime surveys were conducted between the hours of 1000 and 1600 and nighttime surveys were conducted between the hours of 2000 and 2300. Weather conditions during the daytime surveys were clear and warm (between 78° and 92° Fahrenheit) with little to no winds. Weather conditions during the nighttime surveys were clear and warm to cool (between 70° and 72° Fahrenheit).

Surveys were conducted by walking the length of Indian Creek, its associated tributaries, seeps and freshwater marsh habitats, while visually scanning the area. Spotlights were used during night surveys to detect eye shine. All wildlife species detected by sight or sign were identified and recorded.

2.5 Results and Recommendations of the 2003 Sycamore Report

No California red-legged frog or foothill yellow-legged frog was detected within the 2003 Study Area. Amphibians that were detected 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*), Stellar’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 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 (*Masticophis lateralis euryxanthus*).

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 site is known to contain wetlands and waters subject to jurisdiction under section 404 of the Clean Water Act; therefore, a formal 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 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 (NMFS) 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 NMFS under Section 10 of the ESA.

Federally listed species that may be present on site include California red-legged frog and Alameda whipsnake; 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 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) 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.

4.3 Critical Habitat

Critical Habitat is a term defined and used in the federal ESA as a specific geographic area that contains 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 NMFS 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. Agency consultations for species with designated Critical Habitat also require that their activities or projects do not adversely modify the 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 during the section 7 ESA consultation process regarding loss of Critical Habitat. The site is located approximately five miles from designated Critical Habitat for California red-legged frog (Figure 5); 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, toyon 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 1 are used to determine if the Project would have a significant impact on biological resources.

Table 1. 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.?	Acreege 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.

Table 1. CEQA Evaluation Criteria with Points of Significance			
Evaluation Criteria	As Measured by	Point of Significance	Justification
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.
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 2003 SYCAMORE REPORT AND RECOMMENDATIONS

Based on a review of the previous report prepared by Sycamore (2003a) and 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 CNDDDB search to identify California red-legged frog 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 California red-legged frog should be identified, and the significance of potential impacts under CEQA should be identified.
- Mitigation measures to avoid or reduce potential impacts to California red-legged frog to a less-than-significant level should be identified.

It should be noted that the Study Area described by Sycamore in 2003 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 California red-legged frog in the Study Area was evaluated through a literature and database search. Database searches for known occurrences of California red-legged frog 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 may 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 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 (Figure 7).

Prior to the site visits, the following documents were reviewed:

- *California Red-legged Frog Focused Surveys for the Indian Valley Property, Moraga, Contra Costa County, California* (Sycamore 2003a);
- *Biological and Wetlands Assessment for the Indian Valley Property, Moraga, Contra Costa County* (Sycamore 2003b); and
- *Botanical Assessment of the Indian Valley Property, Moraga, Contra Costa County, California* (Sycamore 2004).

6.2 Status, Distribution and Habitat Requirements

California red-legged frog is federally listed as threatened under the ESA and a California Species of Special Concern (CDFW 2014; USFWS 2006). California red-legged frog is found primarily in slow moving streams and ponds in the Coast Ranges and Sierra Nevada foothills below 4,500 feet. Contra Costa and Alameda counties contain most known California red-legged frog occurrences in the Bay Area.

Indian Valley supports several aquatic habitat features, that provide suitable breeding habitat (Indian Creek), and potential dispersal and aestivation habitat for the California red-legged frog as described herein.

6.3 Primary Constituent Elements

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.

6.4 Critical Habitat

A USFWS-designated Critical Habitat unit for California red-legged frog in Contra Costa County (CCS-1A) is located north of State Route 24 near the City of Martinez. No designated Critical Habitat units for California red-legged frog are located in the Project vicinity (Figure 5).

6.5 Habitat Assessment and Occurrence in the Project Vicinity

The CNDDDB documents five occurrences of California red-legged frog within 5 miles of the Study Area over the last 20 years:

- Occurrence #372: one adult was observed on private property approximately 2.5 miles from the 2014 Study Area in a stock pond near Moraga Road in October 1999. One adult was observed in uplands below the berm of the stock pond in January 2000.
- Occurrence #226: two adults were observed on private property approximately 1 mile from the 2014 Study Area on the muddy bank of an outlet pool in an unnamed tributary to Brookside Creek, south of Orinda in March 1997.

- Occurrence #1071: nine adults were observed on EBMUD property approximately 4.7 miles from the 2014 Study Area on the spillway basin of Upper San Leandro Reservoir in October 2008.
- Occurrence #960: two adults and 40-60 tadpoles were observed on EBMUD property approximately 4.8 miles from the 2014 Study Area in a small man-made pond on the Wagner Ranch Nature Area in May 2007.
- Occurrence #120: one adult and one egg cluster was observed approximately 2.9 miles from the 2014 Study Area in a perennial creek covered by a riparian woodland overstory in March 1994.

There are two California red-legged frog CNDDDB occurrences within 5 miles of the Project within the last 10 years (Figure 8). California red-legged frog also were noted on Moraga Road across from Campolindo High School in Moraga, in 2012 (Olberding pers. comm.). Although reported to the CNDDDB, this sighting does not yet show on the recent CNDDDB database. With reported occurrences within 5 miles of the Study Area and suitable habitat on site, the California red-legged frog has potential to occur on site.

In 2003, Sycamore biologists surveyed the entire Indian Creek corridor and noted potential California red-legged frog breeding, dispersal and aestivation habitat within the Indian Creek channel. These habitat conditions and the potential for breeding frogs in Indian Creek would have not changed. 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 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. This pool is located just east of Canyon Road below the outfall under Canyon Road at the most south east location of the Study Area. A pond that was constructed adjacent to and west of the Study Area appears to lack hydrology and may be too shallow to support breeding habitat for the California red-legged frog. Stock ponds were absent from the Study Area in 2003 and 2014.

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.

6.6 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 2). 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 regional biological movement corridors. The proposed Project preserves the entire Indian Creek corridor, a critical regional connection. The Project also preserves several of the drainage stream corridors that flow from the upper watershed and into Indian Creek, to the maximum extent possible. 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 north east of the Project Boundary and connecting to Indian Creek to the southwest. Potential California red-legged frog and other wildlife would be able to move freely through these biological corridors. The most important biological movement corridors that run along the preserved Indian Creek corridor and along Indian Ridge and the upper slopes of the property, are also preserved (Figure 9).

Table 2. 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.	

Implementation of a residential development Project would result in the conversion of undeveloped land to developed uses. Approximately 62.9 acres of habitat would be permanently impacted, and an additional 59.5 acres would be temporarily impacted. Most of the impacts to non-native annual grassland needed to construct the housing units and related infrastructure would be permanent. Some of the impacts, however, would be temporary where the non-native annual grassland would be disturbed for 2 to 3 years during construction and revegetated with grass and forb species using standard erosion control best management practices. It is anticipated

that the non-native annual grassland that is temporarily disturbed would be restored to grassland and available for dispersal habitat use after construction.

Permanent and temporary impacts to potential California red-legged frog dispersal and aestivation foraging habitat are estimated to be 124.19 acres, including impacts related to widening of Canyon Road (Table 3):

- 91.31 acres of non-native annual grassland,
- 1.81 acres of coast live oak woodland,
- 5.85 acres of northern coyote brush scrub,
- 21.24 acres of abandoned orchard with associated ruderal vegetation,
- 1.03 acres of Central Coast riparian scrub,
- 2.92 acres of freshwater marsh and seeps, and
- 0.03 acres of sage scrub and undifferentiated scrub.

Table 3. Estimated Impacts to Potential Habitat for California Red-legged Frog									
Vegetation Community Type	Potential Habitat for California Red-legged Frog	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	Dispersal	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)	Dispersal	0.10	1.64	1.74	2.47	4.21	103.97	0.07	0
Northern coyote brush scrub	Dispersal	0.52	5.00	5.52	1.58	7.10	64.90	0.18	0.15
Abandoned orchard with associated ruderal vegetation	Dispersal	15.71	5.53	21.24	0.27	21.51	0.89	0	0
Central Coast riparian scrub (Sensitive Natural Community)	Dispersal and aestivation	0.54	0.41	0.95	0.83	1.78	5.74	0.08	0
Freshwater marsh and seeps (a) (Sensitive Natural Community)	Dispersal and aestivation	0.92	2.00	2.92	0.75	3.67	5.11	0	0
Sage scrub and undifferentiated scrub	Dispersal and aestivation	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
<p>(a) Referred to as seasonal wetland in the <i>U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project, Contra Costa County, California.</i> (Olberding/Guion 2014).</p> <p>Notes: *Permanent impacts to Canyon Road right-of-way include 0.51 acres of pavement. All numbers are rounded to the nearest hundredth.</p> <p>Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.</p>									

Impact: Loss of potential dispersal and aestivation habitat and possible loss of individual California red-legged frogs during construction. This impact is considered potentially significant because California red-legged frog is protected by state and federal laws.

Implementation of the Project would affect potential dispersal and aestivation habitat for California red-legged frog. No impacts to California red-legged frog breeding habitat are anticipated from construction activities because the suitable breeding habitat within Indian Creek is avoided. A single potential breeding scour pool was found on Indian Creek downstream of Canyon Road during surveys conducted by qualified biologists in 2014. It is not known whether improvements to Canyon Road would impact this pool. California red-legged frog individuals could occur in the Project footprint during construction. Impacts to individual frogs and potential dispersal and aestivation habitat would be avoided and minimized through the constraints-based Project design and through implementation of the recommended mitigation measures, including consultation with the USFWS and pre-construction surveys.

If California red-legged frog are present on site, 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 construction. The species could be run over, buried, or crushed by equipment during construction.

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 would be determined through the section 7 consultation process; however, anticipated impacts and anticipated compensation ratios are presented in Table 4.

Table 4. 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.			

6.7 Recommended Mitigation Measures

Implementation of the following mitigation measures would reduce potential impacts to California red-legged frog to a less-than-significant level.

- 1. The Project Applicant will prepare a Biological Assessment to allow the USACE to consult with the USFWS under section 7 of the federal Endangered Species Act for potential impacts to California red-legged frog (federally listed species). The USFWS will issue a Biological Opinion or letter of concurrence prior to construction.**

The Project Applicant shall retain qualified biologists to prepare a Biological Assessment to allow the USACE to initiate consultation with the USFWS under Section 7 of the federal Endangered Species Act for potential effects on California red-legged frog. A Biological Opinion or letter of concurrence must be obtained from the USFWS prior to construction. The

Project Applicant and biologists will work with the USACE and USFWS to develop measures to compensate for the loss of habitat and prevent the loss of individuals during construction. Copies of reports, agency consultation and permits, as applicable, shall be provided to the Town of Moraga prior to issuance of a grading permit.

2. As required by the USFWS, the Project Applicant will provide compensatory habitat mitigation for California red-legged frog.

As required by the USFWS, the Project Applicant will compensate for harm resulting from adverse effects to the loss of California red-legged frog habitat by providing appropriate habitat compensation. The amount of habitat compensation will be based on the amount of permanent and temporary loss of habitat and will be determined through the ESA consultation process.

3. As required by the USFWS, the Project Applicant will conduct pre-construction surveys prior to any ground-disturbing activities and will implement measures during construction to avoid and minimize potential impacts to California red-legged frog.

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 any storm drain outfalls or culvert work will occur after the peak season of California red-legged frog dispersal (after May 1).

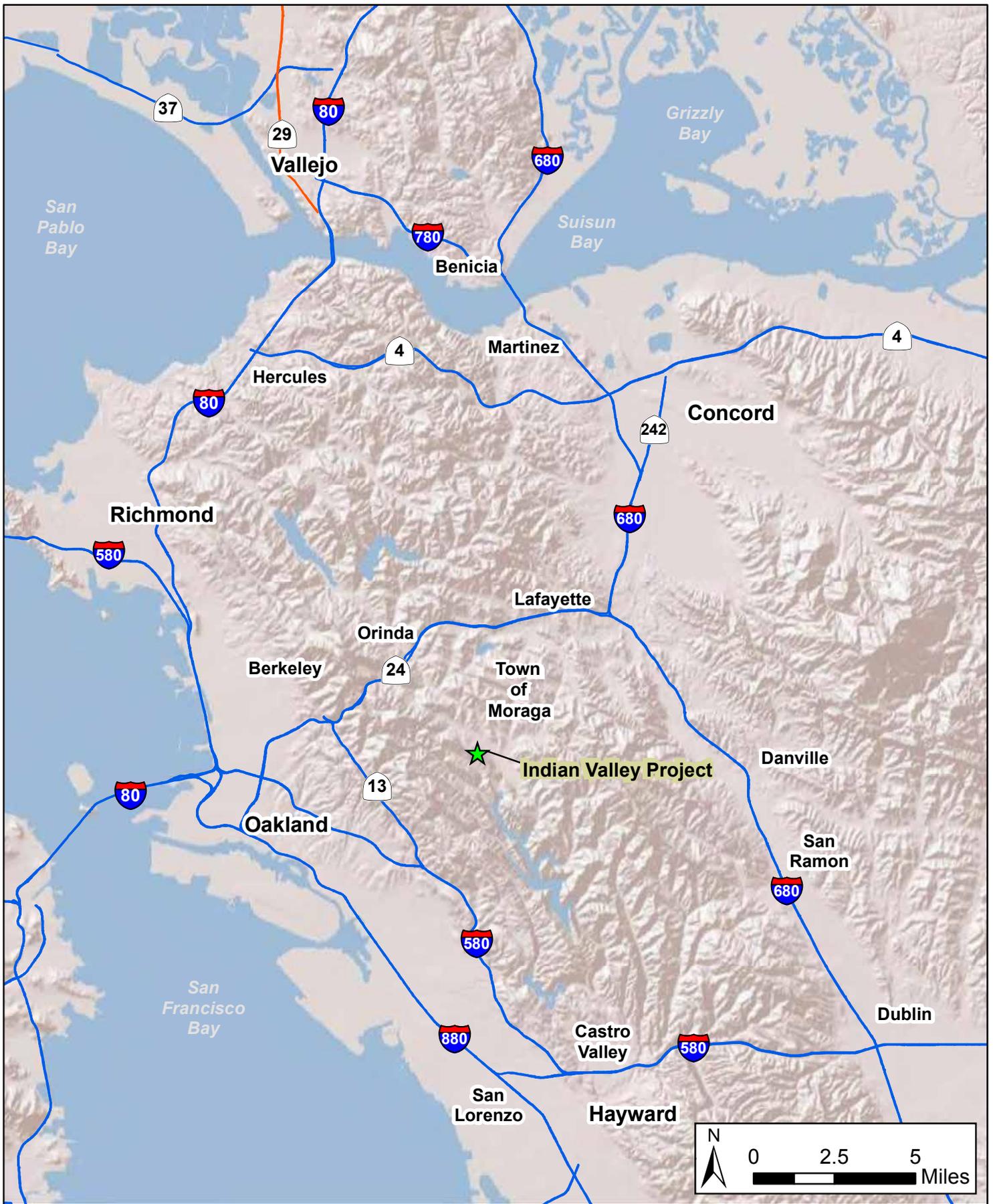
7.0 REFERENCES

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- U.S. Fish and Wildlife Service (USFWS). 2006. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Red-legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities. Federal Register 71(71): 19244-19-293. Thursday, April 13, 2006.

Attachment 1

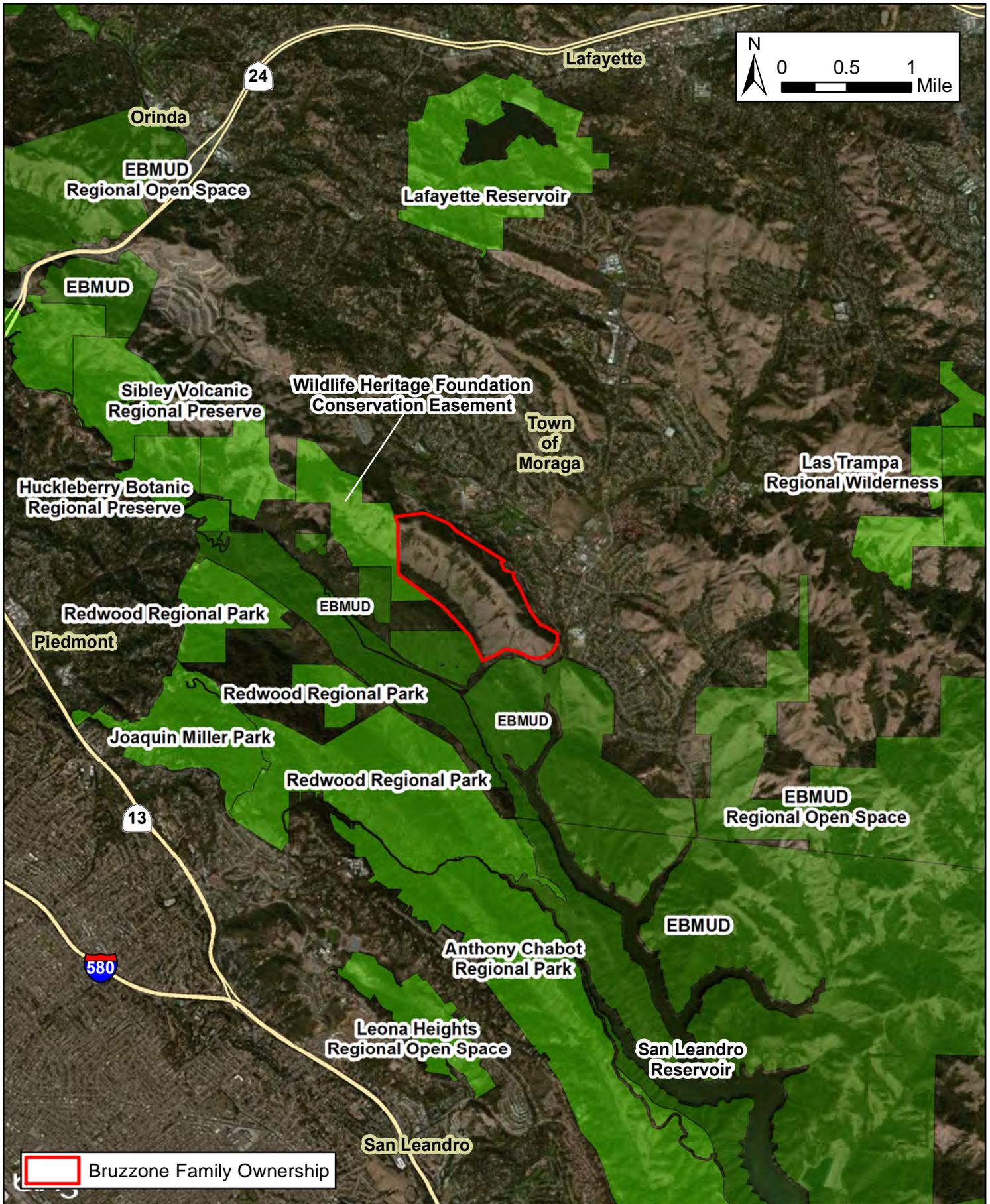
Figures

- Figure 1. Regional Map
- Figure 2. Project Vicinity
- Figure 3. Aerial Map
- Figure 4. USGS Topographic Map
- Figure 5. USFWS California Red-legged Frog Critical Habitat
- Figure 6. Indian Valley Project Impact Exhibit
- Figure 7. Vegetation Communities and Aquatic Features of Indian Valley
- Figure 8. CNDDDB California Red-legged Frog Occurrences Within 5 Miles and 10 Years
- Figure 9. Wildlife Avoidance & Biological Movement Corridor Exhibit



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

**Figure 1: Regional Map
 Indian Valley Project**



 Bruzzone Family Ownership



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

**Figure 2: Project Vicinity
 Indian Valley Project**

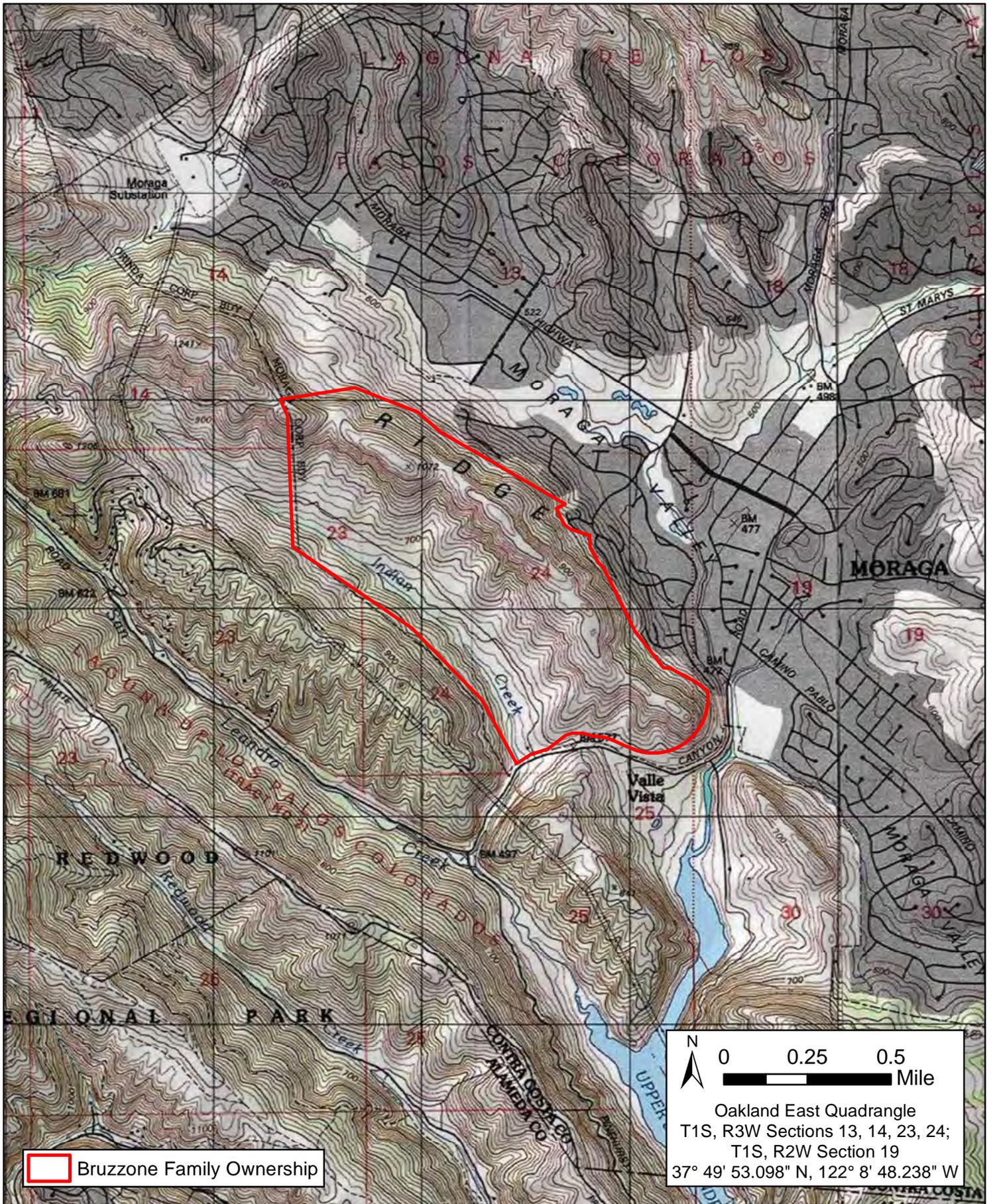
Imagery Source and Date: ESRI/Bing; 11/02/2010



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Phone: (916) 985-1188

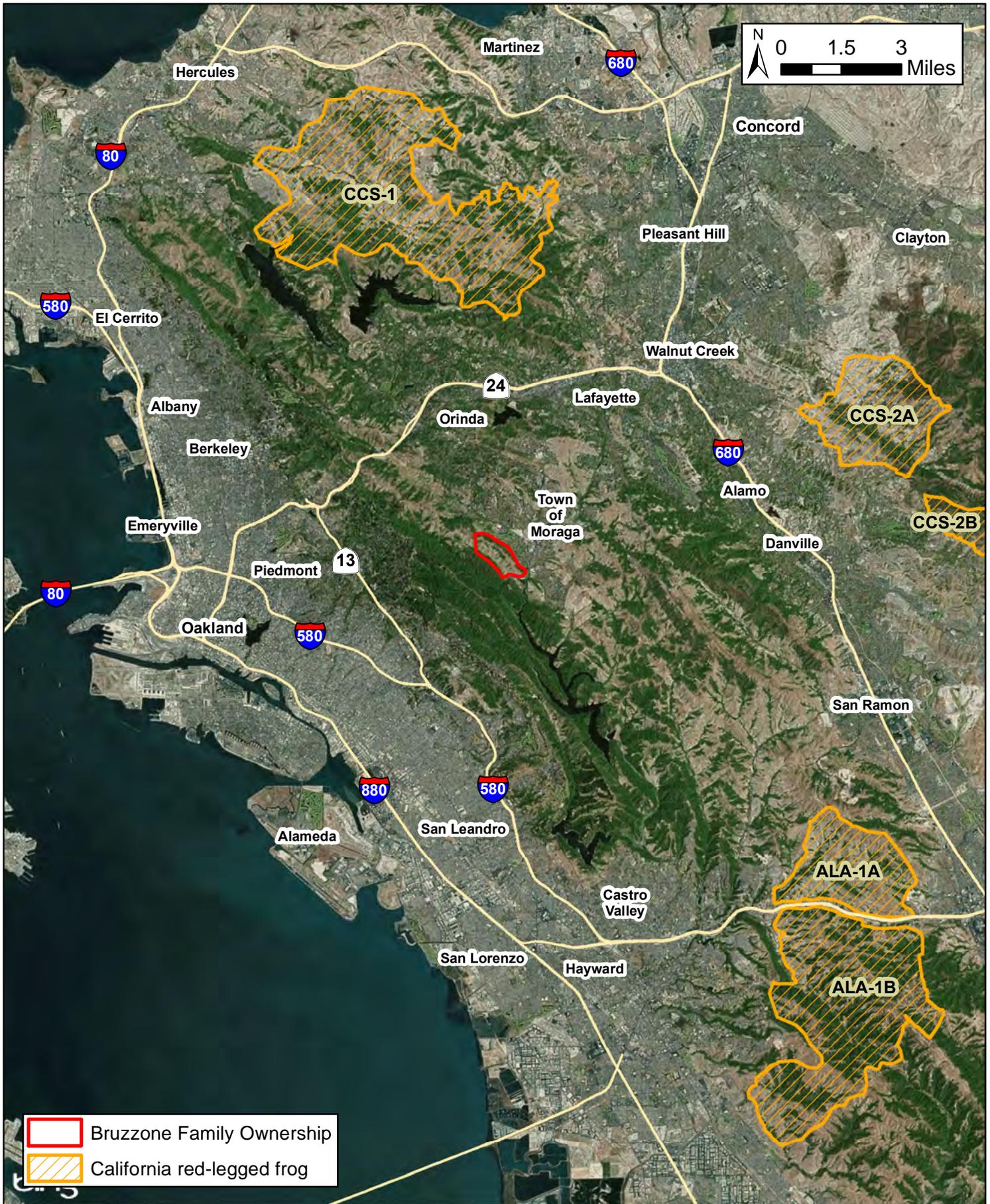
**Figure 3: Aerial Map
Indian Valley Project**

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



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 Folsom, CA 95630
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**Figure 4: USGS Topographic Map
 Indian Valley Project**



- Bruzzone Family Ownership
- California red-legged frog



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Figure 5: USFWS California Red-legged Frog Critical Habitat Indian Valley Project

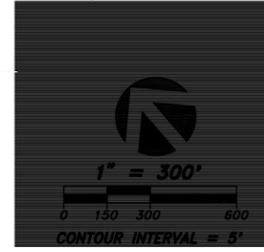
Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

INDIAN VALLEY

TOWN OF MORAGA, CALIFORNIA

PROJECT IMPACT EXHIBIT

JUNE 22, 2015

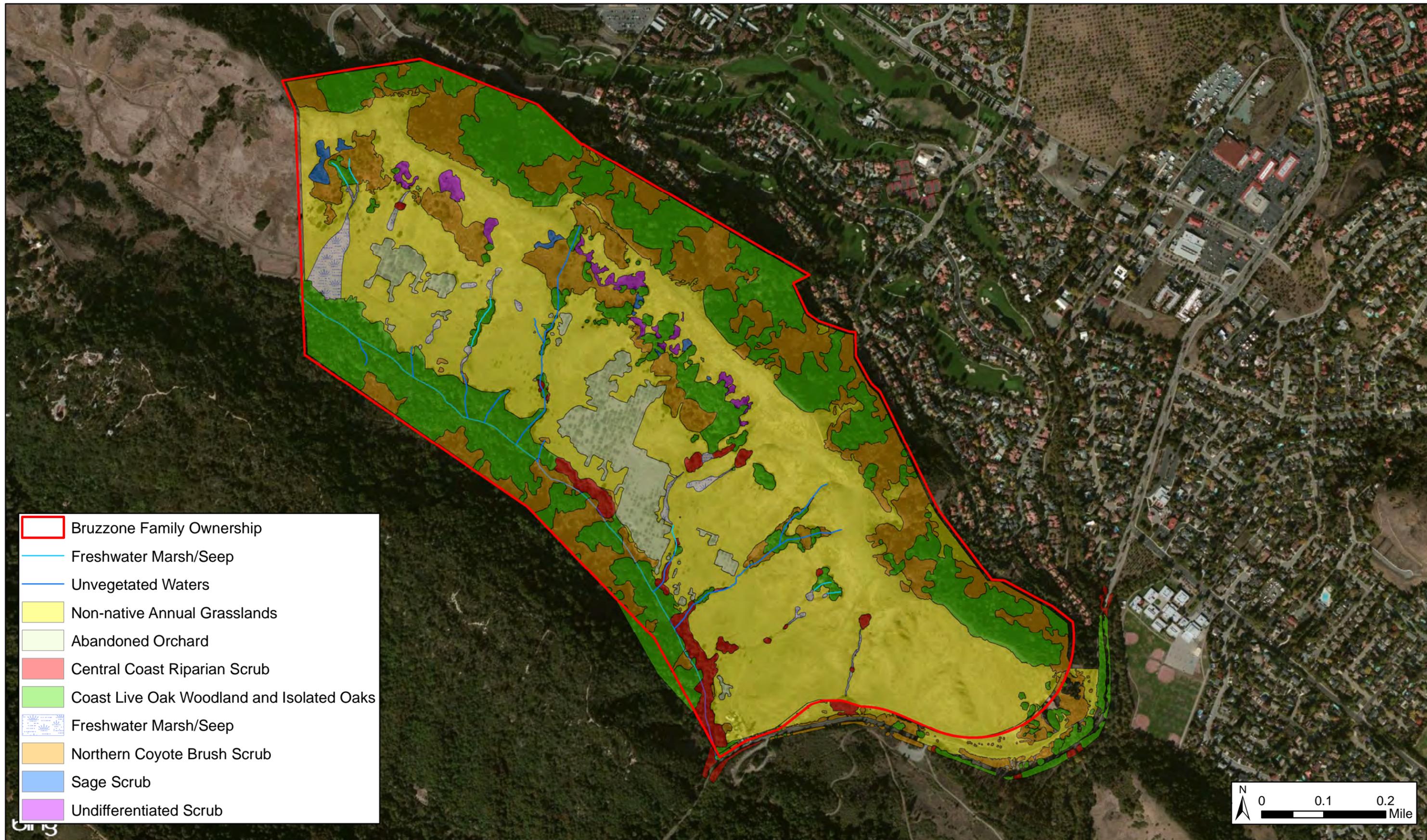


<p> INDICATES PERMANENT IMPACTS PROJECT (DEVELOPED) = 51.1 ACRES PROJECT (PUBLIC R/W) = 1.3 ACRES TOTAL = 52.4</p>	<p> INDICATES TEMPORARY IMPACTS PROJECT (OPEN SPACE) = 59.5 ACRES PROJECT (PUBLIC R/W) = 1.0 ACRES TOTAL = 60.5</p>
<p> INDICATES PERMANENT IMPACTS PROJECT (OPENSOURCE) = 11.8 ACRES TOTAL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

Figure 6: Indian Valley Project Impact Exhibit

PA Design Resources, Inc.
 Planning ■ Engineering ■ Surveying
 3021 Citrus Circle, Suite 150
 Walnut Creek, California 94598-2635 TEL (925) 210-9300

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 Folsom, CA 95630
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Figure 7: Vegetation Communities and Aquatic Features of Indian Valley Indian Valley Project

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



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Figure 8: CNDDDB California Red-legged Frog 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



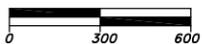
LEGEND

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

KEY LEGEND

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

Figure 9: Wildlife Avoidance & Biological Movement Corridor Exhibit



PA Design Resources, Inc.
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