BIOLOGICAL RESOURCES ASSESSMENT

DENOVA HOMES - 2008 GRANT STREET

RESIDENTIAL DEVELOPMENT PROJECT

AUGUST 2021

PREPARED FOR:

DeNova Homes, Inc.
1500 Willow Pass Court
Concord, CA 94520
(925) 685-0110

PREPARED BY:

Analytical Environmental Services
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Sacramento, CA 95811
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TABLE OF CONTENTS

BIOLOGICAL RESOURCES ASSESSMENT
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DEVELOPEMENT PROJECT

FIGURES

TABLES

ATTACHMENTS

1.0 INTRODUCTION

This Biological Resources Assessment analyzes potential environmental impacts associated with the 2008 Grant St. Residential Development Project (Proposed Project) in Calistoga, Napa County, California (**Figures 1** and **2**). The Proposed Project consists of the development of 15 single family homes on an approximate 5.85-acre property and occurs within a single parcel (Napa County APN# 011-010-033) (Study Area, **Figure 3**). As part of the Proposed Project, the existing access road, which crosses an existing box culvert over an onsite drainage, would be widened to meet applicable fire and safety standards. A reconnaissance biological survey was conducted by Senior Biologist Nicholas Bonzey on the entire Study Area on April 28, 2021. Botanist Cedrick Villaseñor conducted a focused botanical survey of the entire Study Area on May 13, 2021. Survey methodologies, results, and recommended mitigation measures are presented herein. It is AES's understanding that a separate document is being prepared by a certified arborist to address onsite trees and associated City ordinances.

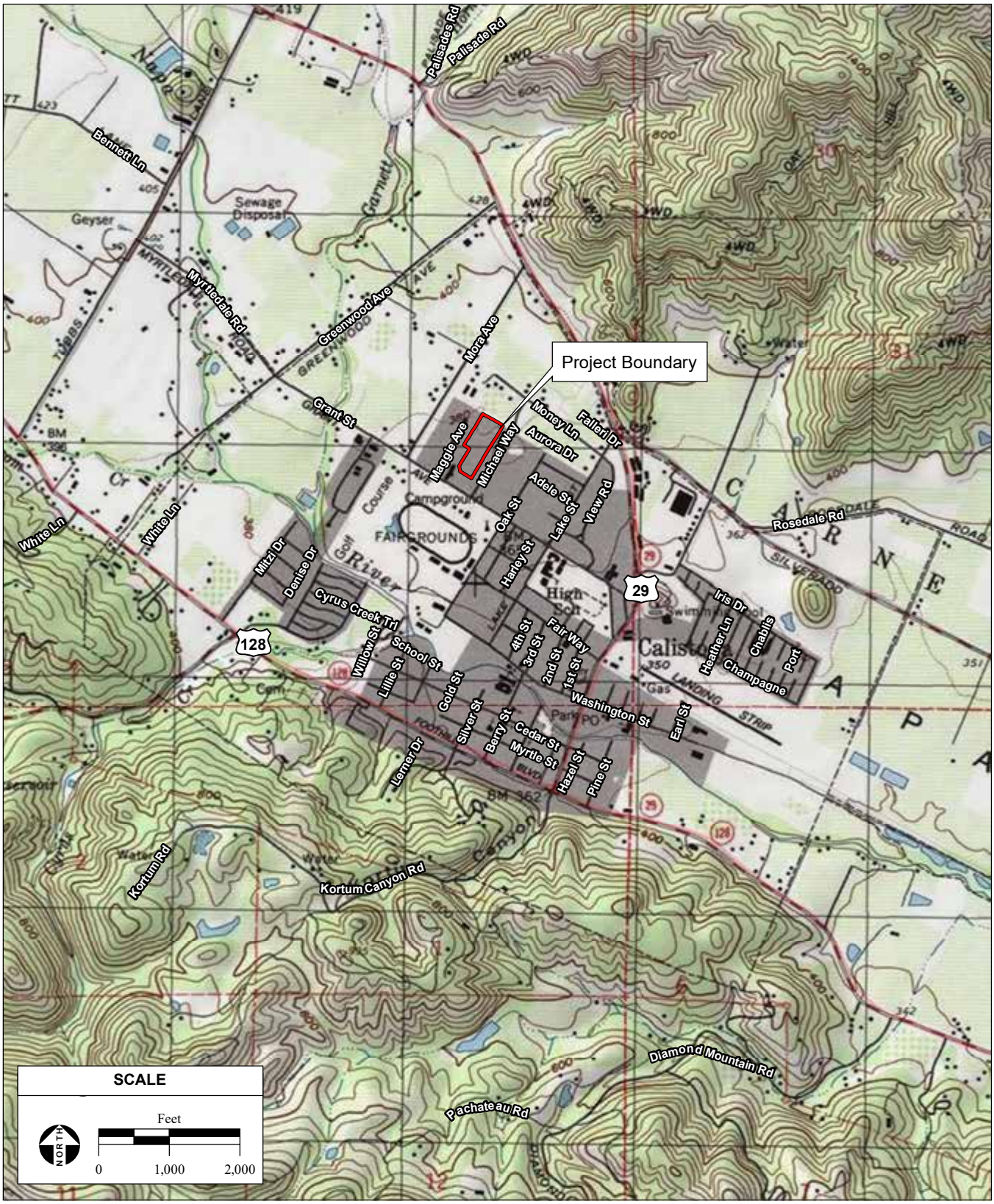
1.1 SITE DESCRIPTION

The Study Area is located within a residential area of the City of Calistoga (City), and is surrounded by medium density residential development within the City. Topography is nearly level and slopes slightly to the southwest towards the Napa River, located 0.4 miles to the southwest. The Study Area is bound by residential development on all sides with the surrounding areas characterized by residential development and agricultural pursuits (**Figure 3**). An unnamed drainage occurs along the western boundary and supports a relatively dense canopy consisting of oaks and ornamentals. This drainage feature is described in detail in the Stream Assessment included as **Attachment 5** and occurs along the northern edge and western portion of the Study Area. The Study Area can be accesses via a dirt road extending from Redwood Avenue that crosses the unnamed drainage which leads to a single-family residence and associated buildings. The Study Area occurs within the U.S. Geological Survey (USGS) 7.5-minute "Calistoga, California" topographic quadrangle. Elevations range from 374 to 381 feet (114 to 116 meters) above mean sea level.

A detention pond occurs just outside the property boundary to the north and appears to drain into an inlet connected to a culvert that drains into the onsite drainage. This culvert also takes stormwater drainage from surrounding neighborhoods. This detention pond had no water present at the time of the April 28, 2021 and May 13, 2021 surveys. The pond appears to be a stormwater detention pond associated with the residential development on the adjacent site.

SOURCE: ESRI, 2021; AES, 7/29/2021

Figure 1
Regional Location



SOURCE: "Calistoga, CA" USGS 7.5 Minute Topographic Quadrangle, T8N R6W, Unsectioned Area of Calistoga, Mt Diablo Baseline & Meridian; Napa County parcel data; ESRI, 2021; AES, 7/29/2021

Figure 2
Site and Vicinity

SOURCE: Napa County Parcels, 3/4/2021; County of Napa aerial photograph, 6/19/2018; ESRI, 2021; AES, 7/29/2021

Figure 3
Aerial Photograph

2.0 REGULATORY SETTING

The following section summarizes applicable federal, state, and local regulations.

2.1 FEDERAL

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the Federal Endangered Species Act (FESA) of 1973 (16 USC Section 1531 et seq.). Threatened and endangered species on the federal list (50 CFR Subsection 17.11, 17.12) are protected from "take" (direct or indirect harm), unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered to a lead federal agency. Under FESA, habitat loss is considered an impact to the species.

Migratory Bird Treaty Act

Under the Migratory Bird Treaty Act of 1918 (16 USC Subsection 703-712), migratory bird species and their nests and eggs are protected from injury or death. Project-related disturbances must be reduced or eliminated during the nesting cycle. Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. Fish and Game Code Section 3511 lists protected birds that cannot be taken except under specific permitting.

Bald and Golden Eagle Protection Act

The Bald Eagle Protection Act was enacted in 1940 and later amended to include golden eagles (16 USC Subsection 668-668). The Bald and Golden Eagle Protection Act prohibits take, possession, and commerce in bald and golden eagles, parts, feathers, nests, or eggs with limited exceptions. The statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses.

Wetlands and Waters of the U.S.

Projects that involve working in navigable waters of the U.S., including the discharge of dredged or fill material, must first obtain authorization from the United States Army Corps of Engineers (USACE), under Section 404 of the Clean Water Act if waters of the US are impacted.

2.2 STATE

Waters of the State

CDFW requires notification prior to commencement, and possibly a Lake or Streambed Alteration Agreement (SAA) pursuant to Fish and Game Code Subsection 1601-1616, 5650, if a project were to result in the alteration or degradation of a stream, river, or lake in California. CDFW jurisdiction includes the immediate surrounding trees and vegetation shading the drainage with bed, bank, and channel. The Regional Water Quality Control Board may require a State Water discharge permit or if a 404 is required a Water Quality Certification under the Clean Water Act Section 401 water quality certification if waters are impacted.

California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) implements State regulations concerning fish, wildlife, and associated habitats. The California Endangered Species Act (CESA) of 1970 (California Fish and Game Code [Fish and Game Code] Section 2050 et seq., and CCR Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 CCR Subsection 670.2, 670.5). A CESA permit must be

obtained if a project were to result in the take of listed species during construction or operation. Under CESA, CDFW is responsible for maintaining a list of species that are threatened, endangered, or of special concern (Fish and Game Code 2070).

California Environmental Quality Act Guidelines Section 15380

California Environmental Quality Act (CEQA) *Guidelines* Section 15380(b) and (d) provide that a species not listed on federal or State lists of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. Criteria have been modeled after the definition of FESA and the section of the Fish and Game Code dealing with rare or endangered plants or animals.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900 et seq.) requires CDFW to establish criteria for determining if a species or variety of native plant is endangered or rare. The California Native Plant Society (CNPS) inventories native flora of California and ranks species according to rarity. Plants with California Rare Plant Rank (CRPR) 1A, 1B, 2A and 2B are considered special-status species. CRPR 1A plants are presumed extinct in California and CRPR 1B plants are rare or endangered in California and elsewhere. CRPR 2A plants are presumed extirpated in California but are more common elsewhere and CRPR 2B plants are rare, threatened, or endangered in California but are more common elsewhere. CRPR 3 is a watch list for plants about which more information is needed. CRPR 4 is a watch list for plants of limited distribution.

2.3 LOCAL

City of Calistoga's Tree Ordinance

19.01.040 Requirements (City of Calistoga, 2021)

A. Protected Trees.

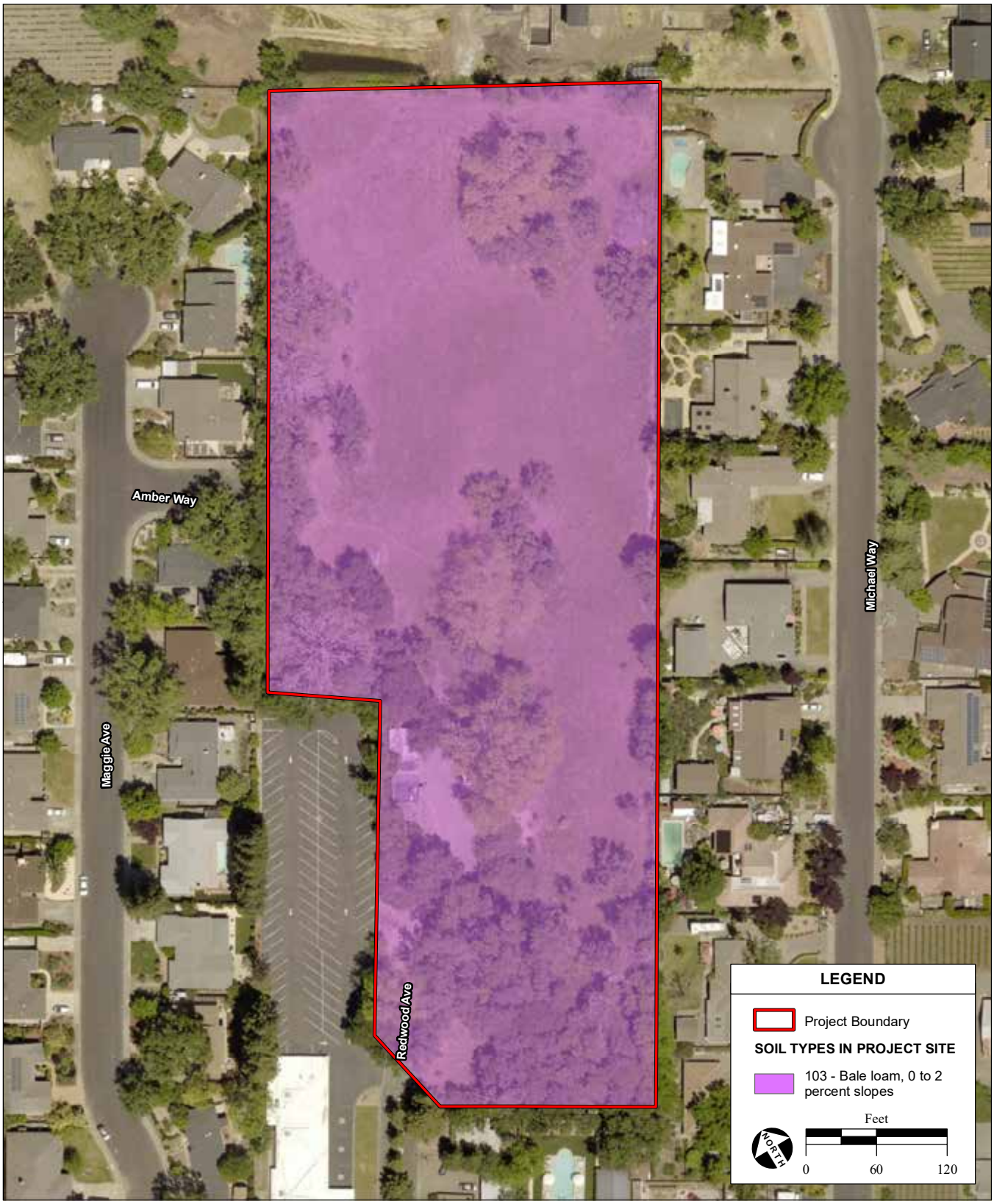
1. Any tree with a DBH greater than 12 inches.
2. Any native oak with a DBH greater than six inches.
3. Any Valley Oak, seedling, sapling, or older.

3.0 METHODOLOGY

3.1 DATA REVIEW

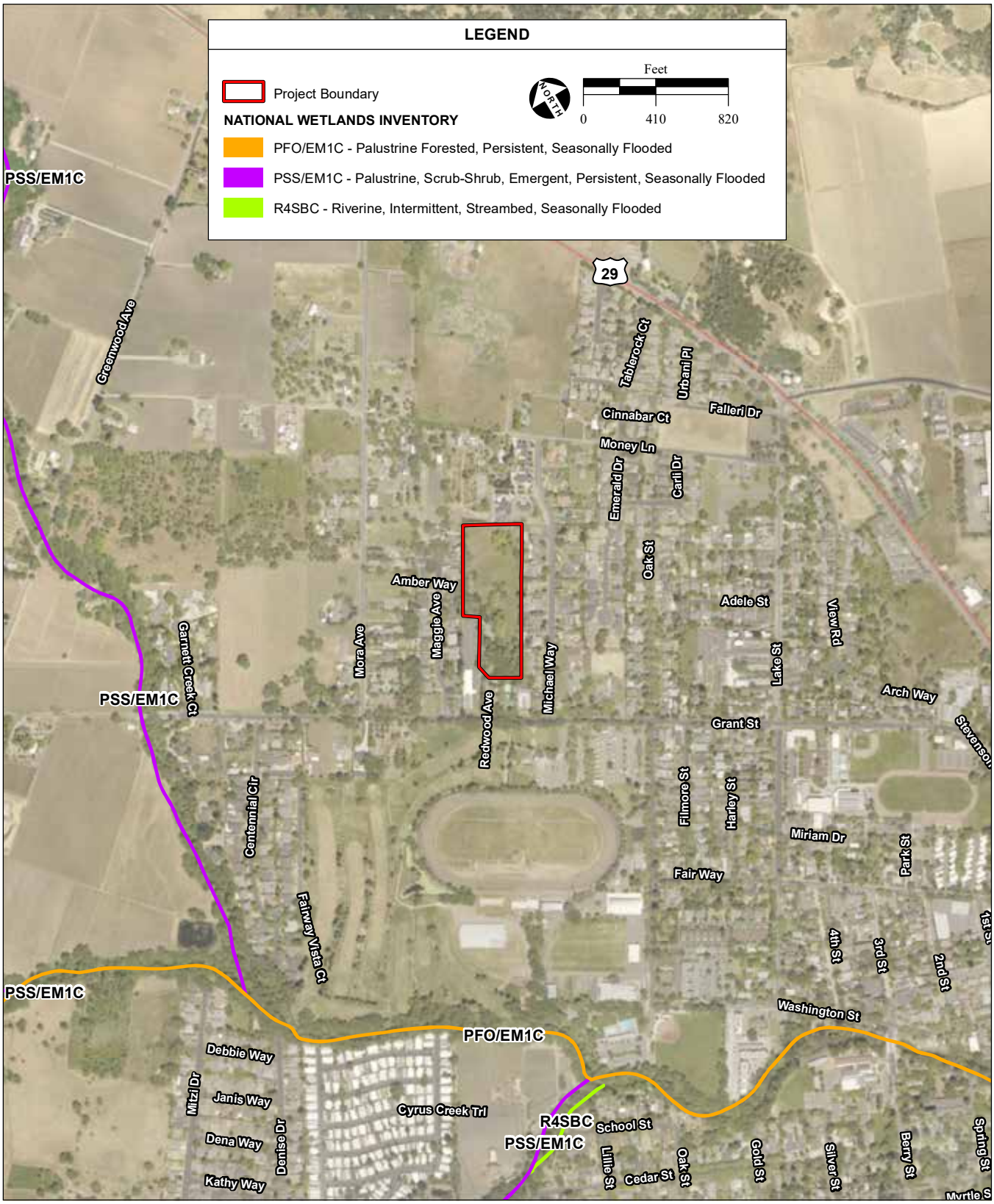
Biological information for the Study Area was obtained from the following sources:

- USFWS list, generated July 29, 2021, of federally listed special-status species with the potential to occur on and near the Study Area (USFWS, 2021a) (**Attachment 1**);
- CNPS query generated July 29, 2021, of state and federally listed special-status species known to occur within the Calistoga quad, which generated a list of potential CRPR 1 through CRPR 4 plants that may occur within or in the vicinity of the Study Area (CNPS, 2021) (**Attachment 1**);
- CNDDB query, generated July 29, 2021, of state and federally listed special-status species known to occur within the Calistoga quad (CDFW, 2021a) (**Attachment 1**);
- Custom Soil Resource Report for Napa County, NRCS, generated for the Study Area on July 29, 2021 (NRCS, 2021) (**Attachment 2**, **Figure 4**).
- National Wetlands Inventory (NWI) database of wetlands and surface waters within the Study Area (USFWS, 2021b) (**Figure 5**).



SOURCE: USDA NRCS Soil Survey of Napa County, updated 5/29/2020; Napa County Parcels, 3/4/2021; County of Napa aerial photograph, 6/19/2018; ESRI, 2021; AES, 7/29/2021

Figure 4
Soil Types



SOURCE: USFWS National Wetlands Inventory, 1984; Napa County Parcels, 3/4/2021; County of Napa aerial photograph, 6/19/2018; ESRI, 2021; AES, 7/29/2021

Figure 5
National Wetlands Inventory

3.2 SURVEY TECHNIQUES

A biological resources survey of the Study Area was conducted on April 28, 2021 by AES senior biologist Nicholas Bonzey. Botanist Cedrick Villaseñor conducted a focused botanical survey of the Study Area on May 13, 2021. The surveys were conducted by walking meandering transects throughout and around the Study Area. Data was collected via a Trimble Geo XH hand-held GPS receiver. Survey goals consisted of identifying habitat types, sensitive habitats, wetlands and waters of the U.S. and state, plant and wildlife species, special-status species, and potential wildlife corridors.

Botanical assessment followed protocols described in the *General Rare Plant Survey Guidelines* (CDFW, 2002), *Botanical Survey Guidelines of the California Native Plant Society* (CNPS, 2001), *The Jepson Manual* (Baldwin, 2012), and Hickman, 1993a and 1993b. Plants are usually identified when in bloom; but other methods can be used to identify rare plants not in bloom. Features that can be examined outside of the bloom period include vegetative, dried flower, or fruit morphology, as well as skeletal plant remains from previous seasons. Not all species flower each year and some may only flower at maturity, therefore those species must be identified based on vegetative characteristics.

Wildlife was identified by calls, scat, remains, or direct sight. Evidence of dens, nests, or burrows, if present, were assessed to indirectly identify potentially occurring wildlife on the Study Area. Aerial photos were reviewed to assess habitats surrounding the Study Area for potential wildlife movement, wildlife corridors, or movement barriers. Field methodology for identifying corridors for movement included searching for game trails or habitat that would favor movement of wildlife or potential gene flow. Existing and proposed barriers were examined to determine current movement potential within the Study Area and whether the Proposed Project would impact movement.

Wetlands were assessed using the three factors used in the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Regional (2008)" (USACE, 2008a), which presents wetland indicators, delineation guidance, and other information specific to the Arid West Region. Waters of the U.S. and state were assessed via a survey of the entire site with the goal of identifying any water holding or conveyance features and to evaluate any of these features that could have potential Clean Water Act permitting implications. These features were evaluated to identify visible diagnostic characteristics consistent with U.S. Army Corps of Engineers (USACE) diagnostic features of jurisdictional waterways, including "A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (2008)," (USACE, 2008b) and to determine whether the drainage meets current USACE and California Regional Water Quality Control Board (RWQCB) concepts of jurisdiction.

4.0 ENVIRONMENTAL SETTING

4.1 SOIL TYPES

A soil assessment for the Study Area was prepared online through the NRCS (**Attachment 2**; **Figure 4**). The Study Area consists of one soil type, bale loam (0 to 2 percent slopes), which consists of somewhat poorly drained, rare flood risk soil with a parent material of alluvium derived from rhyolite and/or alluvium derived from igneous rock with a soil profile of clay loam and stratified gravelly sandy loam to loam. Bale loam does not experience ponding and the depth to a restrictive feature is more than 80 inches. The NRCS report did not reveal known hydric soils or other aquatic features within the Study Area.

4.2 HABITATS

A total of four habitat types were identified within the Study Area based on the recent AES reviews. These include ruderal, developed, mixed oak woodland, and a drainage within the oak woodland. Habitats are shown in **Figure 6**. Each habitat type is explained in detail below.

Ruderal

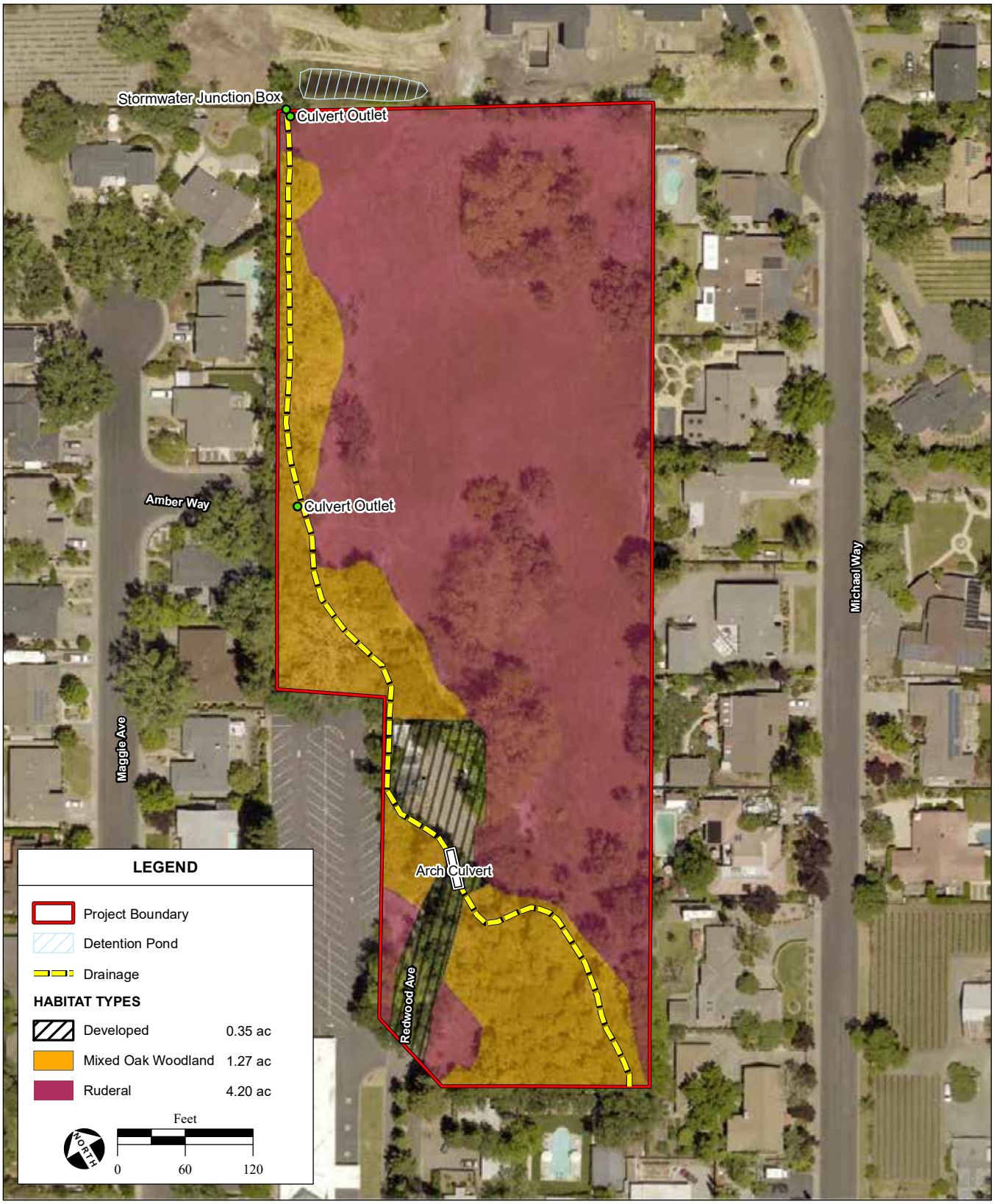
Approximately 4.2 acres of the Study Area consists of ruderal habitat. This habitat type was the dominant habitat within the Study Area and is routinely managed as vegetation heights ranged from 6 to 24 inches consisting of grass and forb species. Dominant vegetation within this habitat type consisted of wild oat (*Avena fatua*), vetch (*Vicia villosa*), prickly lettuce (*Lactuca serriola*), cultivated radish (*Raphanus sativus*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). Isolated California walnut (*Juglans hindsii*), valley oak (*Quercus lobata*), and coast live oak (*Quercus agrifolia*) occur primarily along the margins of this habitat with some isolated trees occurring near the center of the site. Coast live oak and valley oaks are protected under the City of Calistoga municipal code. These isolated oaks occurred along the fringe of this habitat. Remnant mature walnut trees occur within this ruderal grassland habitat but does not constitute a woodland or its own habitat type due to the lack of a closed canopy that is more of a component of the mixed oak woodland. Therefore, AES believes that this area is largely ruderal based on the preponderance of non-native plants which contains some scattered trees which will be addressed through the separate Arborist Report.

Developed

This developed habitat is composed of approximately 0.35 acre and consists of a single-family residence, associated structures, and asphalt driveway that transitions to a graveled driveway immediately surrounding the residence. This developed area is accessed from Redwood Avenue. The entrance road has a box culvert where it crosses the drainage. This developed habitat is surrounded by the ornamental vegetation and weedy non-native species. Ornamental landscaped vegetation occurs immediately surrounding the buildings and areas adjacent are heavily disturbed.

Mixed Oak Woodland

Approximately 1.27 acres of the Study Area consists of mixed oak woodland directly surrounding the onsite drainage. This habitat is unique in the sense that it does not fit any one classification scheme as there are many non-native ornamentals that have a dominant presence within this habitat type. Ornamental fig (*Ficus carica)* is concentrated within the north end which together with valley oak (*Quercus latifolia*) and Oregon ash (*Franxinus latifolia*) form a dense canopy cover. Other small non-native vegetation such as privet (*Lingustrum* sp.), olive (*Olea europaea*), plum (*Prunus* sp.), and other exotic species that have escaped landscaped planting and are present within the understory canopy. Dominant understory vegetation consisted of vetch, bur clover (*Medicago polymorpha*), canary grass (*Phalaris* sp.), wild oat, and periwinkle (*Vinca major*).



SOURCE: Napa County Parcels, 3/4/2021; County of Napa aerial photograph, 6/19/2018; ESRI, 2021; AES, 8/2/2021

Figure 6
Habitat Types

Drainage within the Oak Woodland

This drainage feature is described in detail in the Stream Assessment included as **Attachment 5** and occurs along the northern edge and western portion of the Study Area. The portion of this feature that follows the property line on the northwest side of the parcel has clearly been straightened in the past by direct manipulation of the channel. An approximately 36" concrete box culvert is located at the extreme upstream end in the northern corner of the Study Area (Photo 3 of **Attachment 3**)**,** where the water appears to be fed by a stormwater detention basin located on the adjacent property to the north and a large pipe draining stormwater from surrounding neighborhoods into the onsite drainage at the box culvert. There is also a 12" plastic culvert buried under vegetation and sediment at the end of Amber Way along the northwest property boundary (Photo 5 of **Attachment 3**). This 12" plastic inlet appears to drain the adjacent residential development, and was found buried under over 18" of vegetative matter in various states of natural decay. There is no erosional or depositional evidence of regularly flowing water from this culvert on the outlet side. The downstream half of this drainage feature is characterized by a more meandering geometry, and has not been straightened as the upper half of the feature. It passes behind the single-family home within the Study Area before turning to the southeast. There is a 3'x3' stone and concrete arch culvert downstream of the home (Photo 8 of **Attachment 3**), and the drainage feature exits the property in the southeast corner at a fence line. Much of the channel contained large amounts of terrestrial leaf debris form the surrounding trees and was dominated by upland woody and herbaceous vegetation. Species observed within the drainage channel includes oak saplings (*Quercus* sp.), plum (*Prunus* sp.), poison oak (*Toxicodendron diversilobum*), vetch (*Vicia* sp.), several grass species (*Poa* sp.), common bedstraw (*Galium* aparine), Himalayan blackberry (*Rubus armeniacus*), *Calystegia* sp., and rose (*Rosa* sp.) as observed during the AES site visits.

As concluded in the Stream Assessment included as **Attachment 5**, it is believed that the drainage feature is a remnant of previous land uses and no longer functions as a water of the U.S. or state and may not meet the current USACE standards for waters of the US. This is based on the absence of any classic diagnostic characteristics for determining the lateral extent of the stream boundary and the lack of OHWM features within the drainage channel. Therefore, the characteristics of this drainage do not appear to meet the requirements under the current interpretation of the Clean Water Act.

5.0 RESULTS & RECOMMENDED MITIGATION

5.1 WILDLIFE MOVEMENT

The Study Area is not part of an identified wildlife movement corridor. The Study Area is surrounded by a mixture of residential wood fencing, barbed wire fencing, and other residential buildings precluding entry to the site by larger wild life species such as deer. Additionally, the Study Area occurs within a suburban area surrounded by residences. Given that the surrounding areas are developed, the Study Area does not serve as a valuable wildlife corridor as it is fragmented from other potential wildlife corridors. Therefore, the Proposed Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

5.2 CRITICAL HABITAT

No critical habitat occurs within the Study Area (USFWS, 2021a).

5.3 SPECIAL-STATUS PLANTS

Preliminary data review and special-status species searches list 66 special-status plant species with the potential to occur in the region (**Table 1**). Further analysis determined that 12 special-status plant species have the potential to occur within the Study Area. Species with no potential to occur were ruled out based on lack of suitable soils, elevations, substrates, and habitat requirements. No special-status species were observed during the focused botanical survey conducted by AES in May 2021.

Based on survey results and the review of regionally occurring special-status species and associated habitat requirements, the Study Area may contain suitable habitat for 12 special-status plant species. These species include:

- Franciscan onion
- Napa false indigo
- Bent-flowered fiddleneck
- Big-scale balsamroot
- Narrow-anthered brodiaea
- Pappose tarplant
- Congested-headed hayfield tarplant
- Woolly-headed lessingia
- Marsh microseris
- Baker's navarretia
- Two-fork clover
- Saline clover

These potentially occurring special-status plants within the Study Area are largely consistent with the potentially occurring special-status plant species identified in the 2018 BRA (Macmillan, 2018) prepared for the Study Area. However, two plants identified in the 2018 BRA as potentially occurring, oval-leaved viburnum (*Viburnum ellipticum*) and Jepson's milk-vetch (*Astragalus rattanii* var. *Jepsonianus*), were determined to not have a potential to occur within the Study Area due to the Study Area being well outside the elevation requirement for these species. Additionally, two special-status plant species were added to the special-status plants species list with the potential to occur which include narrow-anthered brodiaea (*Brodiaea leptandra*) and Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*).

A total of 87 plant species were identified on site during the botanical survey conducted on May 13, 2021 (**Attachment 4**). No rare plants or sensitive communities were observed during the site visits. These results are consistent with the findings of the 2018 Macmillan BRA (Macmillan, 2018). Given the negative findings for rare plants during the May 2021 botanical and during past surveys conducted by previous consultants (Macmillan, 2018), the Proposed Project is not anticipated to directly or indirectly impact any special-status plants. Given this information, no avoidance or mitigation measures are required for special status plant species.

TABLE 1
REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

SCIENTIFIC NAME **COMMON NAME**	**FEDERAL/ STATE/CNPS STATUS**	**DISTRIBUTION**	**HABITAT REQUIREMENTS**	**IDENTIFICATION PERIOD**	**POTENTIAL TO OCCUR WITHIN STUDY AREA**
Plants					
Allium peninsulare var. franciscanum Franciscan onion	--/--/1B.2	Known to occur in Mendocino, Napa, Santa Clara, San Mateo, and Sonoma counties.	Often on dry hillsides with cismontane woodland, valley and foothill grasslands. Grows in clay, volcanic, or serpentinite. Elevations range from 53-305 meters.	(April) May-July	**Yes**, this species may occur in the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Amorpha californica var. *napensis* Napa false indigo	--/--/1B.2	Know to occur in Lake, Monterey, Marin, Napa, and Sonoma counties.	Found in broad-leafed upland forest (openings), chaparral, and cismontane woodland habitats. Elevations range from 0-2000 m.	April-July	**Yes**, this species may occur within the mixed oak woodland habitat. This species was not observed during the May 2021 botanical survey.
Amsinckia lunaris Bent-flowered fiddleneck	--/--/1B.2	Known to occur in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, Sonoma, Sutter and Yolo counties	Annual herb that grows on gravelly slopes or serpentinite. Found in coastal bluff scrub, openings in cismontane woodland, valley and foothill grassland. Elevations range from 3 to 800 meters.	March-June	**Yes**, this species may be found in the mixed oak woodland or ruderal habitat. This species was not observed during the May 2021 botanical survey.
Arctostaphylos manzanita ssp.elegans Konocti manzanita	--/--/1B.3	Known to occur in Colusa, Glenn, Humboldt, Lake, Mendocino, Napa, Shasta, Sonoma, Tehama, Trinity Counties. Found within The Klamath Range and the North Coast outer Ranges.	Perennial evergreen shrub found generally growing on volcanic soils within cismontane woodlands, chaparral, and lower montane conifer forest. Elevations; 220-1,850 meters	February-May	**No**, the Study Area lacks habitat suitable to support this species. The Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Arctostaphylos stanfordiana ssp. *decumbens* Rincon Ridge manzanita	--/--/1B.1	Know to occur in Napa and Sonoma counties.	A perennial evergreen shrub found in chaparral (rhyolitic) and cismontane woodland. Elevations; 75-370 meters	February-April (May)	**No**, the Study Area lacks habitat suitable to support this species. No manzanita species were observed during the May 2021 botanical survey.
Astragalus breweri Brewer's milk-vetch	--/--/4.2	Known to occur in Colusa, Lake, Mendocino, Marin, Napa, Sonoma, and Yolo counties.	Found in chaparral, cismontane woodland, meadows and seeps, and	April-June	**No**, The Study Area lacks habitat suitable to support

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
			foothill grassland habitats. Often found on open gravelly slopes with serpentinite or volcanic soils. Elevations from 90-950 meters.		this species. This species was not observed during the May 2021 botanical survey.
Astragalus claranus Clara Hunt's milk-vetch	FE/CT/1B.1	Known to occur in Napa and Sonoma counties.	Annual herb found in chaparral (openings), cismontane woodland, and valley and foothill grassland habitats. Found in serpentinite or volcanic, rocky, and clay soils. Elevations range from 75-275 meters.	March-May	**No**, the Study Area lacks habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Astragalus rattanii var. jepsonianus Jepson's milk-vetch	--/--/1B.2	Known to occur in Colusa, Glenn, Lake, Mendocino, Napa, San Benito, Tehama, and Yolo counties.	Annual herb found in chaparral, cismontane woodland, valley and foothill grassland. Often growing on vertic clay, or serpentinite. Elevations range from 150-700 meters	March – June	**No**, the Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Balsamorhiza macrolepis var macrolepis Big-scale balsamroot	--/--/1B.2	Known to occur in Alameda, Amador, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Shasta, Solano, Sonoma, Tehama, and Tuolumne counties.	Perennial herb that sometimes occurs in serpentine soils found in chaparral, cismontane woodland, and valley and foothill grassland habitats. Elevations range from: 45-1555 meters.	March-July	**Yes**, this species has a potential to occur within the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Brodiaea leptandra narrow-anthered brodiaea	--/--/1B.2	Know to occur in Lake, Napa and Sonoma counties.	A perennial bulbiferous herb found in mixed-evergreen forest, broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland habitats. Usually on gravelly soils. Elevations range from 40-1,220 m.	May-July	**Yes**, this species has a potential to occur within the ruderal habitat present within the Study Area. This species was not observed during the May 2021 botanical survey.
Calamagrostis ophitidis Serpentine reed grass	--/--/4.3	Known to occur in Lake, Mendocino, Marin, Napa, and Sonoma counties.	Found in chaparral (open, often north-facing slopes), lower montane coniferous forest, meadows and seeps, valley and foothill grassland. Found in serpentinite, rocky soils. Elevations range from 90-1065 meters.	April-July	**No**, the Study Area lacks serpentine soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Calystegia collina ssp.	--/--/4.2	Known to occur in Lake, Mendocino, Marin,	Occurs in chaparral, lower montane	April-June	**No**, the Study Area lacks

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
oxyphylla Mt. Saint Helena morning-glory		Napa, San Benito, and Sonoma counties.	coniferous forest, and valley and foothill grassland/serpentinite. Elevations; 279-1010 meters		habitat or soils suitable to support this species. The Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Ceanothus confusus Rincon Ridge ceanothus	--/--/1B.1	Known to occur in Lake, Mendocino, Napa, and Sonoma counties.	Found in closed-cone coniferous forest, chaparral, and cismontane woodland habitats in volcanic or serpentinite soils. Elevations range from 75-1065 m.	February-June	**No,** the Study Area lacks soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Ceanothus divergens Calistoga ceanothus	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma Counties.	Found in chaparral habitat and in serpentinite, or volcanic, rocky soils. Elevations range from 150-950 meters.	February-April	**No**, the Study Area lacks soils suitable to support this species. The Study Area also occurs outside the elevation range of this species.
Ceanothus purpureus Holly-leaved ceanothus	--/--/1B.2	Known to occur in Napa, Shasta, Solano, Sonoma, and Trinity counties.	Perennial evergreen shrub found in chaparral, cismontane woodland with volcanic, or rocky soils. Elevations range from 120 - 640 meters.	February-June	**No**, the Study Area lacks habitat or soils suitable to support this species. The Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Ceanothus sonomensis Sonoma ceanothus	--/--/1B.2	Known to occur in Napa and Sonoma counties.	Chaparral (sandy, serpentinite, or volcanic soils). Elevations from 215-800 m.	February-April	**No,** the Study Area lacks sandy, serpentine, and volcanic soils suitable to support this species. The Study Area also occurs outside the elevation range of this species.
Centromadia parryi ssp. parryi	--/--/1B.2	Known to occur in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, Sonoma, and Yolo	Found in chaparral, coastal prairie, meadows and seeps, marshes and	May-November	**Yes,** this species may occur within the ruderal habitat

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pappose tarplant		Counties.	swamps (coastal salt), and valley and foothill grassland (mesic, alkaline). Elevations range from 2-420 m.		area. This species was not observed during the May 2021 botanical survey.
Clarkia breweri Brewer's clarkia	--/--/4.2	Known to occur in Alameda, Fresno, Merced, Monterey, San Benito, Santa Clara, and Stanislaus counties.	An annual herb often found in serpentinite in chaparral, cismontane woodland, and coastal scrub. Elevations range from 215-1,115 meters.	April-June	**No**, the Study Area lacks habitat suitable to support this species. The Study Area also occurs outside the elevation range of this species.
Cryptantha dissita Serpentine cryptantha	--/--/1B.2	Known to occur in Colusa, Lake, Mendocino, Napa, Shasta, Siskiyou, and Sonoma Counties.	Annual herb occurs on serpentine, rocky outcrops, gravely slopes within chaparral or foothill woodland. Elevations range from 150-900 meters.	March-June	**No**, the Study Area lacks soils and habitats suitable to support this species. This species was not observed during the May 2021 botanical survey.
Erigeron biolettii Streamside daisy	--/--/3	Known to occur in Humboldt, Mendocino, Marin, Napa, Solano, and Sonoma counties.	Found in broadleafed upland forest, cismontane woodland, and North Coast coniferous forest habitats. Found in rocky, mesic soils. Elevations range from 30-1100 meters.	June-October	**No**, the Study Area lacks habitat suitable to support this species.
Eriogonum nervulosum Snow Mountain buckwheat	--/--/1B.2	Known to occur in Colusa, Glenn, Lake, Napa, Sonoma, and Yolo counties	Perennial rhizomatous mat found in chaparral (serpentinite). Elevation range: 300-2105 meters (CNPS, 2019).	May-October	**No**, the Study Area lacks chaparral habitat suitable to support this species. The Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Eryngium constancei Loch Lomond button-celery	FE/CE/1B.1	Known to occur in Lake, Napa, and Sonoma counties.	An annual / perennial found in vernal pools. Elevation range: 460-855 meters (CNPS, 2019)	April-June	**No**, the Study Area lacks vernal pool habitat suitable to support this species. This species was not observed during the May 2021 botanical survey.
Erythronium helenae	--/--/4.2	Known range includes Lake, Napa and Sonoma	A bulbiferous herb in the Liliaceae	March-May	**No**, the Study Area occurs

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St. Helena fawn lily		counties (CNPS, 2011)	family. It can be found in chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland often with volcanic or serpentinite soils at elevations from 350 to 1220 meters.		outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Fritillaria purdyi Purdy's fritillary	--/--/4.3	Known range includes Colusa, Glenn, Humboldt, Lake, Mendocino, Napa, Tehama, Trinity, and Yolo counties and also Oregon state (CNPS, 2017).	A bulbiferous herb of the lily family (Liliaceae) and is known to occur in chaparral, cismontane woodland, and lower montane coniferous forest usually in serpentinite soils from elevations of 175 to 2255 meters above sea level.	March to June	**No**, the Study Area lacks habitat and soils suitable to support this species. The Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Gratiola heterosepala Boggs Lake hedge-hyssop	--/CE/1B.2	Known to occur in Fresno, Lake, Lassen, Madera, Merced, Mendocino, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, Sonoma, and Tehama counties in CA and in Oregon.	Annual herb found on clay soils along the lake margins of marshes and swamps, shallow water, and margins of vernal pools. Elevations range from 10 to 2,375 meters.	April-September	**No**, the Study Area lacks lake, marsh, swamp, vernal pools, and shallow water habitat. This species was not observed during the May 2021 botanical survey.
Harmonia nutans Nodding harmonia	--/--/4.3	Known to occur in Lake, Napa, Sonoma, and Yolo counties.	Found in chaparral and cismontane woodland habitats. Found in rocky or gravelly, volcanic soils. Elevations range from 75-975 meters.	March-June	**No**, the Study Area lacks habitat suitable to support this species. This species was not observed during the May 2021 botanical survey.
Harmonia hallii Hall's harmonia	--/--/1B.2	Known to occur in Colusa, Lake, Napa, and Yolo Counties (CNPS, 2016).	Found in chaparral (serpentinite). Elevations range from 500-975 meters (CNPS, 2016).	April-June	**No**, the Study Area lacks soils suitable to support this species. The Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Hemizonia congesta	--/--/1B.2	Known to occur in Lake, Mendocino, Marin,	An annual herb occurs in grassy sites,	April-November	**Yes**, this species may occur

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ssp. congesta congested-headed hayfield tarplant		San Francisco, San Mateo and Sonoma counties.	marsh edges, roadsides, and valley and foothill grasslands. Elevations range from 20-560 m.		within the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Hesperolinon bicarpellatum two-carpellate western flax	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma counties.	Annual herb found in chaparral habitats and serpentinite soils. Elevations range from 60-1005 meters.	May-July	**No**, The Study Area lacks habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Hesperolinon sharsmithiae Sharsmith's western flax	--/--/1B.2	Known to occur in Lake and Napa counties.	Annual herb found in chaparral habitats on serpentinite substrate. Elevations range from 270-300 meters.	May-July	**No**, The Study Area lacks habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Juncus luciensis Santa Lucia dwarf rush	--/--/1B.2	Occurs in Lassen, Monterey, Modoc, Napa, Nevada, Placer, Plumas, Riverside, Santa Barbara, San Benito, San Diego, Shasta, and San Luis Obispo counties.	An annual herb that is found in chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, and vernal pools. Elevations range from 300-2040 meters.	April-July	**No**, the Study Area lacks habitat suitable to support this species. The Study Area also occurs outside the elevation range of this species.
Lasthenia burkei Burke's goldfields	FE/CE/1B.1	Known to occur in Lake, Mendocino, Napa, and Sonoma Counties	Annual herb occurs in meadows and seeps (mesic), and vernal pools at elevations from 15-600 meters	April-June	**No**, the Study Area lacks habitat suitable to support this species. This species was not observed during the May 2021 botanical survey.
Layia septentrionalis Colusa layia	--/--/1B.2	Known to occur in Butt, Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo counties.	Found in chaparral, cismontane woodland, valley and foothill grassland habitats. Found in sandy, and serpentinite soils. Elevations range from 100-1095 meters.	April-June	**No**, The Study Area lacks soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Leptosiphon acicularis Bristly leptosiphon	--/--/4.2	Found in Alameda, Butte, Colusa, Humboldt, Lake, Mendocino, Marin, Napa, Placer, San Benito, Santa Clara, San Mateo, and Sonoma	Coastal Prairie, Chaparral, Foothill Woodland at elevations of 33 to 3150 feet.	April-July	**No**, the Study Area lacks habitat suitable to support this species. This species

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
		counties.			was not observed during the May 2021 botanical survey.
Leptosiphon jepsonii Jepson's leptosiphon	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma counties.	Found in chaparral and cismontane woodland (usually volcanic), and open or partially shaded grassy slopes. Elevations range from 100-500 m.	March-May	**No,** the Study Area chaparral and cismontane woodland suitable to support this species. This species was not observed during the May 2021 botanical survey.
Leptosiphon latisectus Broad-lobed leptosiphon	--/--/4.3	Known to occur in Colusa, Del Norte, Glenn, Humboldt, Lake, Mendocino, Napa, Shasta, Sonoma, Tehama, and Trinity counties.	An annual herb found in broadleafed upland forest, cismontane woodland. Open or partially shaded grassy slopes. Elevation range 170-1500 meters.	April-June	**No**, the Study Area occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Lessingia hololeuca woolly-headed lessingia	--/--/3	Known to occur in Alameda, Monterey, Marin, Napa, Santa Clara, San Mateo, Solano, Sonoma, and Yolo counties.	An annual herb found in clay and serpentinite soils within broadleafed upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland habitats. Elevations range from 13-305 meters.	June-October	**Yes**, this species may occur on within the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Limnanthes floccosa ssp. floccosa Woolly meadowfoam	--/--/4.2	Known range includes Butte, Lake, Lassen, Napa, Shasta, Siskiyou, Tehama, and Trinity Counties. It is also found in Oregon.	An annual herb in the meadowfoam family (Limnanthaceae). It occurs in vernally mesic conditions within chaparral, cismontane woodland, valley and foothill grassland, and vernal pool habitats. It has been found at elevations ranging from 60 to 1335 meters above mean sea level.	March-May (June)	**No**, The Study Area las habitat suitable to support this species. This species was not observed during the May 2021 botanical survey.
Limnanthes vinculans Sebastopol meadowfoam	FE/CE/1B.1	Known to occur in Napa and Sonoma Counties.	Annual herb found in wet vernally mesic meadows and seeps, valley and foothill grassland, and vernal pool habitat. Elevations range from 15-305 meters.	April-May	**No**, The Study Area las habitat suitable to support this species. This species was not observed during the May 2021 botanical survey.

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Lomatium repostum Napa lomatium	--/--/4.3	Known to occur in Lake, Napa, Solano, and Sonoma counties.	Found in chaparral and cismontane woodland habitats. Found in serpentinite soils. Elevations range from 90-830 meters.	March-June	**No**, the Study Area lacks serpentine soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Lupinus sericatus Cobb Mountain lupine	--/--/1B.2	Known to occur in Colusa, Lake, Napa, and Sonoma counties.	Found on slopes with open broadleaf upland forest, chaparral, cismontane woodland, and lower montane coniferous forest. Elevations range from 275-1,525 m.	March-June	**No,** the Study Area lacks habitat suitable to support this species and occurs outside of the elevational range of this species. This species was not observed during the May 2021 botanical survey.
Microseris paludosa marsh microseris	--/--/1B.2	Known to occur in Mendocino, Monterey, Marin, San Benito, Santa Cruz, San Francisco (though may be extirpated), San Luis Obispo, San Mateo (though may be extirpated), Solano, and Sonoma counties (CNPS, 2019).	Perennial herb found in moist valley and foothill grasslands, open woodlands, closed-cone coniferous forest, coastal scrub. Elevations range from; 5-355 meters.	April-July	**Yes**, this species may occur within the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Monardella viridis Green monardella	--/--/4.3	Known to occur in Lake, Napa, Solano, and Sonoma counties.	A perennial rhizomatous herb found in broadleafed upland forest, chaparral, cismontane woodland and in serpentine substrates. Elevation range from 100-1010 meters.	June-September	**No**, the Study Area lacks habitat and soils suitable to support this species.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	--/--/1B.1	Known to occur in Colusa, Glenn, Lake, Lassen, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo counties.	Annual herb found in mesic conditions within cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools habitats. Elevations range from 5-1740 meters.	April-July	**Yes**, this species may occur within the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Navarretia leucocephala ssp. plieantha many-flowered navarretia	FE/CE/1B.2	Known to occur in Lake and Sonoma counties.	An annual herb that occurs in vernal pool habitats. This species has an affinity for substrates that originated from volcanic ash flows. Elevation ranges; 30 to 1100 meters.	May - June	**No**, The Study Area lacks vernal pool habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.

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Navarretia myersii ssp. deminuta Small pincushion navarretia	--/--/1B.1	Occurs exclusively in Lake County and is currently known from a single documented occurrence in Long Valley (CDFG, 2003).	An annual herb in the phlox family (Polemoniaceae). It occurs in vernal pool communities on clay loam substrates at approximately 355 meters above mean sea level.	April-May	**No**, the Study Area lacks vernal pool habitat suitable to support this species. The Study Area also occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Navarretia paradoxinota Porter's navarretia	--/--/1B.3	Known to occur in Colusa, Lake, and Napa counties.	Found in serpentinite soils, openings, vernally mesic, often drainages, and meadows and seeps. Elevations range from 165-840 meters.	May-June (July)	**No**, the Study Area lacks soils suitable to support this species. The Study Area also occurs outside of the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Penstemon newberryi var. sonomensis Sonoma beardtongue	--/--/1B.3	Known to occur in Lake, Napa, and Sonoma counties.	A perennial herb found on outcrops, talus, or rocky substrates within chaparral habitat. Elevations; 500-2400 meters	April-August	**No**, the Study Area lacks soils and habitat suitable to support this species. The Study Area also occurs outside of the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Plagiobothrys strictus Calistoga popcorn flower	FE/CT/1B.1	Known from Napa County (CNPS, 2016).	Found in meadows and seeps, valley and foothill grassland, and vernal pools (alkaline areas near thermal springs). Elevations range from 90 to 160 meters (CNPS, 2016).	March-June	**No**, the Study Area lacks habitat suitable to support this species. This species was not observed during the May 2021 botanical survey.
Poa napensis Napa bluegrass	FE/CE/1B.1	Known from Napa County (CNPS, 2016).	Found in meadows and seeps, valley and foothill grassland (alkaline areas near thermal springs). Elevations range from 100 to 200 meters (CNPS, 2016).	May-August	**No**, the Study Area lacks meadows and seep, and valley foothill grassland habitat nearby thermal vents suitable to support

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					this species. This species was not observed during the May 2021 botanical survey.
Puccinellia simplex California alkali grass	--/--/1B.2	Known to occur in Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo counties.	An annual herb found in alkaline, vernally mesic condition within sinks, flats, and lake margins. Also chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation range: 2-930 meters (CNPS, 2019).	March-May	**No**, the Study Area contains ruderal habitat containing various grass species but lack vernally mesic conditions suitable to support this species. This species was not observed during the May 2021 botanical survey.
Ranunculus lobbii Lobb's aquatic buttercup	--/--/4.2	Known to occur in Alameda, Contra Costa, Mendocino, Marin, Napa, Santa Cruz, San Mateo, Solano, and Sonoma counties.	Found in cismontane woodland, North Coast coniferous forest, valley and foothill grassland, ponds and vernal pool habitats. Found in mesic soils. Elevations range from 15-470 meters.	February-May	**No**, the Study Area lacks habitat suitable to support this species.
Sidalcea hickmanii ssp. napensis Napa checkerbloom	--/--/1B.1	Known to occur in Napa and Sonoma counties.	Found in chaparral (rhyolitic). Elevations range from 415-610 meters.	April-June	**No,** the Study Area lacks habitat suitable to support this species and occurs outside of the elevational range of this species. This species was not observed during the May 2021 botanical survey.
Sidalcea oregana ssp. valida Kenwood Marsh checkerbloom	FE/CE/1B.1	Known to occur in Sonoma County.	Perennial rhizomatous herb found in marshes and swamps (freshwater). Elevations range from 115-150 meters.	June-September	**No**, The Study Area lack marsh and swamp habitat suitable to support this species.
Spergularia macrotheca var. longistyla Long-styled sand-spurrey	--/--/1B.2	Known to occur in Alameda, Contra Costa, Napa, and Solano counties.	Found in alkaline habitats, of which include meadows and seeps, and marshes and swamps, and at elevations of 0-255 meters.	February-May	**No**, the Study Area lacks habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.

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Streptanthus brachiatus ssp. brachiatus Socrates Mine jewelflower	--/--/1B.2	Known to occur in Napa and Sonoma counties.	Perennial herb found usually on serpentinite barrens, within closed-cone coniferous forest, chaparral or woodland. Elevations range from 545-1000 meters.	May-July	**No**, the Study Area lacks soils and habitat suitable to support this species. The Study Area also occurs outside the elevation range suitable to support this species. This species was not observed during the May 2021 botanical survey.
Streptanthus brachiatus ssp. hoffmani Freed's jewelflower	--/--/1B.2	Known to occur in Lake and Sonoma counties.	A perennial herb found in serpentinite chaparral and cismontane woodland habitats. Elevations; 490-1220 meters.	May-July	**No**, the Study Area lacks habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Streptanthus hesperidis green jewelflower	--/--/1B.2	Known from Glenn, Lake, Napa, and Sonoma counties.	Annual herb occurs on serpentinite, rocky substrates. Found in chaparral (openings), cypress woodland, and cismontane woodland habitats. Elevations range from 130 to 760 meters.	May-July	**No**, the Study Area lacks soils and habitat suitable to support this species. The Study Area also occurs outside the elevation range suitable to support this species. This species was not observed during the May 2021 botanical survey.
Streptanthus morrisonii ssp. elatus Three Peaks jewelflower	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma counties.	A perennial herb found in chaparral (serpentinite). Elevation range: 90-815 meters.	June-September	**No**, the Study Area lacks habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.
Streptanthus vernalis Early jewelflower	--/--/1B.2	Known to occur in Lake county only.	An annual herb found in serpentinite habitats, in closed-cone coniferous forest and chaparral. Elevation range 610-610 meters.	March-May	**No**, the Study Area lacks habitat and soils suitable to support this species. This species was not observed during the May 2021 botanical survey.

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Stuckenia filiformis ssp. alpina Slender-leaved pondweed	--/--/2B.2	Known to occur in Alameda, Butte, Contra Costa, El Dorado, Lassen, Merced, Mono, Modoc, Mariposa, Nevada, Placer, Santa Clara*, Shasta, Sierra, San Mateo, Solano, and Sonoma counties.	A perennial rhizomatous herb found in marshes and swamps assorted shallow freshwater, clear water lake habitats and drainage ditches. Elevation range 300-2150 meters.	May-July	**No**, the Study Area occurs outside the elevation range of this species. This species was not observed during the May 2021 botanical survey.
Trichostema ruygtii Napa bluecurls	--/--/1B.2	Known to occur in Lake, Napa, and Solano counties.	Found in chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Often in seasonally saturated, vernal pools with thin clay soils. Elevations range from 30-680 m.	June-October	**No,** the Study Area lacks habitat suitable to support this species. This species was not observed during the May 2021 botanical survey.
Trifolium amoenum two-fork clover	FE/--/1B.1	Known to occur in Alameda (though may be extirpated), Marin, Napa (though may be extirpated), Santa Clara (though may be extirpated), San Mateo, Solano (though may be extirpated), and Sonoma (though may be extirpated/uncertain) counties.	Annual herb found in coastal bluff scrub and valley and foothill grassland habitats sometime in serpentinite at elevations ranging from 5 - 415 meters.	April-June	**Yes**, this species may occur within the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Trifolium hydrophilum saline clover	--/--/1B.2	Known to occur in Alameda, Contra Costa, Lake, Colusa, Monterey, Napa, Sacramento, Sonoma, Solano, San Benito, Santa Clara, Santa Cruz, San Joaquin, San Luis Obispo, San Mateo, and Yolo counties. Unconfirmed in Colusa county.	Found in marshes and swamps and valley and foothill grassland that are occasionally on mesic, alkaline soils, and vernal pools. Elevations range from 0-300 m.	April-June	**Yes**, this species may occur within the ruderal habitat. This species was not observed during the May 2021 botanical survey.
Triteleia lugens Coast range (dark-mouthed) Triteleia	--/--/4.3	Known to occur in Lake, Monterey, Napa, San Benito, Solano, and Sonoma counties.	Found in broadleafed upland forest, chaparral, coastal scrub, lower montane coniferous forest. Elevations range from 328 to 3,280 feet.	April-June	**No**, the Study Area lacks habitat suitable to support this species.
Viburnum ellipticum oval-leaved viburnum	--/--/2B.3	Known to occur in Alameda, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Lake, Mendocino, Mariposa, Napa, Placer, Shasta, Solano, Sonoma, and Tehama counties.	Found in chaparral, cismontane woodland, and lower montane coniferous forest. Generally north facing slopes. Elevations range from 215-1400 m.	May-August	**No**, the Study Area lacks habitat suitable to support this species. The Study Area also occurs outside the elevation range suitable to support this species. This species was not observed during the May 2021

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
					botanical survey.
Animals					
Fish					
Hypomesus transpacificus Delta smelt	FT/CE/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary from the Suisun Bay through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties.	Estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	**No,** the Study Area lacks aquatic habitat suitable to support this species.
Hysterocarpus traskii pomo Russian River tule perch	--/CSC/--	Occurs throughout the Russian River and the lower reaches of its major tributaries in Sonoma County.	Occurs in clear streams and rivers. Will congregate around submerged logs and boulders. Associated with beds of emergent and aquatic vegetation, deep pools, and banks with complex cover, such as overhanging bushes, fallen trees, and undercutting.	Consult Agency	**No**, the Study Area lacks suitable aquatic habitat to support this species. Barriers are present restricting fish from accessing the onsite drainage.
Lavinia symmetricus navarroensis Navarro roach	--/CSC/--	Range includes Navarro River and its tributaries, all of which occur in Mendocino County. However, there is a single documented occurrence of Navarro roach within Sonoma County.	Requires generally small warm streams and is often found in isolated pools within intermittent aquatic features. Females deposit their eggs repeatedly in between rock crevices.	Consult Agency	**No**, the Study Area lacks suitable aquatic habitat to support this species. Barriers are present restricting fish from accessing the onsite drainage.
Oncorhynchus kisutch pop. 4 Coho salmon [Central California Coast ESU]	FE/CE/--	This ESU is known to occur throughout the major rivers and tributaries from the Noyo River, south of Fort Bragg, to the San Lorenzo River, east of Santa Cruz. The distribution includes Marin, Mendocino, San Francisco, San Mateo, Santa Cruz, and Sonoma counties.	Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambeds.	November – February	**No**, the Study Area lacks suitable aquatic habitat to support this species. Barriers are present restricting fish from accessing the onsite drainage.
Oncorhynchus mykiss irideus pop. 8 Steelhead-Central California Coast DPS	FT/--/--	Central California Coastal ESU, spawns in drainages from the Russian River basin, Sonoma and Mendocino Counties, to Soquel Creek, Santa Cruz County (including the San Francisco Bay basin, but not the Sacramento and San Joaquin Rivers or their tributaries).	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, need cold water and gravelly	Consult Agency	**No**, the Study Area lacks suitable aquatic habitat to support this species. Barriers are present restricting fish from accessing the onsite drainage.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
			streambeds.		
Amphibians					
Dicamptodon ensatus California giant salamander	--/CSC/--	Known to occur in Mendocino, Lake, Glenn, Sonoma, Marin, San Mateo, Santa Cruz and historically Monterey counties.	Occurs in wet coastal forests near streams and seepages.	N/A	**Yes**, potentially partially suitable habitat occurs within the drainage and ruderal habitats.
Taricha rivularis Red-bellied newt	--/CSC/--	Known to occur in the Coast Range from Mendocino County to San Diego County. Also known in the Peninsular Ranges, south of Boulder Creek, and in the southern Sierra Nevada foothills.	Occurs primarily in valley-foothill hardwood, hardwood-conifer, coastal scrub, and mixed chaparral. May occur in annual grassland and mixed conifer forest. Elevations up to 1,830 m.	Fall-Late Spring	**Yes**, potentially suitable habitat occurs within the drainage and ruderal habitats.
Rana boylii Foothill yellow-legged frog (FYLF)	--/CCT; CSC/--	Known from California and Oregon.	Requires shallow, flowing water in moderate sized streams with some cobble substrate.	November-March (breeding) June-August (non-breeding)	**No**, the Study Area lacks aquatic habitat suitable to support this species.
Rana draytonii California red-legged frog (CRLF)	FT/CSC/--	Known to occur along the Mendocino Coast to Baja and inland through the north Sacramento Valley to foothills of the Sierra Nevadas, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from 0-1160 m.	November – March (breeding) June - August (non-breeding)	**No**, no occurrence were documented within the Calistoga USGS quadrangle.
Birds					
Accipiter striatus Sharp-shinned hawk	--/WL/--	California-wide.	Nests in dense, even-aged, single-layered, forest canopy. Winters in woodlands. Prefers but does not require nearby riparian habitat.	All Year	**Yes**, the ruderal habitat provides potential foraging habitat.
Accipiter cooperii Cooper's hawk	--/WL/--	Known to occur from Siskiyou Co. south to San Diego Co; also scattered nesting in interior valleys and woodlands of Coast Range from Humboldt Co. south, and in western foothills of the Sierra Nevada.	Deciduous, mixed, and evergreen forests, and deciduous stands of riparian habitat. Ranges from sea level to above 2700 meters.	All Year	**Yes**, the ruderal habitat provides potential foraging habitat.
Agelaius tricolor Tricolored blackbird	--/CT/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	All Year	**No**, the Study Area lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
Circus cyaneus northern harrier	--/CSC/--	Permanent residents of the northeastern plateau and coastal areas; less common resident of the Central Valley.	Coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands. Nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3000 m.	All Year	**Yes**, in a foraging capacity only.
Elanus leucurus white-tailed kite	--/FP/--	Permanent resident of coastal and Valley lowlands.	Habitats include savannah, open woodland, marshes and swamps, partially cleared lands and cultivated fields, mostly in lowland habitats. Open groves, river valleys, marshes, grasslands. Nesting occurs in trees. Found in a wide variety of open habitats in North America, including open oak grassland, desert grassland, farm country, marshes. Main requirements seem to be trees for perching and nesting, and open ground with high populations of rodents.	All Year	**Yes**, the ruderal habitat provides potential foraging habitat.
Falco Mexicanus prairie falcon	--/WL/--	Not found along the coast.	Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Requires cliffs, bluffs, or rock outcrop to nest in.	All Year	**Yes**, in a foraging capacity only.
Falco peregrinus anatum American peregrine falcon	FD/CD; FP/--	Active nesting sites known along the coast north of Santa Barbara and other mountains in northern California.	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or banks. Will nest on man-made structures and in the hollows of old trees or open tops of cypress, sycamore or cottonwood trees 50-90 feet above the ground.	Year Round (some migrate)	**Yes**, the ruderal grassland habitat provides potential foraging habitat.
Haliaeetus	FD/CE; FP/--	The State's breeding territories are in northern	Found in mountain and foothill forests	Year-round	**No**, the Study Area lacks

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
leucocephalus bald eagle		California, but the eagles also nest in scattered locations in the central and southern Sierra Nevada mountains and foothills, in several locations from the central coast range to inland southern California, and on several California islands. Winters throughout most of California.	and woodlands near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Most Usually less than 2 km to water that offers foraging opportunities. Suitable foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.		habitat suitable to support this species.
Progne subis purple martin	--/CSC/--	Local summer resident in wooded low-elevation habitats throughout California; rare migrant in spring and fall, absent in winter. In the south, now only a rare and local breeder on the coast and in interior mountain ranges.	Inhabits open forests, woodlands, and riparian areas in breeding season. Found in a variety of open habitats during migration, including grassland, wet meadow, and fresh emergent wetland, usually near water. Nests in conifer stands, often in woodpecker holes. Uses valley foothill and montane hardwood and conifer, and riparian habitats.	March-August	**Yes**, the mixed oak woodlands provide habitat suitable to support this habitat.
Strix occidentalis caurina Northern spotted owl	FT/CT; CSC/--	Geographic range extends from British Colombia to northwestern California south to San Francisco. The breeding range includes the Cascade Range, North Coast Ranges, and the Sierra Nevada. Some breeding populations also occur in the Transverse Ranges and Peninsular Ranges.	Resides in mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2,300 m. Appear to prefer old-growth forests, but use of managed (previously logged) lands is not uncommon. Owls do not appear to use logged habitat until approximately 60 years after logging unless some larger trees or snags remain after logging. Nesting habitat is a tree or snag cavity, or the broken top of a large tree. Requires a nearby, permanent source of water. Foraging habitat consists of any forest habitat with sufficient prey.	Year-round	**No**, the Study Area lacks forested habitat suitable to support this species.
Mammals					
Antrozous pallidus Pallid bat	--/CSC/--	Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 m. Most common	Year-round	**Yes**, habitat suitable to support this species occurs within the onsite structures and within the exfoliating

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
		state from Del Norte and western Siskiyou counties to northern Mendocino county.	in open, dry habitats with rocky areas for roosting. Roosts include cliffs, abandoned buildings, bird boxes, exfoliating bark, and bridges.		back and cavities present within some of the onsite trees.
Corynorhinus townsendii Townsend's big-eared bat	--/CSC/--	Known to occur throughout California, excluding subalpine and alpine habitats. Its range extends through Mexico to British Columbia and the Rocky Mountain states. Also occurs in several regions of the central Appalachians.	Requires caves, mines, tunnels, buildings, or other cave analog structures such as hallowed out redwoods for roosting. Hibernation sites must be cold, but above freezing.	Year-round	**Yes**, habitat suitable to support this species occurs within the onsite structures and within onsite tree cavities.
Invertebrates					
Bombus occidentalis Western bumble bee	--/CCE/--	Known to occur along the West Coast and Mountain West of North America, including Arizona, New Mexico, Mediterranean California, the Pacific Northwest, and Alaska.	Found in open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Found at elevations from 0-2000+ m. Nesting occurs underground in abandoned rodent burrows or other cavities.	February-November	**Yes**, habitat suitable to support this species occurs within the ruderal habitat.
Syncaris pacifica California freshwater shrimp	FE/CE/--	Known only throughout Marin, Napa, and Sonoma counties.	Small, low-gradient, perennial coastal streams. Prefers relatively shallow streams with depths of 12-36 inches, exposed live roots of trees such as alder and willow, undercut banks greater than 6 inches, overhanging woody debris or stream vegetation and vines. Elevations range from 0-116 m.	Consult Agency	**No**, the Study Area lacks aquatic habitat suitable to support this species.
Reptiles					
Emys marmorata Western pond turtle	--/CSC/--	Distribution ranges from Washington to northern Baja California.	Inhabit rivers, streams, lakes, ponds, reservoirs, stock ponds, and permanent wetland habitats with basking sites.	Year-round	**Yes**, this species has the potential to occur within the onsite drainage when inundated and within the detention pond on the property to the north.
Chelonia mydas Green sea turtle	FT/--/--	Globally distributed and generally found in tropical and subtropical waters along continental coasts and islands between 30° North and 30° South. In the eastern North	Nests on oceanic beaches, feeds in benthic grounds in coastal areas, and frequents convergence zones in the open ocean.	Consult Agency	**No**, the Study Area lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	IDENTIFICATION PERIOD	POTENTIAL TO OCCUR WITHIN STUDY AREA
		Pacific, occurs from Baja California to southern Alaska.			
SOURCE: CDFW, 2021b and **Attachment 1**					

STATUS CODES

FEDERAL: United States Fish and Wildlife Service

FE Federally Endangered
FT Federally Threatened
FCE Candidate for Federal Listing

STATE: California Department of Fish and Game

CE California Listed Endangered
CT California Listed Threatened
CCT California Candidate Threatened
CSC California Species of Special Concern
FP California Fully Protected

CNPS: California Native Plant Society (California Rare Plant Rank [CRPR])

1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants about Which We Need More Information – A Review List
4 Plants of Limited Distribution – A Watch List

CNPS Threat Ranks

0.1 - Seriously threatened in California
0.2 - Fairly threatened in California
0.3 - Not Very Threatened in California

5.4 SPECIAL-STATUS WILDLIFE

Preliminary data review and special-status species searches list 21 special-status wildlife species with the potential to occur in the region (**Table 1**). Further analysis determined that six special-status wildlife species have the potential to occur within the Study Area. Species with no potential to occur were ruled out based on distribution and habitat requirements. No special-status species were observed during the biological surveys conducted by AES in April and May 2021.

Based on survey results and the review of regionally occurring special-status species and associated habitat requirements, the Study Area may contain suitable habitat for six special-status wildlife species. These species include:

- California giant salamander (*Dicamptodon ensatus*)
- Red-bellied newt (*Tricha rivularis*)
- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Western bumble bee (*Bombus occidentalis*)
- Western pond turtle (*Emys marmorata*)

These special-status wildlife species identified as potentially occurring within the Study Area are consistent with the potentially occurring special-status plant species identified in the 2018 BRA (Macmillan, 2018) prepared for the Study Area, with the exception of one added species. This species includes the western bumble bee. Further details on potentially occurring wildlife species within the Study Area described below.

California giant salamander (*Dicamptodon ensatus*)
Federal status – None
State status – Species of Special Concern
Other – None

It is known to occur in Mendocino, Lake, Glenn, Sonoma, Marin, San Mateo, Santa Cruz, and historically Monterey counties. Its habitats include wet coastal forests near streams and seepages. Adult California giant salamanders may be terrestrial, transforming after 1 to 2 years as a larva or retain their gills and remain aquatic. Terrestrial adults feed on snails, slugs, other invertebrates, small mice, shrews, possibly reptiles, and other amphibians. Aquatic adults and larvae eat aquatic invertebrates, fish and other amphibians. Breeding occurs from March to May. The eggs are laid in concealed locations several feet below the surface in cold, slowly flowing water in springs, channels, under streambanks, and beneath rocks and coarse woody debris in stream bottoms.

CNDDB has listed one occurrence of this species (Occurrence #26) within five miles of the Study Area located approximately 4.81 miles to the southwest. This occurrence was made in 1985. Even though there have not been occurrences within the last 35 years, potentially partially suitable habitat is present within the drainage and adjacent upland ruderal habitat and may be impacted if present during construction. Implementation of **Mitigation Measure 1** will reduce impacts to this species.

Red-bellied newt (*Taricha rivularis*)
Federal Status- None
State Status- Species of Special Concern
Other- IUCN Least Concern

The red-bellied newt is known to occur in Sonoma, Mendocino, Humboldt, and Lake Counties. It can be found in redwood forest, mixed conifer, valley-foothill woodland, montane hardwood, and hardwood-conifer habitats. Its diet consists of arthropods, worms, snails, and ground litter. The red-bellied newt is known to be primarily active at night. It is known to migrate to streams during autumn rains and return to terrestrial habitat in the spring. Females lay approximately 12 flat clusters of 6 to 16 eggs on the underside of rocks in rapid-flowing permanent stream habitats from March to April, and the larvae is then known to transform in late summer to early fall. Sexual maturity occurs at 6 to 10 years of age.

CNDDB has listed one occurrence of this species (Occurrence #130) within five miles of the Study Area located approximately 4.98 miles to the southwest. This occurrence was made in 1970. Even though there has not been an occurrence of this species in the 50 years, potentially suitable habitat is present with the drainage with foraging opportunities provided by the upland areas. Implementation of **Mitigation Measure 1** will reduce impacts to this species.

Western Pond Turtle (*Emys marmota*)

Federal Status – None
State Status – Californian Species of Concern
Other- None

The western pond turtle (WPT) is found in Pacific-slope drainages to an elevation of approximately 4,757 feet (1450 meters). These turtles are found along ponds, marshes, rivers, streams, and irrigation ditches that typically have muddy or rocky bottoms and grow aquatic vegetation. They require basking sites such as logs or mats of submergent vegetation. It prefers habitats with stable banks and open areas to bask in, as well as underwater cover provided by logs, large rocks, bulrushes, or other vegetation. This subspecies generally leaves the aquatic site only to reproduce and to hibernate. Hibernation typically takes place from October or November to March or April. Egg-laying typically occurs in May and June, and may take place up to 0.31 mile (0.5 kilometers) from water. Eggs hatch in approximately 73 to 80 days, where the hatchlings then overwinter in the nest and then emerge in the spring

CNDDB has listed two occurrences in the vicinity of the Study Area. Both occurrences were documented as occurring within less than one mile of the Study Area. The closest occurrence (Occurrence #455) was documented in 2017 and is located 0.72 mile to the southeast within the Napa Creek. The drainage and detention pond on the property to the north provide potential habitat to support this species when inundated. Implementation of **Mitigation Measure 1** will reduce impacts to this species.

Pallid Bat (*Antrozous pallidus*)

Federal – None
State – Species of Concern (CSC)
Other - None

Pallid bat occurs from British Columbia to Texas south to Baja California and central Mexico (Smithsonian National Museum of Natural History, 2007). In California, pallid bat occurs throughout the state except in the high Sierra Nevada Range from Shasta County to Kern County. The pallid bat is most commonly found in arid and semi-arid regions with open habitats and rocky areas for roosting. This species has three different roosts: the day roost is usually in a warm horizontal opening such as in attics or rock cracks; the night roost is usually in the open, near foliage; and the hibernation roost, which is often in buildings, caves, or cracks in rocks. Pallid bats are insectivores but will occasionally forage on lizards as well (CDFG, 2002). The pallid bat is a medium-sized bat with large wide ears that are clearly separated at the base. This species occurs in a wide variety of habitats including grasslands, shrublands

and chaparrals, woodlands, and forests. It is most abundant in open dry habitats that have abundant rocky areas for roosting. It forages over open ground and is mostly a nocturnal hunter. Pallid bat (like most bat species) is most active during the dawn and dusk hours. This species will establish daytime roosts in caves, crevices, mines, large hollow trees, and unoccupied buildings. Pallid bats mate during the months of October through February and most young are born from April through July. The range of pallid bat includes most of California with the exception of the high Sierra Nevada from Shasta to Kern counties and the northwestern-most corner of the state.

CNDDB has listed three occurrences of this species within 4 miles of the Study Area. The closest occurrence (Occurrence #219) was documented in 1948 and located approximately 1.51 miles to the northwest. The most recent occurrence (Occurrence #436) was documented in 2017 and located approximately 2.04 miles to the southeast. Given the presence of structures within the Study Area, the pallid bat may occur. Implementation of **Mitigation Measure 2** will reduce impacts to this species.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

Federal Status – None
State Status – Species of Special Concern
Other - None

Townsend's big-eared bat is found throughout California in all habitats except subalpine and alpine, with the greatest abundance in mesic habitats. Within these habitats, they require caves, mines, tunnels, buildings or other man-made structures for roosting. It forages nocturnally along habitat edges gleaning over brush and trees using echolocation. Peak foraging activity occurs late in the evening preceded by flights close to the roost. Townsend's big-eared bats will hibernate from October to April. Mating typically occurs from November to February, but many females are inseminated before hibernation begins. Townsend's big-eared bats are extremely sensitive to roosting site disturbance; one visit can result in roost abandonment

CNDDB has listed five occurrences of this species within four miles of the Study Area. The closest occurrence (Occurrence #623) was recorded in 1955 located approximately 0.37 mile to the east. All occurrences were documented prior to 1960. Given the presence of structures within the Study Area, this species may occur. Implementation of **Mitigation Measure 2** will reduce impacts to this species.

Western bumble bee (Bombus occidentalis)

Federal – None
State – Candidate Endangered
Other – None

The western bumble bee is a generalist forager that will visit and pollinate a variety of flowering plants. It is also a known pollinator of agricultural crop production plants. Their current range includes Alaska down through the westernmost part of Canada and throughout the western United States. The largest declines of this species are believed to occur within central California and western California, Oregon, and Washington. The western bumble bee is believed to be imperiled by invasive species and their foreign pathogens as well as climate change.

CNDDB has listed one occurrence (Occurrence #172) of this species within five miles of the Study Area located approximately 1.10 miles to the southeast. This occurrence was recorded in 1953 and was given a one-mile radius so its exact location is not known. Given the presence of ruderal habitat and flowering

plants within the Study Area, this species, while highly unlikely, may occur. Implementation of **Mitigation Measure 3** will reduce impacts to this species should it occur.

Mitigation Measure 1

- It is recommended to place wildlife exclusion fencing along the onsite drainage buffer, between the drainage with buffer and ground disturbing activities, to impede the migration of WPT, red-bellied newt, and California giant salamander from entering the construction area. This fencing shall be buried at least 6" deep and installed prior to the commencement of ground disturbing activities. While it is unlikely that these three species will occur on site, a preconstruction survey is recommended prior to the installation of the exclusion fence. If any of the species are identified within the construction area then the species should be allowed to vacate the area before the fencing is installed.

Mitigation Measure 2

- Tree removal may have the potential to impact roosting pallid bat as well as other potentially occurring bats if cervices or other bat habitat occurs in trees slated for removal. Trees should be felled in a two-step process as recommended by CDFW, leaving felled trees overnight prior to removal from the site or on-site chipping.
- Demolition of the onsite structures or trimming and/or removal of trees identified as potentially suitable bat habitat occurring within 100 feet of areas identified as habitat for either the pallid bat or Townsend's big-eared bat, shall occur during seasonal periods of bat activity between August 31 and October 15, and/or prior to hibernation between March 1st and April 15th, to the extent feasible. If bat sign is observed, an emergence dusk survey is recommended. The maternity season for special-status bats is April 15 to September 1. If maternity roosting of any special-status bat is identified, then consultation with California department of Fish and Wildlife is necessary to determine appropriate next steps. These same time windows are recommended for the removal of potential bat habitat trees when feasible.
- Prior to the demolition of the onsite structures, an assessment for sign of Townsend's big-eared bat should be conducted within the rafters and attic being the focus to identify if guano or other sign is present.

Mitigation Measure 3

- If spraying of insects is necessary for pest management is anticipated prior to clearing, only approved pesticides may be used. Spraying of insecticides should be limited or refrained from use if feasible. The presence of heavy earth moving equipment to actually do the clearing should allow any bees to remove themselves from the area should they be present.

5.5 Nesting Migratory Birds

Areas within 500 feet of construction may provide potential nesting habitat for migratory birds. The general nesting season for migratory birds occurs from February 15 through September 15. Construction activities have the potential to impact populations of nesting migratory birds on the Study Area should such activities occur during the general nesting season. Due the Study Area supporting numerous large trees, potential nesting habitat occurs for a variety of raptors and other special-status birds. These species include but are not limited to:

- Sharp-shinned hawk (*Accipiter striatus*)
- Cooper's hawk (*Accipiter cooperii*)

- Northern harrier (*Circus cyaneus*)
- White-tailed kite (Elanus leucurus)

Special-status birds identified as having a potential to occur on the Property were largely consistent with the potentially occurring special-status plant birds identified in the 2018 BRA (Macmillan, 2018) prepared for the Study Area, with the exception of bald eagle. The bald eagle was determined as to have no potential of occurring on the site in a foraging or nesting capacity due the Study Area being surrounded by development and the lack of prey availability within the Study Area. Implementation of **Mitigation Measure 4** would reduce potential impacts to nesting migratory birds.

Mitigation Measure 4

- Should construction activities associated with the Proposed Project occur during the general nesting season (February 15 to September 15), a preconstruction nesting bird survey shall be conducted no more than 7 days prior to the start of ground disturbing activities. Areas within 500 feet of construction shall be surveyed for active nests.
- Should an active nest be identified, an avoidance buffer shall be established by a qualified biologist based on the needs of the species identified. Avoidance buffers may vary in size depending on habitat characteristics, project-related activities, and disturbance levels.
- Avoidance buffers shall remain in place until the end of the general nesting season or upon determination by a qualified biologist that young have fledged or the nest has failed.
- Should work activity cease for 7 days or greater during the breeding season, surveys shall be repeated to ensure birds have not established nests during inactivity.

5.6 WATERS OF THE U.S. AND STATE

The NWI database was queried to determine previously mapped wetland and waters of the U.S. and state within the Study Area (**Figure 5**). NWI did not document any wetlands or other waters of the U.S. and state within the Study Area. The Napa River is closest documented aquatic feature, occurring approximately 0.4 miles to the southwest. Wetlands or other waters were not observed within the Study Area during the April 28, 2021 Stream Assessment survey.

The finding that no wetlands are located within the Study Area is consistent with the 2018 Macmillen BRA (Macmillan, 2018), which states that "In the mid-central portion of the site in the vicinity of data points 1-6 that were taken in 2009 as shown on Plate 1, various patches of Douglas meadowfoam (*Limnanthes douglasii*) intermixed with upland grasses were observed growing. While Douglas meadowfoam is an obligate wetland species, investigations of soils (all pits dug to a depth of 20 inches) showed that soils in these areas were generally well drained (friable clay loam) with no evidence of mottling or oxidized rhizospheres. In addition, there was no evidence of ponding such as the presence of algal mats or biotic crust. Lacking strong hydrology and soil indicators, these areas were determined not to be potential jurisdictional features. This area was re-evaluated in 2017. While the area had been mowed at the time of survey, evaluation of soils continued to exhibit primarily nonhydric characteristics. Per a previous BRA done on the site, on "June 26, 2018 Ms. Sahrye Cohen of the San Francisco Corps of Engineers conducted a wetlands determination on the property and confirmed the results of the wetlands assessment conducted." To date the jurisdictional delineation has not been located.

One drainage feature was identified along the northwestern edge of the Study Area. Based on evidence collected during the 2021 site visit, it is believed that the drainage feature is a remnant of previous land

uses and no longer functions as a water of the U.S. or state and may not meet the current USACE standards for waters of the US, consistent with the results outlined in the 2021 Stream Assessment memo (AES, 2021; **Attachment 5**). This is based on the absence of any classic diagnostic characteristics for determining the lateral extent of the stream boundary and the lack of OHWM features within the drainage channel. While there may have been a historic water feature on or near this location, the source hydrology has been impacted by upstream residential development. The straightening of the upstream portion of the channel was likely driven by the former orchard uses of the property to concentrate developable area within the center of the site, although this would not have impacted the amount of precipitation falling onto the property and subsequent runoff into the channel. Even though there are several culverts that connect to this drainage, there does not appear to be enough flowing water in this drainage channel to create the characteristics consistent with diagnostic features associated with jurisdictional water features.

The results of the 2021 stream assessment are largely consistent with the 2018 Macmillan report (Macmillan, 2018) in that the presence of incised bed, banks, and channels were present. Per the 2018 BRA done on the site, CDFW may have expressly exerted jurisdiction of the drainage in 2017 based on the presence of bed, bank, and channel and the immediately surround trees, which still persist, and preliminarily agreed to a 25 ft setback from top of bank. The purpose of the buffer appears to create functional protection for the drainage and first row of vegetation which is the basic CDFW jurisdiction. The waters of the State and US are secondary to the CDFW assertion of jurisdiction as the 25 ft setback avoids the waters and indirect water quality impacts except at the replacement culvert location. The 2018 BRA also suggests that USACE conducted a wetlands determination of the Study Area in June 2018. However, AES has not been able to obtain this previous USACE delineation determination. Should the 2018 delineation exist, it would have a normal 5-year life and would likely be valid until 2023.

A 25-foot setback appears to be reflected in the Site Plan there will be no impacts to the onsite drainage under either state or federal waters. The roadway expansion will likely require a CDFW Sec 1600 agreement due to the impacts to trees in the immediate surrounding area of the existing culvert. If the replacement culvert is designed to take advantage of using the existing location of the culvert but is anchored fully outside of the OHWM there would be no 404 required. Likewise, if needed to meet safety and fire standards and the existing culverted area is not wide enough then the 404 and 401 process can be avoided by clear spanning the drainage with footing outside of the banks of the drainage. If trees are impacted during this process then they can be fully mitigated within the oak woodland adjacent to or with in the 25 ft buffer which appears in the site plan. (See **Mitigation Measure 5** below).

As noted above, the presence of many non-native trees and shrubs along the nonimpacted sections of the drainage may allow onsite enhancement to accomplish any the needed mitigation and or tree replacement. The canopy cover at the existing crossing/culvert location may have some indirect impacts to trees if their drop line is impacted which may also need to be mitigated. With implementation of **Mitigation Measure 5**, unavoidable impacts due to overlaying the existing culvert and a free span supplement for fire and safety purposes may be fully able to be addressed onsite to enhance the mixed oak woodland surrounding the onsite drainage, to replace non-native trees with native trees, and by conducting work during the dry season.

Since overlaying of the existing culvert and free spanning any additional needed width to meet fire and safety requirements would not impact the drainage, this should not prevent a Categorical Exclusion under CEQA based on the biological issues addressed in this memo as long as basic supporting documents notes the extent of the protection and potential enhancement of a portion of the existing drainage within the buffer on site. The presence of waters of the State or U.S. is irrelevant if the existing culvert is overlaid and any new widening is free span in design. No 404 or 401 should be required. Full avoidance of the bed bank and channel could also possibly avoid CDFW impacts especially if the City fully mitigates per its tree ordnance the impacts to trees and shrubs, etc. for tree impacts related to fire and safety widening.

Mitigation Measure 5

- The proposed road widening to address fire and safety standards shall be designed to minimize impacts to the mixed oak woodland surrounding the drainage at essentially the same location as the existing culvert to the extent feasible. All work shall be done during the dry season to avoid direct or indirect impacts to the drainage. Crossing abutments shall be placed outside of the bed, bank, and channel. This along with overlaying the existing culvert should avoid the need for USACE or Regional Water Board permitting.
- Unavoidable impacts to trees and native shrubs (understory), shall be replaced onsite through enhancement of the remaining mixed oak woodland specifically non-native vegetation shall be replaced with native vegetation in a manner that is consistent with the city's tree ordinance, at no less than a 2:1 ratio for the length of the drainage overlaid or free spanned unless a possible CDFW SAA requires a higher ratio of mitigation.

6.0 CONCLUSION

Based on our analysis we have determined there is a potential for a total of 12 special-status plants species. The special-status plants identified as having a potential to occur on the Property have been determined to not be present based on several recent 2021 and past focused botanical surveys. Additionally, it was determined that a total of six special-status animal species have the potential to occur on the property which include the pallid bat, Townsend's big-eared bat, pacific pond turtle, California giant salamander, and red-bellied newt. Normal preconstruction to avoid take should address and avoid any impacts as recommended in the mitigation measures noted above. Trees are protected under the City of Calistoga's Municipal Code tree ordinance and impacts are addressed separately. Lastly there is a potential for nesting raptors and migratory birds to occur between the months of February 15 and September 15. Normal preconstruction nesting surveys should avoid any impacts. A drainage feature occurs on the property. Due to the presence of bed, bank and channel CDFW has previously requested a buffer for this drainage. The drainage may or may not have an existing USACE JD. Mitigation Measure 5 recommends that the road widening overlay and/or free span next to the existing culvert. Only CDFW SAA may be required at that location due to the design to avoid impacts to the drainage. There is within the otherwise preserved drainage and surrounding mixed oak woodland the opportunity to provide enhancement mitigation by replacing particularly smaller nonnative trees and shrubs and understory with native trees and shrubs. No substantial biological impacts are anticipated especially when combined with normal preconstruction surveys recommended as mitigation measures above to ensure avoidance of impacts to special status species or protected trees under city ordinance.

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ATTACHMENTS

ATTACHMENT 1

SPECIAL-STATUS SPECIES SEARCHES

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: July 29, 2021
Consultation Code: 08ESMF00-2021-SLI-2427
Event Code: 08ESMF00-2021-E-06991
Project Name: DeNova Homes - 2008 Grant St. Residential Development Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2021-SLI-2427
Event Code: 08ESMF00-2021-E-06991
Project Name: DeNova Homes - 2008 Grant St. Residential Development Project
Project Type: DEVELOPMENT
Project Description: Residential development
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.588584850000004,-122.58444822627226,14z

Counties: Napa County, California

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/1123

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas*	Threatened

Population: East Pacific DPS
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6199

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/321

Crustaceans

NAME	STATUS
California Freshwater Shrimp *Syncaris pacifica*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7903

Flowering Plants

NAME	STATUS
Burke's Goldfields *Lasthenia burkei*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4338

Calistoga Allocarya *Plagiobothrys strictus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6161

Clara Hunt's Milk-vetch *Astragalus clarianus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3300

Loch Lomond Coyote Thistle *Eryngium constancei*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5106

Napa Bluegrass *Poa napensis*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2266

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Calistoga (3812255))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAF02020	***Taricha rivularis*** red-bellied newt	None	None	G2	S2	SSC
AAAAH01020	***Dicamptodon ensatus*** California giant salamander	None	None	G3	S2S3	SSC
AAABH01022	***Rana draytonii*** California red-legged frog	Threatened	None	G2G3	S2S3	SSC
AAABH01050	***Rana boylii*** foothill yellow-legged frog	None	Endangered	G3	S3	SSC
ABNKC12020	***Accipiter striatus*** sharp-shinned hawk	None	None	G5	S4	WL
ABNKD06071	***Falco peregrinus anatum*** American peregrine falcon	Delisted	Delisted	G4T4	S3S4	FP
AFCHA0209G	***Oncorhynchus mykiss irideus pop. 8*** steelhead - central California coast DPS	Threatened	None	G5T2T3Q	S2S3	
AMACC01020	***Myotis yumanensis*** Yuma myotis	None	None	G5	S4	
AMACC01090	***Myotis thysanodes*** fringed myotis	None	None	G4	S3	
AMACC08010	***Corynorhinus townsendii*** Townsend's big-eared bat	None	None	G4	S2	SSC
AMACC10010	***Antrozous pallidus*** pallid bat	None	None	G4	S3	SSC
ARAAD02030	***Emys marmorata*** western pond turtle	None	None	G3G4	S3	SSC
CTT52410CA	***Coastal and Valley Freshwater Marsh*** Coastal and Valley Freshwater Marsh	None	None	G3	S2.1	
ICMAL27010	***Syncaris pacifica*** California freshwater shrimp	Endangered	Endangered	G2	S2	
IIHYM24250	***Bombus occidentalis*** western bumble bee	None	Candidate Endangered	G2G3	S1	
PDAPI0Z0W0	***Eryngium constancei*** Loch Lomond button-celery	Endangered	Endangered	G1	S1	1B.1
PDAST4R0P2	***Centromadia parryi ssp. parryi*** pappose tarplant	None	None	G3T2	S2	1B.2
PDAST5L010	***Lasthenia burkei*** Burke's goldfields	Endangered	Endangered	G1	S1	1B.1
PDBOR0V120	***Plagiobothrys strictus*** Calistoga popcornflower	Endangered	Threatened	G1	S1	1B.1
PDCAR0W062	***Spergularia macrotheca var. longistyla*** long-styled sand-spurrey	None	None	G5T2	S2	1B.2

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PDERI041G4	***Arctostaphylos stanfordiana ssp. decumbens*** Rincon Ridge manzanita	None	None	G3T1	S1	1B.1
PDFAB08012	***Amorpha californica var. napensis*** Napa false indigo	None	None	G4T2	S2	1B.2
PDFAB0F240	***Astragalus claranus*** Clara Hunt's milk-vetch	Endangered	Threatened	G1	S1	1B.1
PDFAB2B3J0	***Lupinus sericatus*** Cobb Mountain lupine	None	None	G2?	S2?	1B.2
PDFAB400R5	***Trifolium hydrophilum*** saline clover	None	None	G2	S2	1B.2
PDLIM02090	***Limnanthes vinculans*** Sebastopol meadowfoam	Endangered	Endangered	G1	S1	1B.1
PDMAL110A6	***Sidalcea hickmanii ssp. napensis*** Napa checkerbloom	None	None	G3T1	S1	1B.1
PDPLM09140	***Leptosiphon jepsonii*** Jepson's leptosiphon	None	None	G2G3	S2S3	1B.2
PDPLM0C0E1	***Navarretia leucocephala ssp. bakeri*** Baker's navarretia	None	None	G4T2	S2	1B.1
PDRHA04220	***Ceanothus confusus*** Rincon Ridge ceanothus	None	None	G1	S1	1B.1
PDRHA04240	***Ceanothus divergens*** Calistoga ceanothus	None	None	G2	S2	1B.2
PDRHA04420	***Ceanothus sonomensis*** Sonoma ceanothus	None	None	G2	S2	1B.2
PDSCR1L483	***Penstemon newberryi var. sonomensis*** Sonoma beardtongue	None	None	G4T3	S3	1B.3
PMLIL0C022	***Brodiaea leptandra*** narrow-anthered brodiaea	None	None	G3?	S3?	1B.2
PMPOA4Z1R0	***Poa napensis*** Napa blue grass	Endangered	Endangered	G1	S1	1B.1
PMPOA53110	***Puccinellia simplex*** California alkali grass	None	None	G3	S2	1B.2

Record Count: 36

Search Results

Back Export Results

35 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3812255**]

Scientific Name | Common Name | Family | Lifeform | Blooming Period | Fed List | State List | Global Rank | State Rank | CA Rare Plant Rank | General Habitats | Micro Habitats | Lowest Elevation | Highest Elevation | CA Endemic | Date Added | Photo

Search:

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK
Amorpha californica var. *napensis*	Napa false indigo	Fabaceae	perennial deciduous shrub	Apr-Jul	None	None	1B.2
Arctostaphylos stanfordiana ssp. *decumbens*	Rincon Ridge manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr(May)	None	None	1B.1
Astragalus breweri	Brewer's milk-vetch	Fabaceae	annual herb	Apr-Jun	None	None	4.2
Astragalus claranus	Clara Hunt's milk-vetch	Fabaceae	annual herb	Mar-May	FE	CT	1B.1
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	May-Jul	None	None	1B.2
Calamagrostis ophitidis	serpentine reed grass	Poaceae	perennial herb	Apr-Jul	None	None	4.3
Ceanothus confusus	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	None	None	1B.1
Ceanothus divergens	Calistoga ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	None	None	1B.2
Ceanothus sonomensis	Sonoma ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	None	None	1B.2
Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	1B.2
Clarkia breweri	Brewer's clarkia	Onagraceae	annual herb	Apr-Jun	None	None	4.2
Erigeron biolettii	streamside daisy	Asteraceae	perennial herb	Jun-Oct	None	None	3
Eryngium constancei	Loch Lomond button-celery	Apiaceae	annual/perennial herb	Apr-Jun	FE	CE	1B.1
Erythronium helenae	St. Helena fawn lily	Liliaceae	perennial bulbiferous herb	Mar-May	None	None	4.2
Fritillaria purdyi	Purdy's fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	4.3
Harmonia nutans	nodding harmonia	Asteraceae	annual herb	Mar-May	None	None	4.3
Lasthenia burkei	Burke's goldfields	Asteraceae	annual herb	Apr-Jun	FE	CE	1B.1

SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK
Eastwoodia burkei	Burke's goldfields	Asteraceae	annual herb	Apr-Jun	FE	CE	1B.1
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	4.2
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	Mar-May	None	None	1B.2
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	None	4.3
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	3
Limnanthes vinculans	Sebastopol meadowfoam	Limnanthaceae	annual herb	Apr-May	FE	CE	1B.1
Lomatium repostum	Napa lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	1B.2
Lupinus sericatus	Cobb Mountain lupine	Fabaceae	perennial herb	Mar-Jun	None	None	1B.2
Monardella viridis	green monardella	Lamiaceae	perennial rhizomatous herb	Jun-Sep	None	None	4.3
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	1B.1
Penstemon newberryi var. *sonomensis*	Sonoma beardtongue	Plantaginaceae	perennial herb	Apr-Aug	None	None	1B.3
Plagiobothrys strictus	Calistoga popcornflower	Boraginaceae	annual herb	Mar-Jun	FE	CT	1B.1
Poa napensis	Napa blue grass	Poaceae	perennial herb	May-Aug	FE	CE	1B.1
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	1B.2
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	4.2
Sidalcea hickmanii ssp. *napensis*	Napa checkerbloom	Malvaceae	perennial herb	Apr-Jun	None	None	1B.1
Spergularia macrotheca var. *longistyla*	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	1B.2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	1B.2
Triteleia lugens	dark-mouthed triteleia	Themidaceae	perennial bulbiferous herb	Apr-Jun	None	None	4.3

Showing 1 to 35 of 35 entries

ATTACHMENT 2

NRCS SOILS REPORT

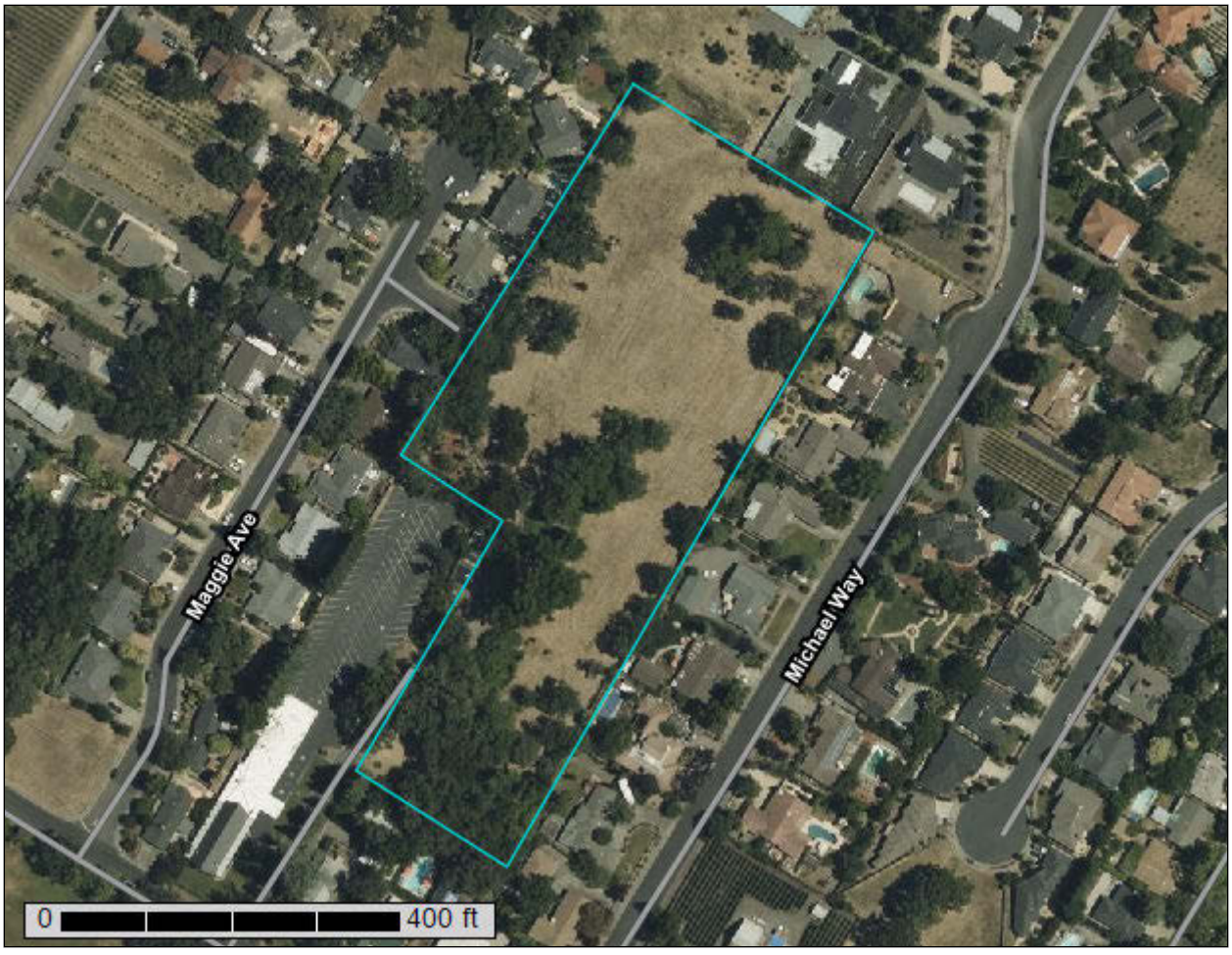
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Napa County, California



July 29, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (DeNova Homes - 2008 Grant St. Residential Development Project)

Map Scale: 1:1,640 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Napa County, California
Survey Area Data: Version 13, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 2, 2019—Jul 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (DeNova Homes - 2008 Grant St. Residential Development Project)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
103	Bale loam, 0 to 2 percent slopes	5.7	100.0%
Totals for Area of Interest		**5.7**	**100.0%**

Map Unit Descriptions (DeNova Homes - 2008 Grant St. Residential Development Project)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Napa County, California

103—Bale loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hdk3
Elevation: 20 to 400 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Bale and similar soils: 85 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bale

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from rhyolite and/or alluvium derived from igneous rock

Typical profile

H1 - 0 to 24 inches: loam
H2 - 24 to 60 inches: stratified gravelly sandy loam to loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 3 percent
Landform: Alluvial fans

Hydric soil rating: Yes

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ATTACHMENT 3

SITE PHOTOS

PHOTO 1
Showing the ruderal habitat. This photo was taken facing in the northeast direction.

PHOTO 2
Developed area composed of a single family residence and gravel driveway.

PHOTO 3
Upstream culvert outlet from adjacent properties.

PHOTO 4
Drainage pond on adjacent (northern) property.

PHOTO 5
Culvert outlet from adjacent street (Amber Way).

PHOTO 6
Representative photo of the upper drainage showing man-made straightening of the channel.

PHOTO 7
Representative view of the lower portion of the drainage.

PHOTO 8
3'x3' arch culvert under the driveway.

SOURCE: AES, 7/29/2021

Attachment 3
Site Photographs

ATTACHMENT 4

LIST OF PLANT SPECIES OBSERVED

Vascular plant species observed within Study Area on May 13, 2021

SCIENTIFIC NAME	COMMON NAME	FAMILY	ORIGIN	FORM	STATUS
Achillea millefolium	yarrow	Asteraceae	native	annual herb	none
Acmispon americanus var. americanus	Spanish lotus	Fabaceae	native	annual herb	none
Allium neapolitanum	white garlic	Alliaceae	non-native	perennial herb (bulb)	none
Amsinkia sp.	fiddleneck	Boraginaceae	native	annual herb	none
Aphanes occidentalis	field parsley piert	Rosaceae	native	annual/perennial herb	none
Artemisia douglasiana	California mugwort	Asteraceae	native	perennial herb	none
Avena barbata	slender wild oat	Poaceae	non-native	annual grass	none
Avena fatua	wild oats	Poaceae	non-native	annual grass	none
Baccharis pilularis	coyote brush	Asteraceae	native	shrub	none
Bellardia trixago	Mediterranean lineseed	Orobanchaceae	non-native	annual herb	none
Briza minor	little rattlesnake grass	Poaceae	non-native	annual grass	none
Bromus diandrus	ripgut brome	Poaceae	non-native	annual grass	none
Bromus hordeaceus	soft chess	Poaceae	non-native	annual grass	none
Bromus madritensis	foxtail chess	Poaceae	non-native	annual grass	none
Calandrinia menziesii	red maids	Montiaceae	native	annual herb	none
Calystegia sp.	Morning glory	Convolvulaceae		perennial herb	none
Cardamine oligosperma	bitter cress	Brassicaceae	native	annual/perennial herb	none
Carduus pycnocephalus	Italian thistle	Asteraceae	non-native	annual herb	none
Cichorium intybus	chicory	Asteraceae	non-native	perennial herb	none
Convolvulus arvensis	field bindweed	Convolvulaceae	non-native	perennial herb/vine	none
Croton setiger	turkey-mullein	Euphorbiaceae	native	perennial herb	none
Cyperus eragrostis	tall flatsedge	Cyperaceae	native	perennial grasslike herb	none
Dactylis glomerata	orchard grass	Poaceae	non-native	perennial grass	none
Daucus carota	carrot	Apiaceae	non-native	perennial herb	none
Elymus glaucus	blue wildrye	Poaceae	native	perennial herb	none
Epilobium ciliatum	slender willlow herb	Onagraceae	native	perennial herb	none
Erigeron canadensis	Canada horseweed	Asteraceae	native	annual herb	none
Erodium botrys	big heron bill	Geraniaceae	non-native	annual herb	none
Erodium cicutarium	red-stemmed filaree	Geraniaceae	non-native	annual herb	none

SCIENTIFIC NAME	COMMON NAME	FAMILY	ORIGIN	FORM	STATUS
Festuca myuros	rattail sixweeks grass	Poaceae	non-native	annual grass	none
Festuca perennis	Italian rye grass	Poaceae	non-native	annual/perennial herb	none
Ficus carica	edible fig	Moraceae	non-native	tree	none
Franxinus latifolia	Oregon ash	Fraxinus	native	tree	none
Galium aparine	cleavers	Rubiaceae	native	annual herb	none
Geranium dissectum	wild geranium	Geraniaceae	non-native	annual herb	none
Helminthotheca echioides	bristly ox-tongue	Asteraceae	native	annual/perennial herb	none
Hirschfeldia incana	short-podded mustard	Brassicaceae	native	perennial herb	none
Hordeum marinum	barley	Poaceae	non-native	annual grass	none
Hypochaeris radicata	hairy cats ear	Asteraceae	non-native	annual herb	none
Juglans hindsii	Northern California black walnut	Juglandaceae	native	tree	none
Lactuca saligna	willow lettuce	Asteraceae	non-native	annual herb	none
Lactuca serriola	prickly lettuce	Asteraceae	non-native	annual herb	none
Lathyrus sp.	pea	Fabaceae	non-native	annual herb	none
Lupinus sp.	lupine	Fabaceae	native	annual herb	none
Leontodon saxatilis	hawkbit	Asteraceae	non-native	annual herb	none
Lingustrum sp.	privet	Oleaceae	non-native	tree/shrub	none
Logfia filaginoides	California cottonrose	Asteraceae	native	annual herb	none
Logfia gallica	narrowleaf cottonrose	Asteraceae	non-native	annual herb	none
Lonicera interrupta	chaparral honeysuckle	Caprifoliaceae	native	vine/shrub	none
Lupinus bicolor	lupine	Fabaceae	native	annual/perennial herb	none
Lysimachia arvensis	scarlet pimpernel	Myrsinaceae	non-native	annual herb	none
Marah fabacea	California man-root	Cucurbitaceae	native	perennial herb/vine	none
Marrubium vulgare	horehound	Lamiaceae	non-native	Perennial herb	none
Medicago polymorpha	burclover	Fabaceae	non-native	annual herb	none
Melilotus indicus	annual yellow clover	Fabaceae	non-native	annual herb	none
Minuartia douglasii	Douglas’ sandwort	Caryophyllaceae	native	annual herb	none
Olea europaea	olive	Oleaceae	non-native	tree	none
Petrorhagia dubia	windmill pink	Caryophyllaceae	non-native	annual herb	none

SCIENTIFIC NAME	COMMON NAME	FAMILY	ORIGIN	FORM	STATUS
Phalaris sp.	Canary grass	Poaceae	non-native	annual grass	none
Phyla nodiflora	common lippia	Verbenaceae	native	perennial herb	none
Plantago lanceolata	English plantain	Plantaginaceae	non-native	perennial herb	none
Prunus sp.	Plum tree	Rosaceae	non-native	Tree	none
Quercus agrifolia	coast live oak	Fagaceae	native	tree	none
Quercus lobata	valley oak	Fagaceae	native	tree	none
Ranunculus californicus	buttercup	Ranunculaceae	native	perennial herb	none
Raphanus sativus	cultivated radish	Brassicaceae	non-native	Annual/biennial herb	none
Rosa sp.	Rose	Rosaceae		Shrub	none
Rubus armeniacus	Himalayan blackberry	Rosaceae	Non-native	Vine/shrub	none
Rubus ursinus	California blackberry	Rosaceae	native	vine/shrub	none
Silene gallica	common catchfly	Caryophyllaceae	non-native	annual herb	none
Silybum marianum	milk thistle	Asteraceae	non-native	annual/perennial herb	none
Sisyrinchium bellum	blue eyed grass	Iridaceae	native	perennial herb	none
Sonchus asper ssp. asper	sow thistle	Asteraceae	non-native	annual herb	none
Sonchus oleraceus	sow thistle	Asteraceae	non-native	annual herb	none
Spergularia rubra	purple sand spurry	Caryophyllaceae	non-native	annual/perennial herb	none
Stachys albens	cobwebby hedge nettel	Lamiaceae	native	perennial herb	none
Stellaria media	chickweed	Caryophyllaceae	non-native	annual herb	none
Symphoricarpos mollis	Creeping snowberry	Caprifoliaceae	native	shrub	none
Toxicodendron diversilobum	poisen oak	Anacardiaceae	native	perennial vine/shrub	none
Trifolium sp.	clover	Fabaceae		annual herb	none
Urtica dioica	stinging nettle	urticaceae	native	perennial herb	none
Veronica sp.	water speedwell	Plantaginaceae	N/A	herb	none
Vicia villosa	vetch	fabaceae	non-native	annual herb/vine	none
Vinca major	periwinkle	Apocynaceae	non-native	perennial herb	none
Vitis californica	California grape	Vitaceae	native	vine/shrub	none
Xanthium strumarium	cocklebur	Asteraceae	native	annual herb	none
Zeltnera sp.	centaury	Gentianaceae	native	annual herb	none

ATTACHMENT 5

STREAM ASSESSMENT

ANALYTICAL ENVIRONMENTAL SERVICES
1801 7TH STREET, SUITE 100
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STREAM ASSESSMENT

DENOVA HOMES, INC. - 2008 GRANT ST. RESIDENTIAL DEVELOPMENT

Prepared For:	Kerri Watt, Director of Entitlements; DeNova Homes, Inc.
Prepared By:	Nicholas Bonzey, Senior Project Manager
Subject:	Stream Assessment for 2008 Grant St. Residential Development
Date:	5/21/2021

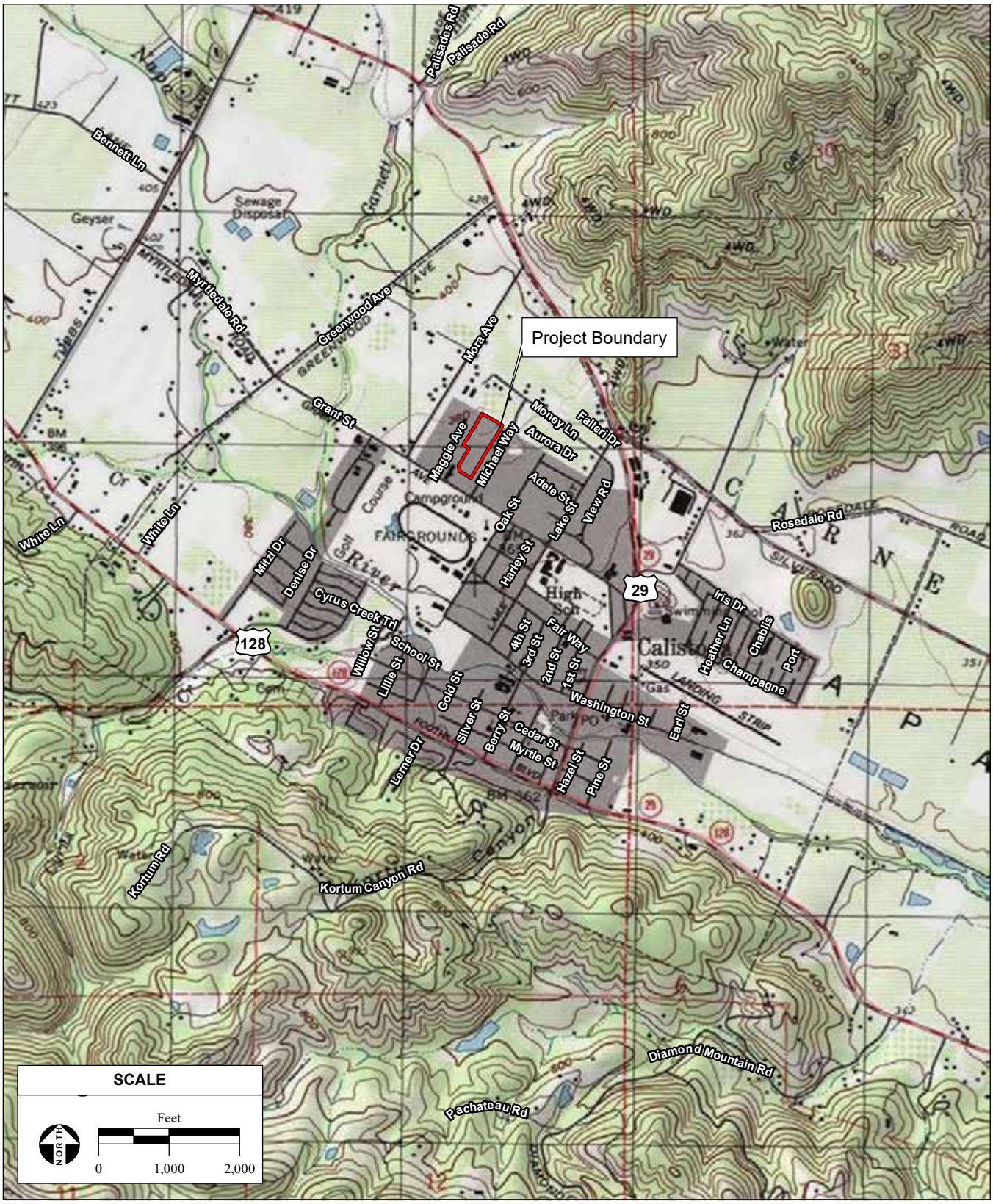
1.0 INTRODUCTION

DeNova Homes, Inc. has requested a review of a potentially jurisdictional aquatic feature within a property located at 2008 Grant St. in Calistoga, CA (property; **Figure 1**). Historic information indicated a potential drainage feature (drainage) on the site that may have transmitted water. During the CEQA process, the City of Calistoga, as the CEQA lead agency and local permitting authority, inquired about the drainage and whether it is potentially jurisdictional and therefore subject to permitting under the Clean Water Act. A determination of potential jurisdictionality of the drainage is important for project planning, as violations of the Clean Water Act can be detrimental to a project, and the permitting process for approved impacts to wetlands and other waters of the U.S. and State must be carefully considered during the site planning and preparation process. A site visit to evaluate the drainage was conducted on April 28, 2021. Results are summarized herein.

2.0 METHODOLOGY

The National Wetlands Inventory (NWI) from the U.S. Fish and Wildlife Service was queried as part of the background investigations on the site, and a copy of the NWI map of the region surrounding the property can be found in **Attachment 2**. This database query does not show any known wetland or aquatic features within the property. Additionally, the soils data for the site and immediate vicinity was queried from the Natural Resources Conservation Services (NRCS) (**Attachment 3**). This report did not reveal known hydric soils or other aquatic features within the property.

AES Senior Biologist and Senior Project Manager Nicholas Bonzey conducted a site visit on April 28, 2021 to evaluate this feature. The entire site was surveyed with the goal of identifying any water holding or conveyance features and to evaluate any of these features that could have potential Clean Water Act permitting implications. These features were evaluated to identify visible diagnostic characteristics consistent with U.S. Army Corps of Engineers (USACE) diagnostic features of jurisdictional waterways and to determine whether the drainage meets current USACE and California Regional Water Quality Control Board (RWQCB) concepts of jurisdictionality. While only the federal and state resource agencies can make a final determination of jurisdictionality, this information can be used in a larger landscape context to make assumptions of risk associated with developing property containing potential aquatic features.



SOURCE: "Calistoga, CA" USGS 7.5 Minute Topographic Quadrangle, T8N R6W, Unsectioned Area of Calistoga, Mt Diablo Baseline & Meridian; ESRI, 2021; AES, 5/21/2021

Figure 1
Site and Vicinity

SOURCE: Napa County Parcels, 3/4/2021; County of Napa aerial photograph, 6/19/2018; ESRI, 2021; AES, 5/21/2021

Figure 2
Drainage Features

PHOTO 1: Upstream culvert outlet from adjacent properties

PHOTO 2: Drainage pond on adjacent (northern) property

PHOTO 3: Culvert outlet from adjacent street (Amber Way)

PHOTO 4: Representative view of upper drainage showing man-made straightening of channel

PHOTO 5: Representative view of lower drainage

PHOTO 6: 3'x3' arch culvert under driveway

SOURCE: AES, 5/21/2021

Figure 3a
Site Photographs

PHOTO 7: Moss growing consistently throughout bank and bed

PHOTO 8: Characteristic view of drainage showing terrestrial vegetation and debris accumulation

PHOTO 9: Channel behind house without evidence of erosional or depositional features

PHOTO 10: Channel constriction under fallen tree without evidence of erosional or depositional features

PHOTO 11: View of inside of arch culvert without any OHWM evidence

PHOTO 12: Tree blocking channel without any undercutting or side channel development

SOURCE: AES, 5/21/2021

Figure 3b
Site Photographs

3.0 ENVIRONMENTAL SETTING

The property is located within a residential area of Calistoga, and is surrounded by medium density residential development. Topography is nearly level and slopes slightly to the southwest towards the Napa River, located 0.4 miles to the southwest. The property is a former pecan orchard with a single-family residence located on the west side. A drainage ditch feature runs along the northwest property boundary. This feature appears to be fed by several culverts, and flows into a meandering channel, passing under the on-site driveway before flowing off-site under the house on the adjacent property (**Figure 2**).

Historic drainage maps provided by the City of Calistoga ("Northwest Storm Drainage Master Plan", **Attachment 1**) show a conceptualized drainage feature flowing along the northwestern and southeastern boundary of the property (under the label "A-III" of the drainage plan) before crossing Grant St. and passing under the fairgrounds towards the Napa River. According to this figure, a total of 113 acres of watershed occur upstream from the property and connect to this conceptual drainage plan. It is not apparent that this conceptual drainage plan was ever implemented, as it does not match the features observed on site. However, it is illustrative of the regional drainage patterns and contributing watershed areas.

4.0 RESULTS

The site visit observed only a single surface drainage feature along the northwestern edge of the property, straightened through its upper half (**Figure 2**). Two culverts are connected to this feature – an approximately 36" concrete box culvert at the extreme upstream end in the northern corner of the property (Photo 1 of **Figure 3a**), and a 12" plastic culvert buried under vegetation and sediment at the end of Amber Way along the northwest property boundary (Photo 3 of **Figure 3a**). Information on existing drainage features provided by the City of Calistoga (**Attachment 4**) and visible observations from the property suggest that there is flow into the upstream concrete culvert junction from a detention pond on the adjacent property to the northeast (Photo 2 in **Figure 3a**), which is in turn fed by an 18" stormwater line from residential development/detention basin to the northeast, and from a 42" and 30" stormwater line from residential development to the northwest.

The drainage feature enters the property in the northwestern corner of the property through the 36" culvert outlet contained in a concrete box (Photo 1 of **Figure 3a**). This culvert appears to be fed by a stormwater detention basin located on the adjacent property to the north (Photo 2 of **Figure 3a**), and City-provided maps show a potential stormwater connection to a line from a residential development from the northwest but this could not be verified in the field.

The drainage feature appears to be sloped to the southwest, towards the Napa River. The upstream end of this feature follows the property line on the northwest side of the parcel and has clearly been straightened in the past by direct manipulation of the channel (Photo 4 of **Figure 3a**), and the bottom of the feature is approximately 5 feet below the surrounding landscape. There is an area approximately 4 feet long directly downstream of the culvert outlet that is lower in elevation than the channel further downstream, and contained water-stained leaves and a small amount of *Juncus* species. The remainder of the straightened portion of this feature contained a large amount of terrestrial leaf debris from the surrounding trees and was dominated by upland woody and herbaceous vegetation. This portion of the drainage had a classic trapezoidal cross section, but there was no clear delineation between the bed and bank suggesting regular water-mediated erosional or depositional processes consistent with a jurisdictional stream feature. In limited locations, there was evidence of undercutting on the right bank

(facing downstream), but these features were overlain by 8-12" of leaf debris in varying states of decay. Additionally, none of the other Ordinary High Water Mark (OHWM) diagnostic features, as described by Regulatory Guidance Letter 05-05 (USACE, 2005), were observed. These include:

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining
- Changes in plant community

An additional culvert inlet was discovered at the intersection of Amber Way. This 12" plastic inlet appears to drain the adjacent residential development (**Attachment 4**), and was found buried under over 18" of vegetative matter in various states of natural decay. There is no erosional or depositional evidence of regularly flowing water from this culvert on the outlet side.

The downstream half of this drainage feature is characterized by a more meandering geometry, and has not been straightened as the upper half of the feature. It passes behind the single-family home on the property (Photo 9 of **Figure 3b**) before turning to the southeast. There is a 3'x3' stone and concrete arch culvert downstream of the home (Photo 6 of **Figure 3a** and Photo 11 of **Figure 3b**), and the drainage feature exits the property in the southeast corner at a fence line. The drainage feature is visible on the adjacent property and passes underneath a residential structure approximately 30 feet south of the property line.

The lower portion of the drainage is further characterized by a large amount of organic debris and terrestrial woody and herbaceous vegetation throughout the drainage prism (Photo 5 of **Figure 3a** and Photos 8, 9, 10, and 12 of **Figure 3b**). Species observed within the drainage channel includes *Quercus* saplings, *Prunus subcordata*, *Toxicodendron diversilobum*, *Vicia americana*, several *Poa* species, *Galium* sp., *Rubus armeniacus*, *Calystegia* sp., and *Rosa* sp.

The topography of the lower half of the drainage channel shows evidence of bank slumping and fill from surrounding uplands, and the slope of the bottom of the channel is not consistently downhill, suggesting that if water collects in this feature, it does not consistently flow towards the Napa River. Photos 10 and 12 of **Figure 3b** show obstructions within the top of bank that should coincide with a narrowing of the channel and associated increases in bank and bed erosion or sediment sorting as flowing water gets horizontally compressed through the constrictions, but no such features are evident. Similarly, the arch culvert under the driveway has no evidence of scour along the side of the arch (Photo 11 of **Figure 3b**), nor do the rock-lined banks up or downstream of the arch show evidence of changing growth patterns in the moss (Photo 7 of **Figure 3b**).

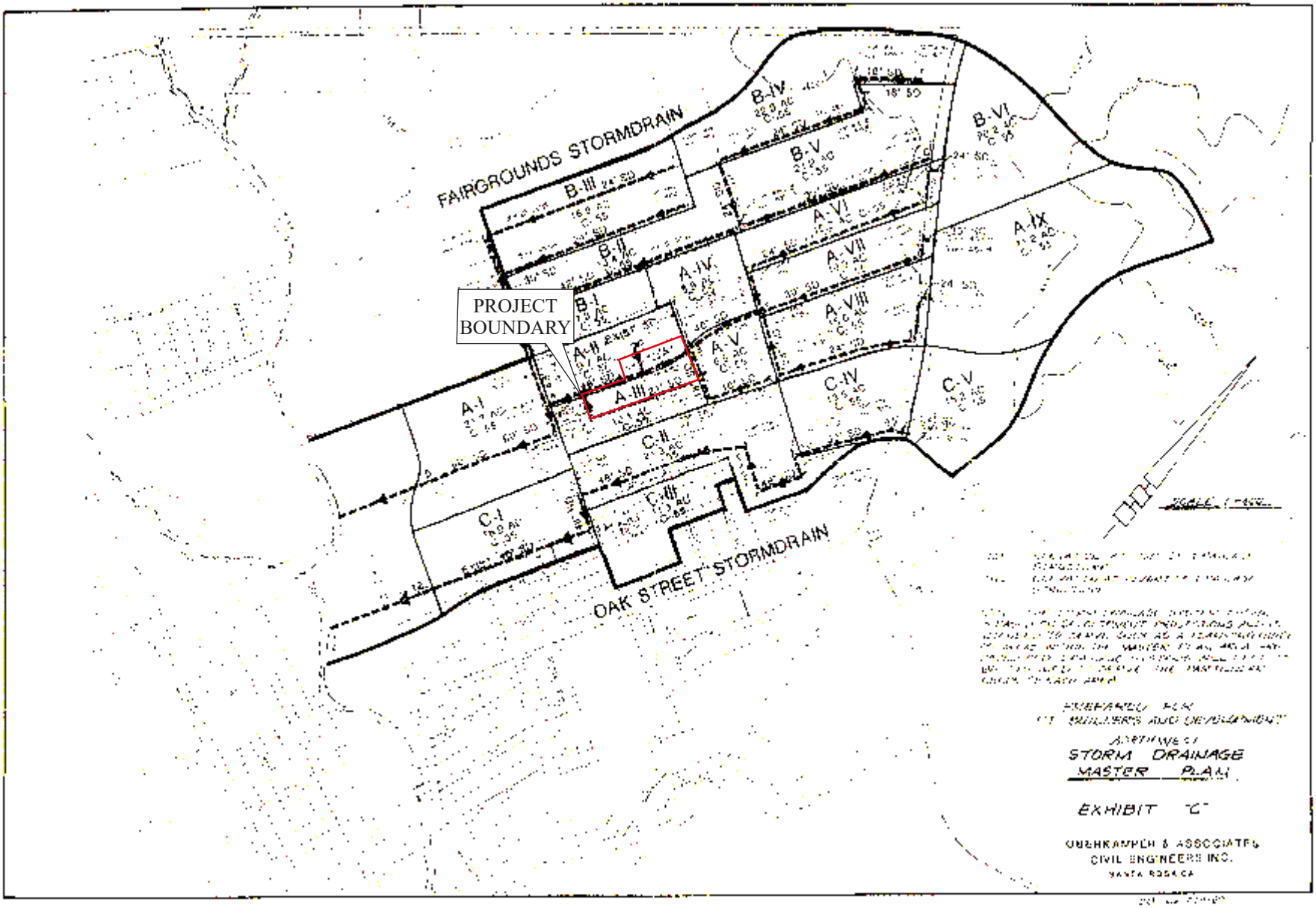
Investigation of the significant leaf litter shows vegetation at various levels of decay, but no drift or wrack lines associated with this vegetation being rearranged due to moving water nor was there any significant water-saturated decay deep in the litter piles at the bottom of the channel. The proximity of the channel to the existing home on the property (Photo 9 of **Figure 3b**) and the drainage channel passing under the home on the adjacent property suggests that long-term trends in water flowing through this channel have little erosion potential that would affect the stability of the structures.

5.0 CONCLUSION

Based on evidence collected during the April 28, 2021 site visit, it is believed that the drainage feature is a remnant of previous land uses and no longer functions as a water of the U.S. or state. This is based on the absence of any classic diagnostic characteristics for determining the lateral extent of the stream boundary and the lack of OHWM features within the drainage channel. While there may have been a historic water feature on or near this location, the source hydrology has been impacted by upstream residential development. The straightening of the upstream portion of the channel was likely driven by the former orchard uses of the property to concentrate developable area within the center of the site, although this would not have impacted the amount of precipitation falling onto the property and subsequent runoff into the channel. It is likely that, prior to regional development, this was a low-ephemeral drainage consistent with other small watershed streams draining off the east bank of the upper Napa River valley, and subsequent land use changes have decreased the runoff into the drainage channels flowing into the property. Even though there are several culverts that connect to this drainage, there does not appear to be enough flowing water in this drainage channel to create the characteristics consistent with diagnostic features associated with jurisdictional water features. The U.S. Army Corps of Engineers would be the only agency capable of making a determination of jurisdictionality under the Clean Water Act if the lead CEQA agency believes there is a possibility of permitting issues associated with this feature. However, the characteristics of this drainage do not appear to meet the requirements under the current interpretation of the Clean Water Act.

ATTACHMENT 1

NORTHWEST DRAINAGE MASTER PLAN
(CONCEPTUAL – NOT FULLY IMPLEMENTED)


FAIRGROUNDS STORMDRAIN
PROJECT BOUNDARY
OAK STREET STORMDRAIN
B-IV
B-III
B-V
B-VI
B-II
B-I
A-VI
A-IX
A-VII
A-IV
A-VIII
A-II
A-V
A-III
C-IV
C-V
A-I
C-II
C-I
C-III
STORM DRAINAGE MASTER PLAN
EXHIBIT "C"
QUAD KEMPER & ASSOCIATES
CIVIL ENGINEERS INC.
SANTA ROSA, CA

ATTACHMENT 2

NATIONAL WETLAND INVENTORY MAP

U.S. Fish and Wildlife Service

National Wetlands Inventory

2008 Grant St - NWI data

Property Boundary

May 14, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

ATTACHMENT 3

NRCS SOILS REPORT

United States Department of Agriculture

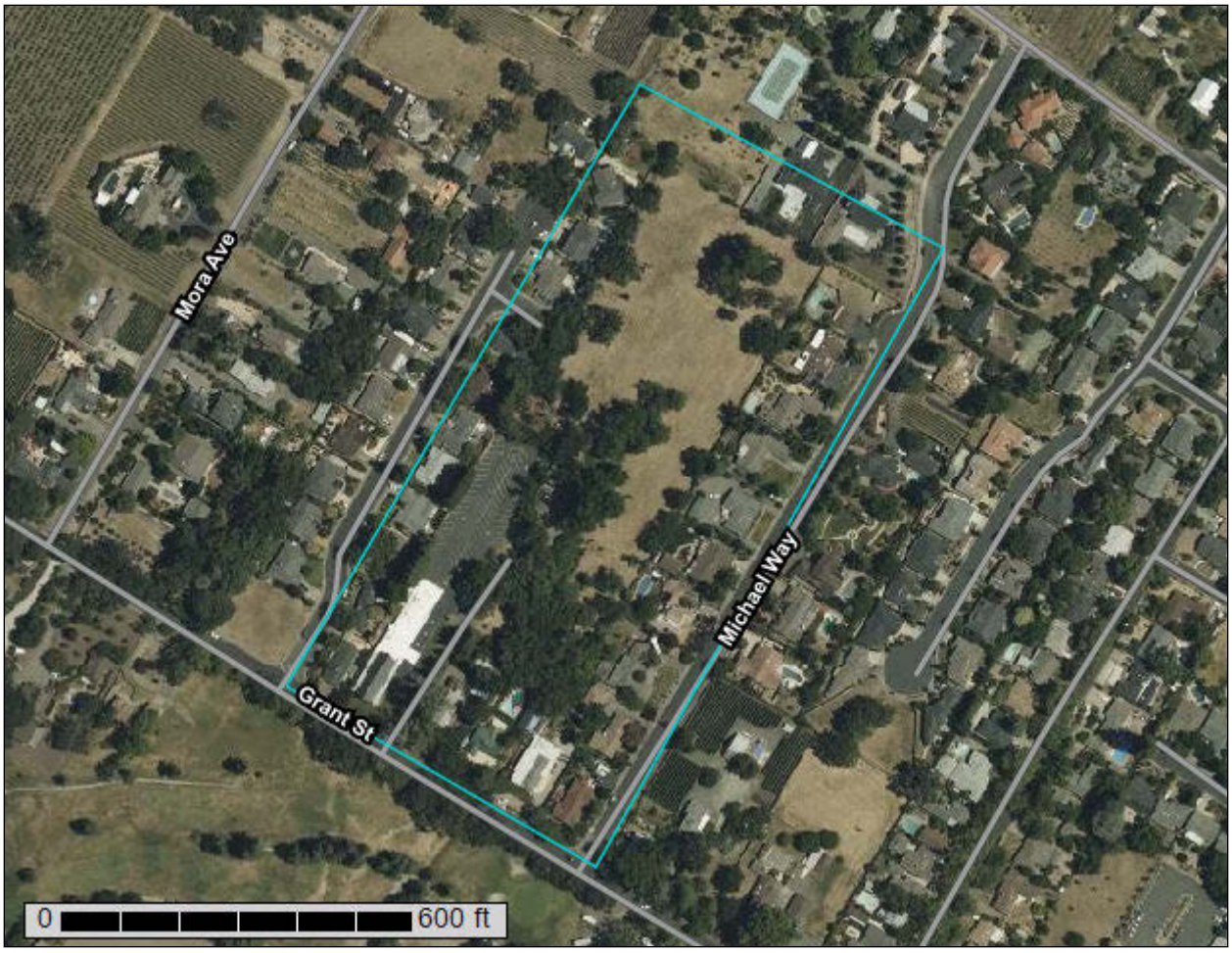
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Napa County, California

2008 Grant St and surrounding area



May 14, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,650 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Napa County, California
Survey Area Data: Version 13, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 2, 2019—Jul 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
103	Bale loam, 0 to 2 percent slopes	16.6	100.0%
Totals for Area of Interest		**16.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Napa County, California

103—Bale loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hdk3
Elevation: 20 to 400 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Bale and similar soils: 85 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bale

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from rhyolite and/or alluvium derived from igneous rock

Typical profile

H1 - 0 to 24 inches: loam
H2 - 24 to 60 inches: stratified gravelly sandy loam to loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 3 percent
Landform: Alluvial fans

Hydric soil rating: Yes

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ATTACHMENT 4

DRAINAGE SCHEMATIC (CITY OF CALISTOGA)

ArcGIS Web Map

9/24/2020, 4:32:09 PM

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS,

ArcGIS Web AppBuilder

The County of Napa, Microsoft |

- Water Meter Numbers
- City_Limits
- Calistoga Utilities 2019 - W_Isolation_Valve
- Calistoga Utilities 2019 - W_Hydrant
- Calistoga Utilities 2019 - SD_Headwall
- Calistoga Utilities 2019 - SD_Catch_Basin
- Calistoga Utilities 2019 - Roads
- Calistoga Utilities 2019 - W_Pipe
- City of Calistoga
- Calistoga Utilities 2019 - SD Conduit
- City of Calistoga
- Cityy of Calistoga
- Private
- Calistoga Utilities 2019 - SD_Channel
- Calistoga Utilities 2019 - SS Conduit
- City of Calistoga
- Calistoga Utilities 2019 - Pond