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**THE NEIGHBORHOOD AT LOS GAMOS  
DEVELOPMENT PROJECT  
BIOLOGICAL TECHNICAL REPORT**

**SAN RAFAEL, CA  
PROJECT # 20211976.001A**

**October 2020**

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**SAN RAFAEL, CA**

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October 2020  
Project No.: 20211976.001A

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**THE NEIGHBORHOOD AT LOS GAMOS  
DEVELOPMENT PROJECT  
BIOLOGICAL TECHNICAL REPORT  
SAN RAFAEL, CA**

## **1 INTRODUCTION**

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This Biological Technical Report has been prepared for the Neighborhood at Los Gamos Development. The proposed project is the construction of approximately 192 apartments on a vacant site at the southern end of Los Gamos Drive in the City of San Rafael. The apartments are affordable by design, with smaller units with rents aimed at being affordable for local workers. The project would include a community center consisting of a market/coffee shop that would be open to the public and a community room and patio for use by project residents. An adjacent outdoor recreation area is also included in the development. The objectives of this report are to (1) determine whether there are any sensitive biological resources such as wetlands, streams, or habitats for special-status species in proximity to the proposed project; (2) to map any biological constraints on a site plan for the project; and (3) to determine whether this project would result in potentially significant adverse impacts to biological resources.

The Study Area, which includes assessors' parcels numbered 165-220-06 and 165-220-07, is approximately 11.52 acres (501,811 square feet) and located along Los Gamos Road just east of Highway 101 and adjacent to undeveloped land and industrial development. The total proposed development footprint is approximately 5.4 acres (234,309 square feet). And additional 1 acre of cleared area is also required to provide a 12-foot firebreak for fire protection around the development. Two ephemeral drainages are located in the Study Area.



## 2 PROJECT DESCRIPTION

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The proposed project is for the construction of approximately 192 apartments on a vacant site at the southern end of Los Gamos Drive (Project) in the City of San Rafael. The location is in close proximity to U.S. Highway 101 on Los Gamos Road approximately 0.5 mile south from the intersection with Lucas Valley Road (Figure 1). The proposed parcels for development are currently undeveloped land bordered by undeveloped open space to the north and west and residential and commercial development to the south and east. The parcels are on a hillside ranging in elevation from 30 to 200 feet above sea level.

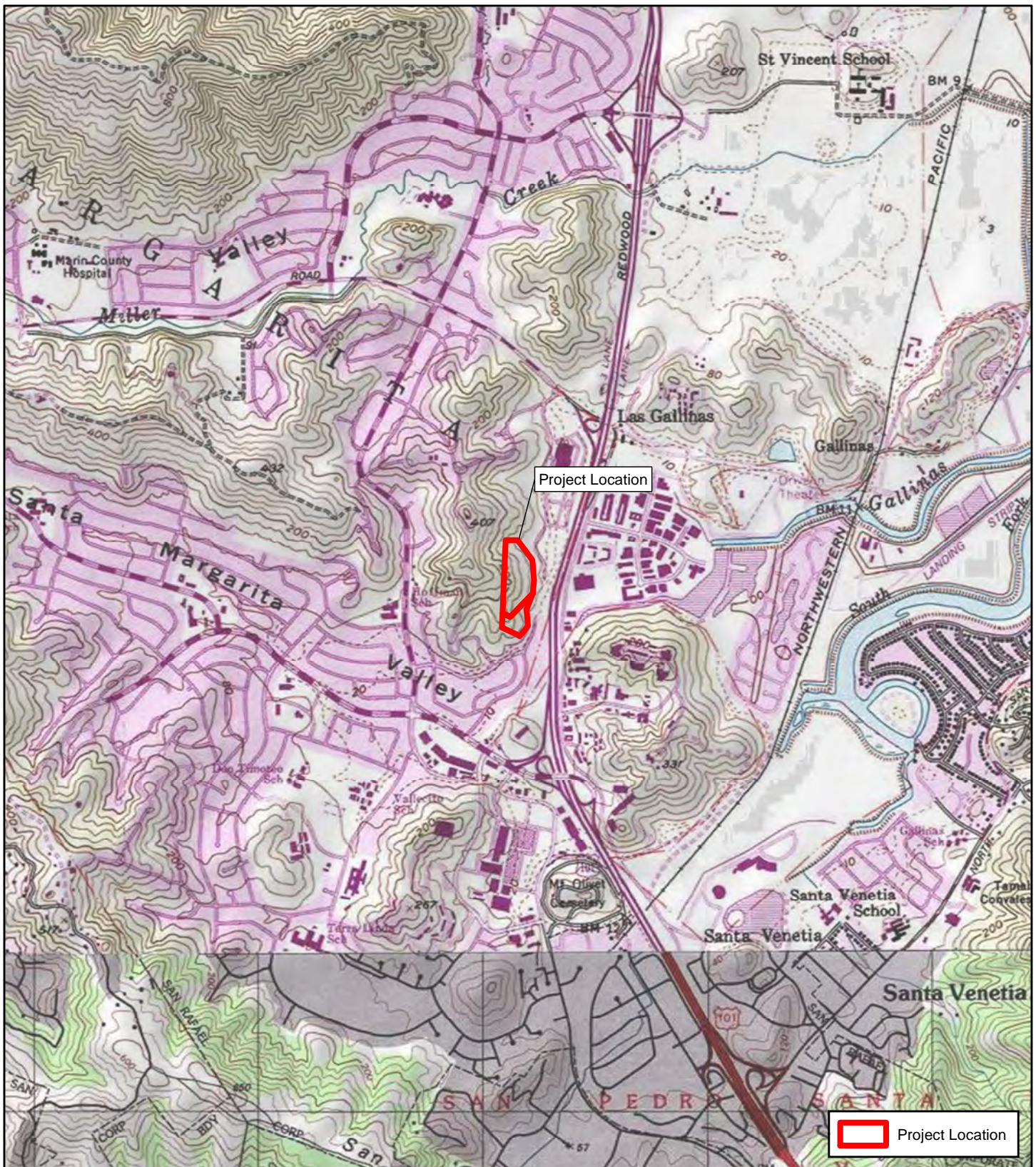
This high-density affordable housing project will be located in close proximity to major thoroughfares in the area (Figure 2). The concept includes providing 192 residential apartments, including units which are affordable by design, with smaller units having lower rents aimed at being affordable for local workers. The apartments include five buildings of three or four floors to maximize livable space while reducing the project footprint. The landscaping will include existing vegetation wherever possible, and plantings of native trees and shrubs, and limited number of ornamental trees (Appendix A – The Neighborhood at Los Gamos Conceptual Plan). A 12-foot firebreak of cleared vegetation will also be maintained (Figure 3).

The Project would also include a community center called “Village Commons” with a market/coffee shop that would be open to the public and a community room and patio for use by project residents. The amenities in the village commons will also include an outdoor children’s play area, outdoor adult recreational area and seating areas. The proposed development also includes a second outdoor recreational area south of the buildings called “South Park”. This area will be accessed by crossing a prefabricated metal bridge over an ephemeral drainage to access a small trail system. The trails and stairways will provide access to a children’s playground with a slide and wood log play structures and an upper overlook area with benches.

The proposed bridge will be a prefabricated metal and wood pedestrian bridge. Bridge footings will be placed 25 feet back from the top of the drainage on either side and will not impact the ability of the drainage to move water during rain events. The project will also maintain a 25-foot distance from an ephemeral drainage located at the northern edge of the Project Area.



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USGS 7.5' Quad: NOVATO (1980)  
Legal Description: SAN PEDRO SANTA MARGARITA  
Y LAS GALLINAS Land Grant

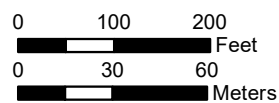
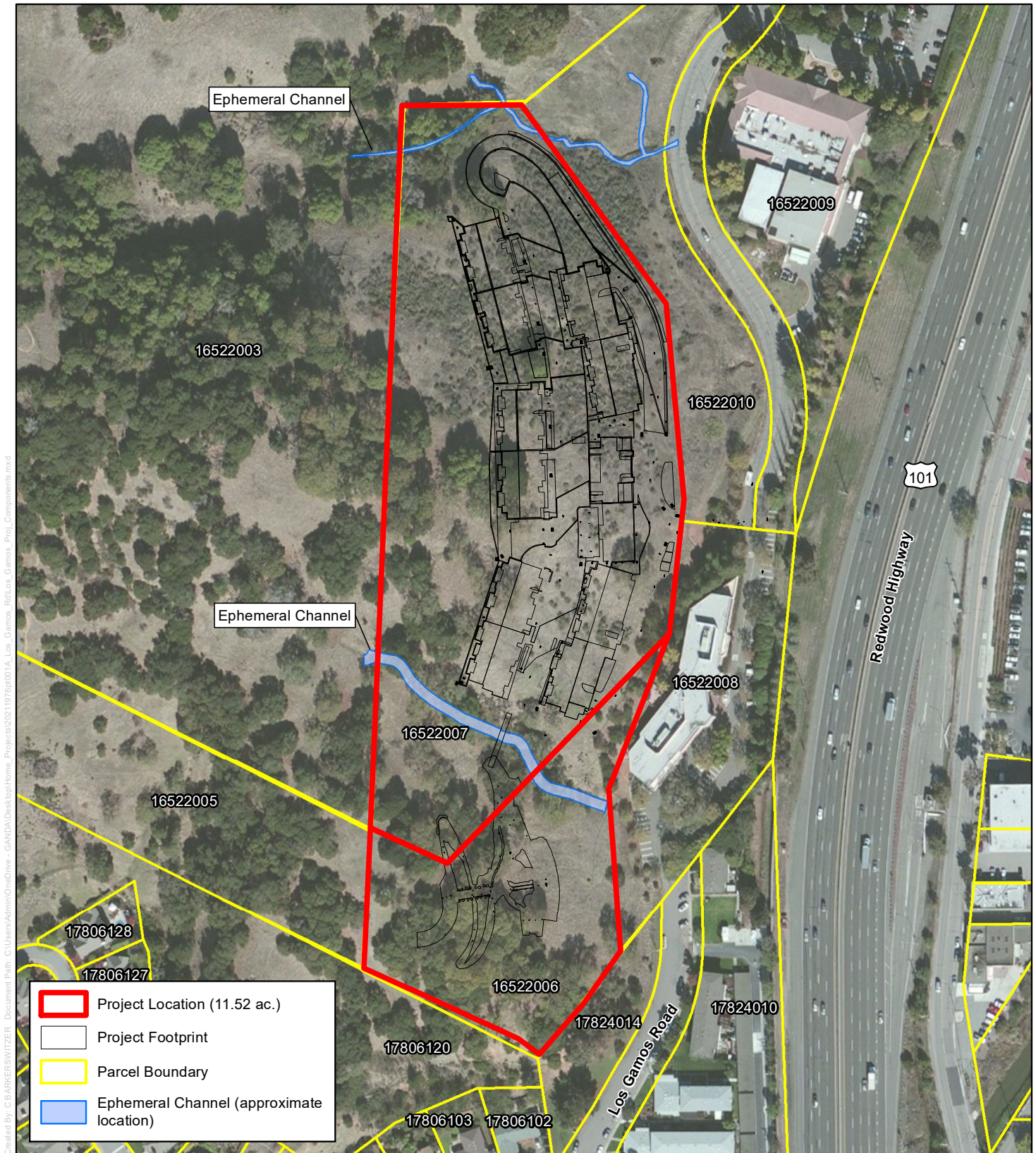
0 1,000 2,000 Feet  
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Scale 1:24,000  
1 Inch = 2,000 Feet

**Figure 1. Project Location**  
Los Gamos Road Site Surveys  
Marin County, California







Scale 1:2,400  
1 Inch = 200 Feet

**Figure 2. Project Components**  
Los Gamos Road Site Surveys  
Marin County, California





#### Summary




The most abundant tree species throughout the parcels are coast live oak, valley oak, and California black oak. Some California bay, buckeye, stone pine and Australian blackwood are scattered throughout the parcels. The majority of trees are mature and have well developed canopies that support open understory conditions. Spacing among individuals is even across the oak woodland community along the eastern and southern sections of the property.

The western and northern sections of the property support fewer trees, which are scattered individually or in clusters among annual grassland and coyote brush scrub. The northern section of the property supports a stand of California bay trees, which are distributed along an intermittent stream.

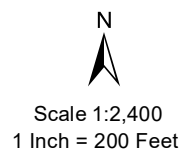
The intention is to remove only the trees and vegetation necessary for development of the property, and to retain remaining trees within the two parcels. A 12 ft fire break will be maintained between the development and the remaining vegetation on the parcels. Proposed plantings throughout the development will include fire resistant, irrigated shrubs, trees and perennials (see site plan).

#### Long Term Maintenance Schedule and Goals

All flammable fuels within 12 feet around the development will be removed. Trees within the development will be limbed 8-10 feet from the ground. Debris will be removed from gutters and rooftops twice annually (spring and fall). All grasses and weeds will be cut regularly. Yard maintenance equipment will be equipped with spark arrestors and areas will be checked for rocks or metal prior to the onset of maintenance activities to prevent sparking. Vegetation will be trimmed within 10 feet of roadways as required for defensible areas. Dead and dying vegetation will be removed seasonally to prevent buildup of ladder fuels. The tree canopy will be maintained on the remaining portion of the parcels so ladder fuels do not build up below the canopy.

-  Approximate Project Footprint
-  Approximate 12' Firebreak
-  Approximate Tree Locations

**Figure 3. Firebreak**  
Los Gamos Road Site Surveys  
Marin County, California



The project anticipates adhering with all City of San Rafael requirements. No natural water courses or drainages are expected to be impacted by the development, and no increase to stormwater flow rates are anticipated. Anticipated permits for potential work include City of San Rafael building permits and a Regional Water Quality Control Board (RWQCB) Stormwater Pollution Prevention Plan (SWPPP). All work would be in conformance with applicable permits. The Project will include construction best management practices and any required permit conditions.

## 2.1 PROJECT AVOIDANCE AND MINIMIZATION MEASURES

To avoid and minimize impacts to biological resources, the Project will implement the following species-specific and general avoidance and minimization measures (AMMs) to be modified as necessary by the permit conditions:

1. Minimize Disturbance. Project duration, footprint and disturbance should not exceed the minimum necessary to complete operations.
2. Best Management Practices. Project construction will include best management practices to protect water quality and riparian habitat. These will include the use of sediment control measures and water quality protection measures.
3. Waterways. The Study Area includes two ephemeral drainages, and the Project will implement the following:
  - a. No work will be conducted within the drainages, and no permanent features will be located within the 25-foot setback required on either side of the drainages.
  - b. Any debris shall be prevented from entering the drainages. Any material that does enter the stream during work shall be immediately removed in a manner that has minimal impact to the streambed and water quality.
  - c. Any materials, equipment or debris on-site will be placed, or secured where it cannot enter waterway.
  - d. Avoid vehicles crossing the drainages to the extent possible, and no vehicle or foot traffic will be allowed when the drainages are wetted. If vehicle crossing is required, use one single route to cross dry portions and, if needed, plywood boards (or other material) shall be placed to protect the substrate and banks of the drainages.
  - e. Equipment shall not be refueled within 100 feet of drainages.
4. Rare Plant Survey. Prior to initiation of construction, a qualified botanist will survey for this species during their blooming season (April through November) to ensure these plants are not impacted. If individual plants are located within the development footprint, the



qualified botanist will transplant individual plants to an area with the habitat requirements for this species in an area that will remain undisturbed within the Project Area.

5. Tree Removal and Migratory Bird Protection. Tree and shrub removal will be conducted between September 1 and February 14, outside of nesting bird season, to the extent possible. Tree removal between February 15 and August 31 requires a nesting bird survey. The survey must be conducted by a qualified biologist no more than 7 days prior to work occurring.
6. Active Bird Nest. If at any time of the year an active bird nest is observed within or near work sites, work within 50 feet of the observed nest should cease, care should be taken not to disturb the nest, and the work supervisor shall contact designated biologist for guidance on how to proceed. A no-work buffer will be implemented by the biologist as appropriate to protect the nest until the young have fledged.
7. Pollution Prevention. Petroleum spill containment and cleanup materials must be available at the job site. Spills must be immediately cleaned up and contaminated materials disposed of properly, and reporting of spills will be done as required by the Project SWPPP.
8. Prevention of Wildlife Entrapment. In the event that excavations are left open overnight or left open during the day in case of night work, the following measures will be implemented to prevent inadvertent entrapment of wildlife during construction. Excavations or trenches more than one foot deep with walls steeper than 30 degrees will be covered at the close of each working day/night by plywood or similar materials. If it is not feasible to cover an excavation or provide a four-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.
9. Monofilament Erosion Control. Plastic mono-filament netting (erosion control matting) or similar material will not be used for the Project because wildlife may become entangled or trapped in it. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable substitutes include natural fibers, such as jute or twine or tackified hydroseeding compounds.
10. Trash Control. All food-related trash items such as wrappers, cans, bottles, and scraps will be disposed of in closed containers and removed at least once a day from the work area.

### 3 BIOLOGICAL RESOURCES ASSESSMENT

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#### 3.1 METHODS

Kleinfelder/GANDA biologists conducted a background literature review for the Study Area to identify sensitive and protected biological resources with the potential to occur in the area and or be impacted by Project activities. Sensitive biological resources include plants or animals that are listed as rare, threatened, or endangered or as species of special concern, pursuant to federal or state law, and habitat essential to special-status species of wildlife; natural communities indicated as rare or threatened by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDDB); wetlands and streams shown on United States Geological Survey (USGS) maps and surrounding riparian vegetation and natural communities.

A regional list of special-status plant and wildlife species was developed, and each species was then evaluated to determine its potential to occur within the Study Area by querying the following databases:

- A species list was generated from the Sacramento Office of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) online planning tool for threatened, endangered, proposed and candidate species as well as proposed and final designated Critical Habitat that may occur within the boundary of the Study Area and/or may be impacted by the proposed Project (USFWS 2020a; Appendix B);
- The CNDDDB was queried for all occurrence records within two miles of the Study Area and for sensitive natural communities (CDFW 2020a; Appendix C);
- The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants was queried for the rare plant occurrences in the Novato USGS quadrangle (CNPS 2020a);
- The National Wetlands Inventory (NWI) was queried for wetlands and waterways within and near the Study Area (USFWS 2020b); and
- A custom soil resource report was generated from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys online mapper (NRCS 2020; Appendix D).

In addition, the following relevant documents were reviewed:

- USGS topographic maps and Study Area aerial imagery; and

- Memorandum titled: “Biological Site Assessment at San Rafael Properties APN# 165-220-06 and 165-220-07 in San Rafael, Marin County, California” prepared by Garcia and Associates September 24, 2019.

The results from these searches and document reviews informed the preliminary technical studies that were conducted to evaluate special-status species. Site surveys of the Study Area were conducted on August 20, 2019 by Kleinfelder/GANDA botanist Constance Ganong, M.S. and Kleinfelder/GANDA biologist Sumudu Welaratna, M.S. in order to document the habitat and assess the potential for the occurrence of special-status plant and wildlife species when the original 2019 memorandum was prepared. No further site investigations were performed. Conclusions on the potential for special-status species to occur were based on the existence and dates of known occurrences, habitat quality, and proximity to the Project. The field investigation also included an assessment of vegetation types and potential Waters of the U.S., including wetlands, in the Study Area. Vegetation types were mapped and are provided below. Two ephemeral drainages were identified passing through the Study Area. No potentially jurisdictional wetlands were identified within the Study Area.



## 3.2 ASSESSMENT

### 3.2.1 Existing Physical Conditions

Existing physical conditions are typical of the San Francisco Bay Area environment of California. The climate is Mediterranean, with moist, mild winters and dry summers. Within San Rafael in Marin County, the average annual precipitation is approximately 32.83 inches, most of which occurs between October and March. Mean annual temperature is approximately 58.5° Fahrenheit (USA.com 2020). The study area is located on a steep slope on the east side of the Marin Peninsula, approximately 12 miles west of San Pablo Bay, in northern San Francisco Bay. The elevation of the study area ranges from approximately 30 to 200 feet above sea level.

#### Soil Types

One soil mapping unit is present within the Study Area (NRCS 2020; Appendix C):

- Los Osos-Bonnydoon complex, 30 to 50 percent slopes (100%)

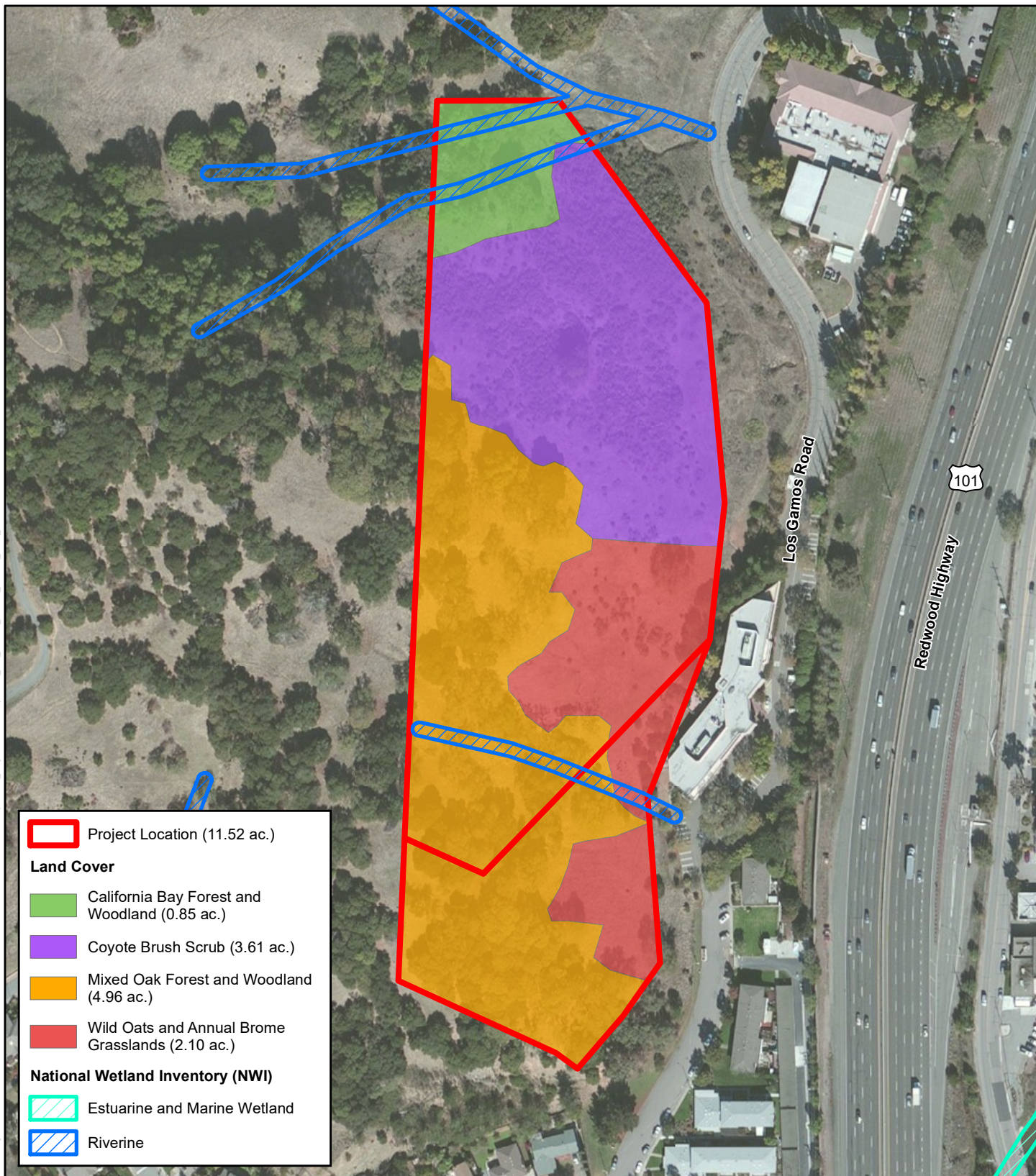
### 3.2.2 Vegetation Land Cover Types

The vegetation in the study area is composed of four natural vegetation classification types (Figure 4), which includes semi-natural stands, as defined in A Manual of California Vegetation, Second Edition (Sawyer et. al. 2009). There are two ephemeral drainages which are discussed more fully in the section Wetlands and Waters. Vegetation types are discussed below.

**Table 3-1**  
**VEGETATION TYPES AND APPROXIMATE ACREAGES IN THE PROJECT AREA**

LAND COVER TYPE	ACREAGE IN PROJECT AREA	ACREAGE IMPACTED BY DEVELOPMENT	ACREAGE IMPACTED BY DEVELOPMENT & FIREBREAK
CALIFORNIA BAY FOREST AND WOODLAND	0.85	0.22	0.33
COYOTE BRUSH SCRUB	3.61	2.78	3.00
MIXED OAK FOREST AND WOODLAND	4.96	1.00	1.50
WILD OATS AND ANNUAL BROME GRASSLANDS	2.10	1.38	1.55
<b>TOTAL</b>	<b>11.52 acres</b>	<b>5.38 acres</b>	<b>6.38 acres</b>

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Source: USFW National Wetland Inventory (May 2020)

0 100 200 Feet  
0 30 60 Meters



Scale 1:2,400  
1 Inch = 200 Feet

**Figure 4. Land Cover**  
Los Gamos Road Site Surveys  
Marin County, California

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## CALIFORNIA BAY FOREST AND WOODLAND ALLIANCE

California bay (*Aesculus californica*) is a large shrub or tree up to 25 feet tall. Stands are small and often occur in relative mesic concavities inland or on steep lower to mid slopes to more coastal areas. They intermix with many stands of chaparral and woodland alliances at low elevation. Within the Study Area, there is a stand of California bay in the northwest corner where two ephemeral drainages flow through the stand. The understory is primarily annual and perennial grasses such as wild oats (*Avena* sp.), rattlesnake grass (*Briza maxima*) and Harding grass (*Phalaris aquatica*).

## COYOTE BRUSH SCRUB ALLIANCE

Coyote brush (*Baccharis pilularis*) is a prostrate to erect shrub that grows to 10 feet tall and has evergreen leaves. Stands can be both transitory or persistent for a long time. Its habitat includes river mouths, stream sides, terraces, stabilized dunes of coastal bars, coastal bluffs, open slopes and ridges. Within the Study Area there is a large area of coyote brush along Los Gamos Road. The scrub is mixed with poison oak scrub (*Toxicodendron diversilobum*) and annual and perennial grasses.

## MIXED OAK FOREST AND WOODLAND ALLIANCE

This alliance consists of stands where three or more oaks are codominant in the upper canopy including coast live oak (*Quercus agrifolia*), blue oak (*Q. douglasii*), Oregon oak (*Q. garryana*), black oak (*Q. kelloggii*), valley oak (*Q. lobata*), and/or interior live oak (*Q. wislizeni*). Stands of this California forest alliance are found on moderately deep soils in gently sloping valleys at elevations ranging from 820-6560 feet. Soils are seasonally to permanently saturated at depth. This forest alliance is the largest vegetation landcover along the western and southern edge of the Study Area. The species documented here include coast live oak, black oak, and live oak. The understory is annual and perennial grasses.

## WILD OATS AND BROME GRASSLAND ALLIANCE

This alliance of non-native annual grasslands and forblands is composed of cool-season, annual grasses mostly introduced from Europe. They are invasive in disturbed areas throughout much of California. The composition varies widely and is largely determined by amount of disturbance coupled with fall temperatures and precipitation, light intensity, litter thickness and microtopography. Within the Study Area the grassland is east of the mixed oak forest. It is



composed of many non-native invasive grasses including wild oats (*Avena* spp.), bromes (*Bromus* spp.) and rattlesnake grass.

### 3.2.2.1 Potential Impacts to Trees and Vegetation Types

The most abundant tree species throughout the parcels are coast live oak, valley oak, and California black oak. Some California bay, California buckeye (*Aesculus californica*), stone pine (*Pinus pinea*) and Australian blackwood (*Acacia melanoxylon*) are scattered throughout the parcels. Per the arborist report prepared for this Project there are 285 trees within the Study Area (Kleinfelder/GANDA 2020). The development is anticipated to require the removal of approximately 55 trees. The project may also trim or encroach upon additional trees to maintain the required 12-foot firebreak zone around the developed areas.

The landscaping within the development proposes to include native trees. A vegetation management plan and landscaping plans will be provided for review by the City of San Rafael. The Project anticipates incorporating all recommendations provided during the permitting phase by the City with regards to landscaping and maintenance of existing vegetation. The development has been designed to reduce the footprint required to provide 192 units of housing with associated recreational opportunities and provide a 12-foot firebreak with an approximately 6.4 acres footprint. The removal of native trees has been minimized, and the landscaping will attempt to replacement of some of these removed trees.

This development and firebreak will result in permanent impacts to approximately 0.33 acre of California bay forest and woodland, 3.00 acres of coyote brush scrub, 1.50 acre of mixed oak forest and woodland, and 1.55 acres of wild oats and annual brome.

One of the impacted habitat types has a ranking from the CFDW Vegetation Classification and Mapping Program (VegCAMP) as required by Fish and Game Code Section 1940, Within this vegetation classification system, State Rarity and Global Rarity rankings are given to recognize vegetation types that may be prioritized for protection. The California bay forest and woodland alliance has a State Rarity ranking of S3 and Global Rarity ranking of G4 (CNPS 2020b). A Natural Community with a rank S1-S3 is to be addressed under the California Environmental Quality Act (CEQA), as this indicates it may be rare and threatened throughout its range.

The California bay forest and woodland alliance within the Northern California Coast and Coast ranges, is relatively widespread and most stands are small (< 5 ha) and intermixed with other vegetation types. The Management considerations included in the CNPS vegetation alliance page notes that “In general, most stands of the Umbellularia californica alliance are small and occur within a matrix of several other alliances. Valley bottom stands composed of large individuals are rare and worthy of conservation” (CNPS 2020b). The stand in question is relatively small and does not include large individuals, nor is it a valley bottom stand. The area within the Project is 0.85 acre, and an estimated 0.33 acre will be impacted by the Project and is not considered to be a significant impact to the vegetation alliance.

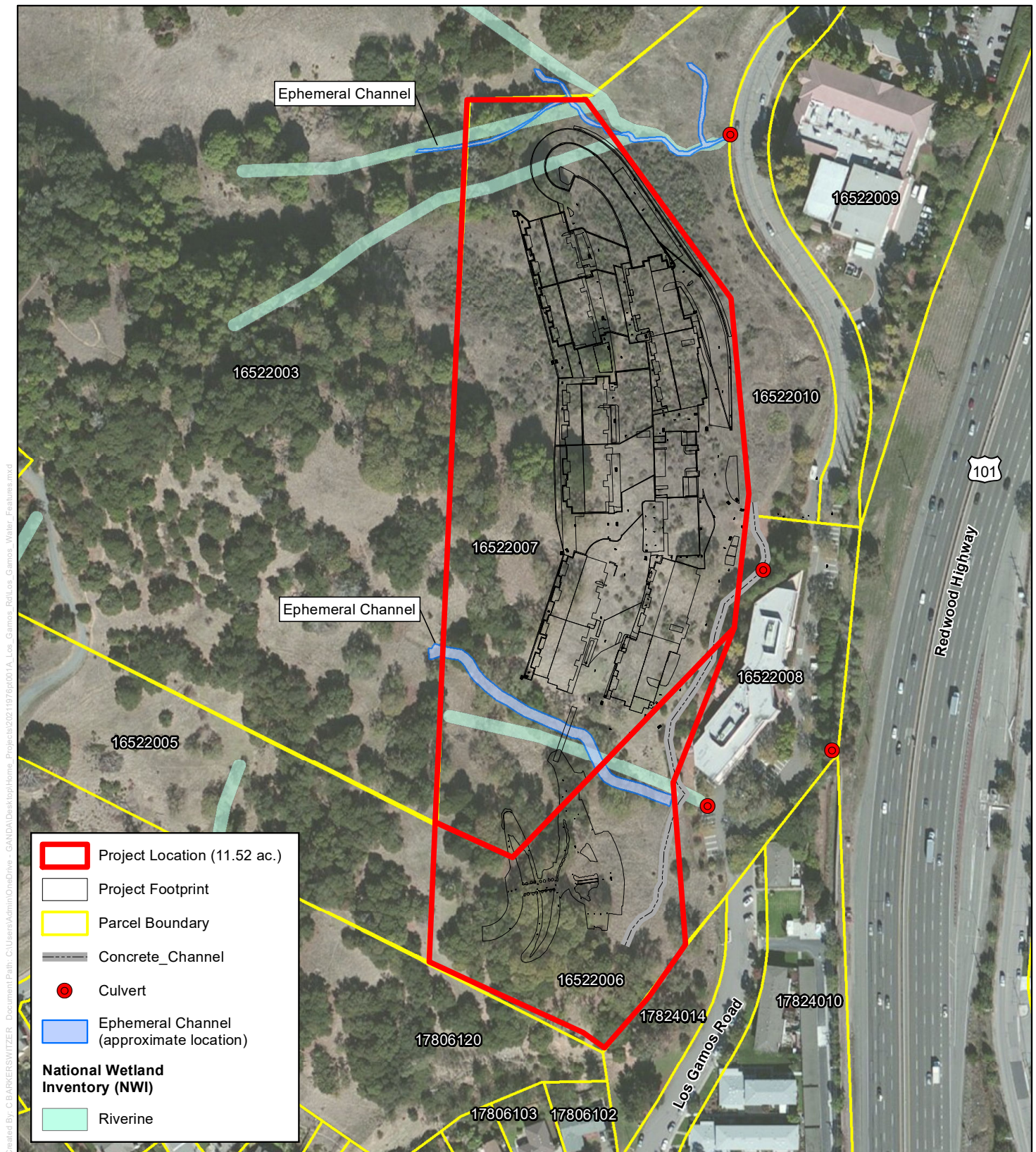
### 3.2.3 Wetlands and Waters

The Project is located in the Gallinas Creek Watershed and drains via ephemeral channels into Gallinas Creek, which is located approximately 0.13 mile to the southeast which drains directly into San Pablo Bay. The Project Area was assessed for water features and wetlands during the site visit on August 20, 2019. Wetlands were not observed within the study area, and none of the vegetated areas exhibited all three of the necessary indicators that determines a wetland: hydric vegetation, hydric soil, and hydrology, as described in the Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987), supplemented with guidance as directed by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008).

There are two ephemeral channels or streams identified within the property (Photos 2 and 3). Both are included and mapped in the NWI, however the actual locations of the channels are not in the exact locations mapped by the NWI (Figure 5). The locations determined to be the actual locations are based on the detailed topography layer prepared for the Project using satellite imagery and as observed in the field. No preliminary stream delineation was conducted. Additionally, along the lower end of the hillside there are also lengths of a concrete-lined ditches which direct sheet flow from the hillside into the ephemeral drainages near the base of the slope and to a culvert located in the Project Area (Photos 5 and 6). The approximate locations of all these features are shown on Figure 5.

The drainages in the Project Area drain the steep hillside above and connecting to culverts which drain under the adjacent developed areas into an engineered channel which connects to Gallinas Creek. Approximately 0.41 mile downstream from the Study Area the Gallinas Creek expands





Source: USFW National Wetland Inventory (May 2020)

0 100 200 Feet  
0 30 60 Meters



Scale 1:2,400  
1 Inch = 200 Feet

**Figure 5. Water Features**  
Los Gamos Road Site Surveys  
Marin County, California



into an area of intertidal wetlands and then flows into San Pablo Bay in northern San Francisco Bay. These ephemeral drainages are not considered potentially jurisdictional waters of USACE under Section 404 of the Clean Water Act, however may be jurisdictional under the Porter-Cologne Water Quality Act, also known as Section 7 of the California Water Code, which is enforced by the RWQCB and Section 1602 of the California Fish and Game Code as enforced by CDFW.

There was no water flowing at the time of the site visit. Ephemeral streams have less flow than seasonal intermittent drainages, and are typically shallow, with flowing water during and after rainfall events. The ephemeral channel located near the north end of the study area passes in and out of the study area and a culvert that drains the channel is located outside of the study area (Photo 4). The ephemeral channel located closer to the southern end of the Project goes through the Project Area and also drains via a culvert located just outside of the Project Area (Figure 5).

The ephemeral drainages are evidenced by the topography in the site, which shows channelization where water periodically flows. There is no significant riparian vegetation associated with these drainages within the Study Area. Ephemeral channels experience only periodic flows, and therefore the Ordinary High-Water Mark (OHWM) indicators used to delineate channels can be inconsistent (over space and time) and problematic to determine (USACE 2008). The OHWM for these channels were not delineated in the field, however the approximate OHWMs are apparent from the topography.

The City of San Rafael Municipal Code Title 14 Zoning includes regulations for setbacks to creeks and other watercourses. Creek setbacks are to include a twenty-five foot or greater setback between any structure and the high top of the creek bank and on lots 2 or more acres in size, a twenty-five foot (25') to one hundred foot (100') setback between any structure and the high top of the creek bank shall be provide based on other criteria at the discretion of the City of San Rafael (City of San Rafael 2020).

### 3.2.3.1 Potential Impacts to Wetlands and Waters

There are no wetlands present in the Study Area. The two ephemeral creek drainages and the are the only potential waters in the Study Area subject to setbacks by the City of San Rafael. The Project is designed to avoid direct and indirect impacts to two both ephemeral drainages by providing a 25' setback of all structures from the drainages. There is the exception of the proposed installation of a small bridge spanning the southern drainage (Figure 3). The bridge footings will



be placed 25 feet back from the top of the drainage on either side and will not impact the ability of the drainage to move water during rain events. The existing concrete-lined ditches will also be avoided by planned construction. The Project also includes avoidance and minimization measures to avoid impacts to the drainages from construction activities. No impacts related to Project work are anticipated to these drainages.

### 3.2.4 Site Photos



Photo 1 – Landcover in study area includes grassland (foreground), scrub habitat (upper middle left) and oak woodland (upper hillside). Photo facing west.



Photo 2 – View of southern ephemeral creek channel traversing down hillside. Photo facing east.



Photo 3 – View of northern ephemeral channel which passes in and out of study area, adjacent to Marin Open Space. Photo facing southwest.



Photo 4 – Culvert at base of northern ephemeral channel which passes in and out of the study area. Culvert located outside of study area. Photo facing northeast.





Photo 5 – Concrete lined channel to direct hillside sheet flow during rain events into ephemeral channel. Photo facing south.



Photo 6 – Concrete drainages to direct hillside sheet flow during rain events into culvert connecting under adjacent development into canal which connects to Gallinas Creek and into San Pablo Bay. Photo facing east.

### 3.2.5 Special Status Plant and Wildlife Species

Based on the literature, database searches and familiarity with the region, nine plant species were initially evaluated for their potential to occur in the Study Area. A plant habitat assessment was conducted on August 20, 2019. No federal or state listed species were observed or are expected to occur. Of the nine plant species, eight rare plant species were determined to have low or no potential to occur within the Study Area and are not addressed further in this report. One species was determined to have moderate potential to occur and is discussed further below. Table 2 identifies all special-status plant species that were evaluated, and a discussion of their potential for occurrence is provided there. Appendix B shows all CNDDDB documented occurrences of plant species within two miles of the Project.

Based on the literature review, database searches and familiarity with the region, 17 special-status wildlife species were initially evaluated for their potential to occur in the Study Area. A wildlife habitat assessment was conducted on August 20, 2019. Based on the assessment, 16 of these species were considered to have no potential to occur based on a lack of suitable habitat. One species are considered to have low potential to occur within the Study Area, the pallid bat (*Antrozous pallidus*) a California species of special concern (CDFW 2020b). Table 3 lists all 17 special-status wildlife species which were evaluated and a discussion of their potential for occurrence is provided. For purposes of CEQA, we typically do not address further those species with low or no potential to occur. Appendix B shows all CNDDDB documented occurrences of wildlife species within two miles of the Project.

## Table 2. Special-Status Plants with Potential to Occur in the Study Area

Common Name	Scientific Name	Status <sup>1</sup> (Federal/State/RPR)	Habitat Requirements <sup>2</sup>	Potential to Occur in the Study Area <sup>3</sup>
<b>Plants</b>				
Mt. Tamalpais manzanita	<i>Arctostaphylos montana</i> <i>ssp. montana</i>	-/-1B.3	Serpentine, rocky. Chaparral and valley and foothill grassland. Blooms February – April. Elevation 525 – 2,493 feet.	<b>None.</b> No serpentine habitat in the Study Area.
Point Reyes bird's-beak	<i>Chloropyron</i> <i>maritimum ssp. palustre</i>	-/-1B.2	Marshes and swamps (coastal salt). Blooms June – October. Elevation 0 – 33 feet.	<b>None.</b> No suitable coastal salt marsh habitat in the Study Area.
Tiburon buckwheat	<i>Eriogonum luteolum</i> <i>var. caninum</i>	-/-1B.2	Serpentine, sandy to gravelly. Chaparral, cismontane woodland, coastal prairie, and valley and foothill grassland. Blooms May – September. Elevation 0 – 2,297 feet.	<b>None.</b> No suitable serpentine habitat in the Study Area.
Fragrant fritillary	<i>Fritillaria liliacea</i>	-/-1B.2	Often serpentine. Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland. Blooms February – April. Elevation 5 – 1,345 feet.	<b>Low.</b> Limited suitable grassland in the Study Area. No known occurrences within 2 miles of the Study Area.
Congested-headed hayfield tarplant	<i>Hemizonia congesta</i> <i>ssp. congesta</i>	-/-1B.2	Sometimes roadsides. Valley and foothill grassland. Blooms April – November. Elevation 65 – 1,837 feet.	<b>Moderate.</b> Suitable grassland in the Study Area. Nearest current CNDDDB occurrence record is approximately two miles northeast of the Study Area along Highway 101.

Common Name	Scientific Name	Status <sup>1</sup> (Federal/State/RPR)	Habitat Requirements <sup>2</sup>	Potential to Occur in the Study Area <sup>3</sup>
Marin dwarf flax	<i>Hesperolinon congestum</i>	FT/ST/1B.1	Serpentine. Chaparral and valley and foothill grassland. Blooms April – July. Elevation 16 – 1,214 feet.	<b>None.</b> No suitable serpentine habitat in the Study Area.
Tamalpais lessingia	<i>Lessingia micradenia</i> var. <i>micradenia</i>	-/-/1B.2	Usually serpentine, often roadsides. Chaparral and valley and foothill grassland. Blooms June – October. Elevation 330 – 1,650 feet.	<b>None.</b> Known from only four occurrences in the Mt. Tamalpais area in serpentine grassland and chaparral. There is no serpentine habitat in the Study Area.
Point Reyes checkerbloom	<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	-/-/1B.2	Marshes and swamps (freshwater, near coast). Blooms April – September. Elevation 10 – 246 feet.	<b>None.</b> No suitable freshwater marsh habitat in the Study Area.
Mt. Tamalpais bristly jewel-flower	<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	-/-/1B.2	Serpentine. Chaparral and valley and foothill grassland. Blooms May – August. Elevation 495 – 2,640 feet.	<b>None.</b> No suitable serpentine habitat in the Study Area.

#### **U. S. Fish and Wildlife Service Designations:**

FE: Endangered: Any species in danger of extinction throughout all or a significant portion of its range.

FT: Threatened: Any species likely to become endangered within the foreseeable future.

#### **California Department of Fish and Game Designations:**

SE: Endangered: Any species at risk of becoming extinct in all or a significant portion of its range.

ST: Threatened: Any species likely to become endangered within the foreseeable future.

SR: Any species not currently threatened with extinction, but in such small numbers throughout its range that it may become endangered if its present environment worsens.

#### **California Rare Plant Ranks:**

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

1A: Plants presumed extinct.

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

**Threat categories:**

- .1: Seriously endangered in California.
- .2: Fairly endangered in California.
- .3: Not very endangered in California

<sup>2</sup> Information on known locations in the vicinity of the Study Area was compiled from CalFlora (2020), CDFW (2020a), CNPS (2020a), and other cited references.

## Table 3. Special-Status Wildlife with Potential to Occur in the Study Area

Common Name	Scientific Name	Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential to Occur in the Study Area
<b>Invertebrates</b>				
San Bruno Elfin Butterfly	<i>Callophrys mossii bayensis</i>	FE / -- (Critical Habitat has been proposed)	Inhabits rocky outcrops and cliffs within coastal scrub of the San Francisco Peninsula. Eggs are laid on the host plant, stonecrop ( <i>Sedum spathulifolium</i> ). Adult flight period is late February to mid-April, with the peak occurring in March to early April.	<b>Not Expected</b> – Outside species' range, no suitable habitat in the Study Area. No proposed critical habitat in the Study Area. There are no CNDDDB records within two miles of the Study Area.
California Freshwater Shrimp	<i>Syncaris pacifica</i>	FE / --	Endemic to Marin, Napa, and Sonoma counties; found in low-elevation, low-gradient streams with moderate to heavy riparian cover. Known from 17 stream segments located in tributary streams in the lower Russian River drainage, coastal streams flowing westward directly into the Pacific Ocean, streams draining into Tomales Bay, and streams flowing southward into northern San Pablo Bay.	<b>Not Expected.</b> The Study Area does not contain suitable aquatic habitat. There are no CNDDDB records within two miles of the Study Area.

Fish				
Tidewater goby	<i>Eucyclogobius newberryi</i>	FE / SSC (Critical Habitat has been designated)	Found primarily in waters of coastal lagoons, estuaries, and marshes often in sandy shallows with low salinity levels.	<b>Not Expected.</b> The Study Area does not contain suitable aquatic habitat. The Project is located outside of the designated Critical Habitat for this species. There are no CNDDDB records within two miles of the Study Area.
Delta smelt	<i>Hypomesus transpacificus</i>	FT/ SE (Critical Habitat has been designated)	Delta smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties in the upper Sacramento–San Joaquin Estuary. Seldom found at salinities > 10 ppt. Most often occurs at salinities < 2ppt.	<b>Not Expected.</b> The Study Area does not contain suitable aquatic habitat. The Project is located outside of the designated Critical Habitat for this species. There are no CNDDDB records within two miles of the Study Area.
Amphibians				
California red-legged frog	<i>Rana draytonii</i>	FT / SSC (Critical Habitat has been designated)	Requires slow moving or still water for juvenile development. Occurs in freshwater marshes; stock ponds; and riparian habitats. May aestivate in underground refuges in adjacent upland areas in rodent burrows or cracks during dry periods.	<b>Not Expected.</b> The Study Area does not contain suitable aquatic or upland habitat. The Project is located outside of the designated Critical Habitat for this species. There are no CNDDDB records within two miles of the Study Area.

Reptiles				
Western pond turtle	<i>Emys marmorata</i>	-- / SSC	Occurs in both permanent and seasonal waters, including marshes, streams, rivers, ponds, and lakes. Also found in agricultural irrigation and drainage canals. They favor habitats with large amounts of emergent logs or boulders, where several individuals may congregate to bask.	<b>Not expected.</b> The Study Area does not contain suitable aquatic or basking habitat. There is one CNDDDB record within two miles of the Study Area from 2017 of an individual basking at edge of a pond in John F. McInnis County Park.
Green sea turtle	<i>Chelonia mydas</i>	FT / --	Occurs throughout the tropical and subtropical waters of the Mediterranean, Atlantic, Pacific, and Indian Oceans, as far north as Massachusetts. It migrates enormous distances between foraging and nesting areas. Typical near-shore habitats are shallow waters inside bays, reefs, and inlets. Most nesting occurs on minimally disturbed open beaches.	<b>Not Expected</b> – The Study Area does not contain suitable aquatic habitat. There are no CNDDDB records within two miles of the Study Area
Birds				
Great blue heron	<i>Ardea herodias</i>	-- / --	Saltwater and freshwater habitats, from open coasts, marshes, sloughs, riverbanks, and lakes to backyard goldfish ponds. They also forage in grasslands and agricultural fields. Breeding birds gather in colonies or “heronries” to build stick nests high off the ground.	<b>Not Expected.</b> There is no suitable freshwater or saltwater habitat or suitable foraging habitat located in the Study Area. There is one CNDDDB record located within two miles of the Project from 1982 adjacent to San Pablo Bay.



Burrowing owl	<i>Athene cunicularia</i>	-- / SSC	Open arid and semiarid habitats with short emergent vegetation; including grasslands; deserts; agricultural fields; ruderal areas and open landscaped areas. Nests in burrows (often constructed by ground squirrels) and forages in low-growing grasslands and other open, semi-arid habitats.	<b>Not Expected.</b> The Study Area is located entirely on a relatively steep slope. This species is usually found in level areas, flat to gently rolling hills (Klute et al., 2003). This type of topography is not found within the Study Area. There is one CNDDDB record from 1984 within two miles of the Project east of St. Vincent School in Novato between the school and railroad tracks.
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT / SSC (Critical Habitat has been designated)	Found on sandy beaches, dunes, salt pond levees and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting. Forages on invertebrates in sand and amongst surf-cast kelp in intertidal zones, in dry, sandy areas above high tide, on salt pans, and along edges of salt marshes, salt ponds, and lagoons.	<b>Not Expected.</b> The Study Area does not include suitable breeding or foraging habitat for this species. The Project is located outside of designated Critical Habitat for this species. There are no CNDDDB records within two miles of the Study Area.
California black rail	<i>Laterallus jamaicensis coturniculus</i>	-- / ST, SFP	Inhabits tidal marshes mainly in the northern San Francisco Bay area. The majority of the species population is currently found in the historical marshes of San Pablo Bay, Suisun Bay, and Carquinez Strait. Found in freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Requires water depths of about one inch that do not fluctuate during the year and dense vegetation for nesting habitat.	<b>Not Expected.</b> There is no tidal marsh habitat in the Study Area, and therefore the Project does not provide suitable habitat for this species. There are three CNDDDB records within two miles of the Project from 2010, 2011 AND 2017. These records document observations in Gallinas Creek east of Highway 101 in salt marsh habitat ranging from 1973-2013.



San Pablo song sparrow	<i>Melospiza melodia samuelis</i>	-- / SSC	Year-round resident; range is confined to tidal and muted tidal salt marshes fringing San Pablo Bay in the northern reaches of San Francisco Bay estuary.	<b>Not Expected.</b> There is no suitable salt marsh habitat in the Study Area. There is one historic CNDDDB record within two miles of the Project from 1919, which includes observations of multiple individuals from 1901 and 1919 in an area of marshland associated with Gallinas Creek which has since been developed. .
California Ridgway's rail (formerly California clapper rail)	<i>Rallus obsoletus obsoletus</i>	FE / SE, SFP	Salt marshes and brackish marshes traversed by tidal sloughs in the vicinity of the San Francisco Bay. Associated with <i>Salicornia</i> and native <i>Spartina</i> spp. dominated salt marshes	<b>Not Expected.</b> There is no suitable salt marsh habitat in the Study Area. There is one CNDDDB record within two miles of the Project from 2017 which documents surveys in several sites including Gallinas Marsh with presence.
California least tern	<i>Sterna antillarum browni</i>	FE / SE, SFP	Nest colonially on the ground in sandy or gravelly beaches. Forages over open water in coastal regions. In San Francisco Bay, inhabits abandoned salt ponds and forages along estuarine shores.	<b>Not Expected.</b> The Study Area does not include suitable open sandy or gravelly beach habitat for this species. There are no CNDDDB records within two miles of the Project.
Northern spotted owl	<i>Strix occidentalis caurina</i>	FT / ST (Critical Habitat has been designated)	Unlogged, expansive, mature coniferous forest stands with large trees and a complex array of vegetation types, sizes and ages. This subspecies tends to avoid crossing clear-cut, recently logged, or brushy areas, but will forage in redwood forests that have been previously logged if some old and large trees remain.	<b>Not Expected.</b> There is no suitable mature coniferous forest habitat in or near the Study Area. The Project is located outside of designated Critical Habitat for this species There is one CNDDDB record within two miles of the Project from 2016 of an active nest.

Mammals				
Pallid bat	<i>Antrozous pallidus</i>	-- / SSC	Occurs throughout California and most abundant in grasslands, shrublands, and woodlands. Roosts in caves, rock and cliff crevices, hollow trees and cavities of buildings, bridges and tunnels.	<b>Low.</b> There may suitable roosting habitat within trees in the Study Area in trees. No evidence of roosting bats was identified during the site visit. There is one CNDDDB record within two miles of the Project from 2001 of a maternity colony in a residential structure.
Salt marsh harvest mouse	<i>Reithrodontomys raviventris</i>	FE / SE, SFP	Occurs only in the saline emergent wetlands of San Francisco bay and its tributaries. Pickleweed ( <i>Salicornia</i> sp.) is primary habitat. Builds loosely organized nests and requires higher areas to escape high tides.	<b>Not Expected.</b> There is no suitable salt marsh habitat in the Study Area. There is one CNDDDB record located within two miles of the Project from 1986 in salt marsh habitat near Gallinas Creek, which includes observations of mice from 1980, 1981 and 1986.

**Federal Status Designations:**

FE	Listed as Endangered under the federal Endangered Species Act
FT	Listed as Threatened under the federal Endangered Species Act
FC	Candidate for listing under the federal Endangered Species Act
FD	Delisted; was formerly listed as Threatened or Endangered
—	No federal status

**State of California Status Designations:**

SE	Listed as Endangered under the California Endangered Species Act
ST	Listed as Threatened under the California Endangered Species Act
SC	Candidate for listing under the California Endangered Species Act
SD	Delisted; was formerly listed as Threatened or Endangered
SFP	Fully Protected Species under California Fish and Game Code
SSC	California Department of Fish and Wildlife Species of Special Concern
—	No state status

### 3.2.5.1 Impacts to Special Status Plant and Wildlife Species

One rare plant, congested-headed hayfield tarplant has moderate potential to occur, and this plant is recognized by the CNPS as rare or endangered in California and elsewhere/fairly endangered. It has been given a CRPR of 1B.2. The CNPS CRPR ranking requires review under CEQA, however there is no listing of this species by either the state or federal government. This plant was not observed on site during its blooming season, however another tarplant, hayfield tarplant (*Hemizonia congesta*), was observed on site which has similar habitat requirements. There are two CNDDDB records of this species occurring within two miles of the study area, the more recent in 1994. The project will incorporate a survey prior to initiation of construction by a qualified botanist for this species during their blooming season (April through November) to ensure these plants are not impacted. If individual plants are located within the development footprint and cannot be avoided, the qualified botanist will transplant individual plants to an area with the habitat requirements for this species in an area that will remain undisturbed within the Project Area.

Nesting birds may occur within the project area. The Project will incorporate the following to protect nesting birds during implementation. Tree and shrub removal will be conducted between September 1 and February 14, outside of nesting bird season, to the extent possible. Tree removal between February 15 and August 31 will require a nesting bird survey by a qualified biologist no more than 7 days prior to work occurring. If at any time of the year an active bird nest is observed within or near work sites, work within 50 feet of the observed nest should cease, care should be taken not to disturb the nest, and the work supervisor shall contact designated biologist for guidance on how to proceed. A no-work buffer will be implemented by the biologist as appropriate to protect the nest until the young have fledged

## 4 CONCLUSIONS

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After reviewing all of the background materials and federal, state and local regulations and protection policies, it is determined that this Project will not result in any potentially significant adverse biological impacts to the environment.

The Study Area does provide suitable habitat for one rare plant, congested-headed hayfield tarplant, and nesting birds. The project includes surveys and protection measures for congested-headed hayfield tarplant and protected nesting birds. No other special status wildlife or plants are anticipated to be impacted by the Project. The Study Area also contains two potentially jurisdictional ephemeral drainages. These features are not expected to be impacted by the Project which will ensure a setback of a minimum of 25 feet from these features as required by the City of San Rafael Municipal Code. Construction best management practices will be incorporated to protect the drainages from Project construction related impacts.

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## **APPENDIX A**

### **THE NEIGHBORHOOD AT LOS GAMOS CONCEPTUAL PLAN**

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PLACE HOLDER IMAGE



BUILDING 5  
 ROOF 167.4  
 UFF 157.4  
 UMFF 147.4  
 MFF 137.4  
 CFF 127.4  
 LFF 117.4  
 GFF 103.4  
 UFF 156.0

BUILDING 4  
 LFF 116.0  
 CFF 126.0  
 GFF 102.0  
 MFF 136.0  
 UMFF 146.0  
 ROOF 166.0  
 UFF 156.0

BUILDING 3  
 ROOF 165.0  
 UFF 155.0  
 UMFF 145.0  
 MFF 135.0  
 CFF 125.0  
 LFF 115.0  
 GFF 101.0

SOUTH PARK

VILLAGE COMMONS

MAIN ENTRY

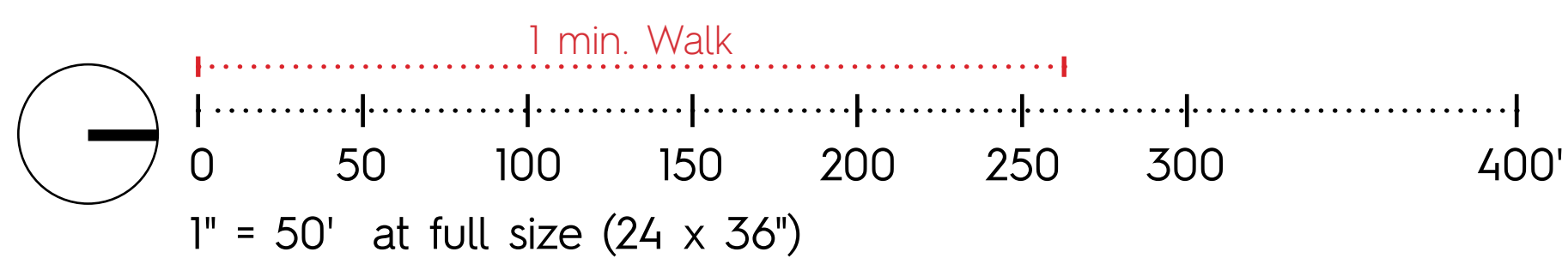
LOS GAMOS ROAD

YMCA

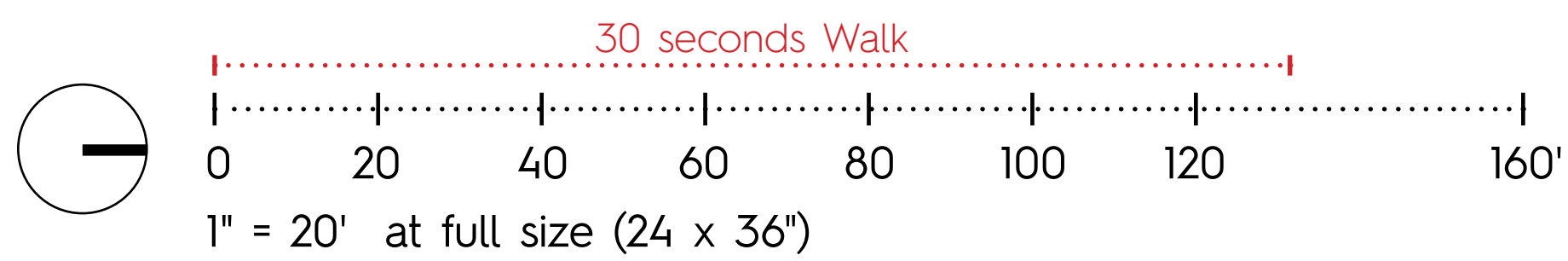
BUILDING 2  
 ROOF 127.0  
 UFF 117.0  
 MFF 107.0  
 CFF 97.0  
 LFF 87.0  
 GFF 73.0

COMMUNITY CENTER  
 LFF 70.17  
 GFF 55.5  
 MFF 84.83  
 PLAZA 99.50

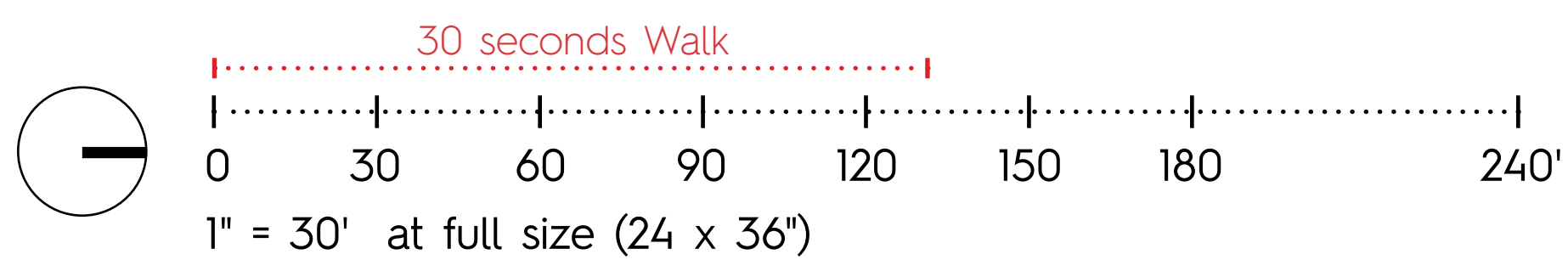
BUILDING 1  
 LFF 90.3  
 GFF 76.3  
 CFF 100.3  
 MFF 110.3  
 UFF 120.3  
 ROOF 130.3











# THE NEIGHBORHOOD AT LOS GAMOS

San Rafael, CA

## LEGEND

- A MAIN ENTRY
- B CONCRETE SIDEWALK- DETAIL 3/L2.01
- C SPECIAL PAVING- DETAIL 1/L2.01
- D CROSSWALK- DETAIL 1/L2.01
- E PROJECT ENTRY SIGN

- F STREET TREE: CATHEDRAL LIVE OAK
- G RETAINING WALLS
- H NATIVE PLANTING/OAKS WITH A FEW ORNAMENTAL TREE OF COLOR
- I EXISTING VEGETATION
- J BIORETENTION PLANTERS

- K FIRE EXIT
- L BUILDING ENTRY
- M PREFRBRICATED METAL BRIDGE





0 8 16 32'  
1/16" = 1'-0" at full size (24 x 36")





1 PERMEABLE PAVERS OR SIMILAR. COLOR T.B.D.  
MANUFACTURER: BELGARD



2 DECOMPOSED GRANITE PAVING WITH GRANITE FINES,  
SIMILAR COLOR



3 PEDESTRIAN WALKWAY PAVING: POURED IN PLACE CONCRETE



4 TRELLIS STRUCTURE OR SIMILAR.  
MANUFACTURER: LANDSCAPE FORMS



5 HARPO BENCH OR SIMILAR  
MANUFACTURER: LANDSCAPE FORMS



6 SWING CHAIRS OR SIMILAR  
MANUFACTURER: LANDSCAPE FORMS



7 HARPO BENCH OR SIMILAR  
MANUFACTURER: LANDSCAPE FORMS



8 LINK SEATING OR SIMILAR  
MANUFACTURER: LANDSCAPE FORMS



9 ROBATA CONCRETE LINEAR FIRE PIT OR SIMILAR  
MANUFACTURER: PALOFORM





1 PREFABRICATED WATER FEATURE  
MANUFACTURER: WATER STUDIO



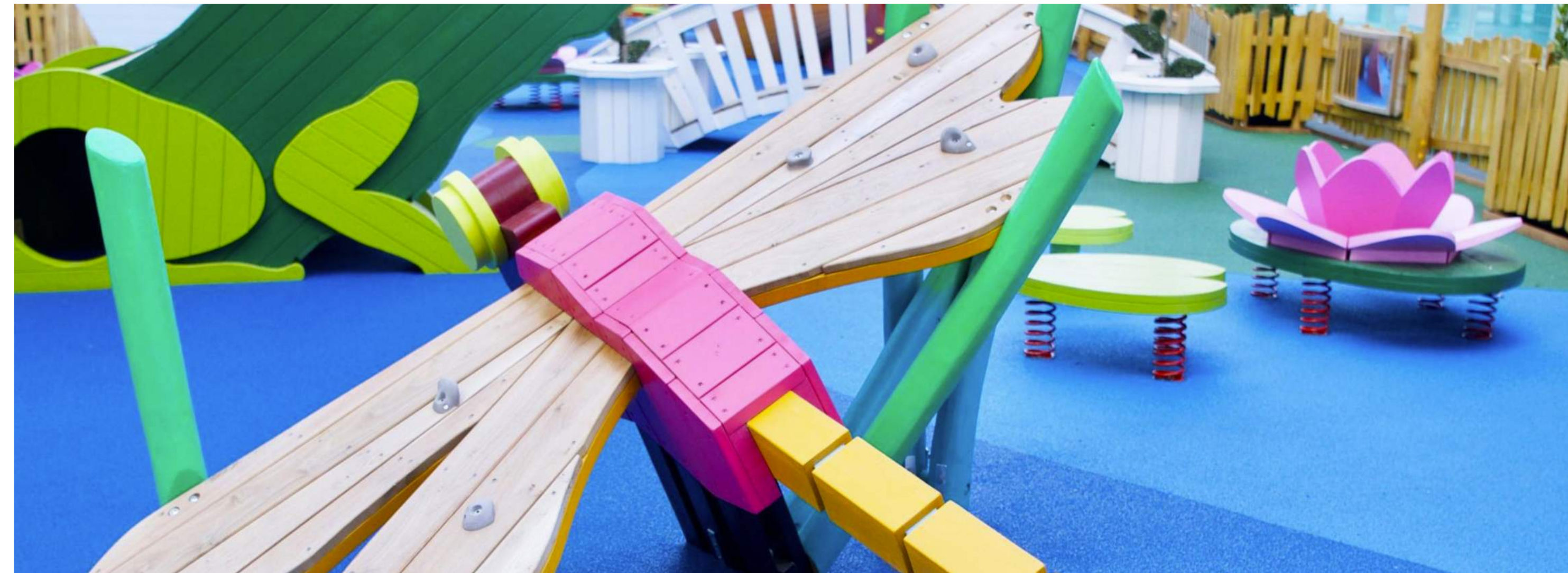
2 MOVABLE KIDS PLAY EQUIPMENT AT COMMUNITY CENTER OR SIMILAR



3 PARC VUE TRASH RECEPTACLE OR SIMILAR  
MANUFACTURER: LANDSCAPE FORMS



4 PLAYGROUND AT COMMUNITY CENTER PLAZA  
MANUFACTURER: MONSTRUMS



5 CHESS BOARD AS PAVING CONCEPT  
MANUFACTURER: T.B.D.



6 STEPPED LAWN TERRACES



7 OLIVE TREE GROVE WITH SEATING  
CONCEPT IMAGE





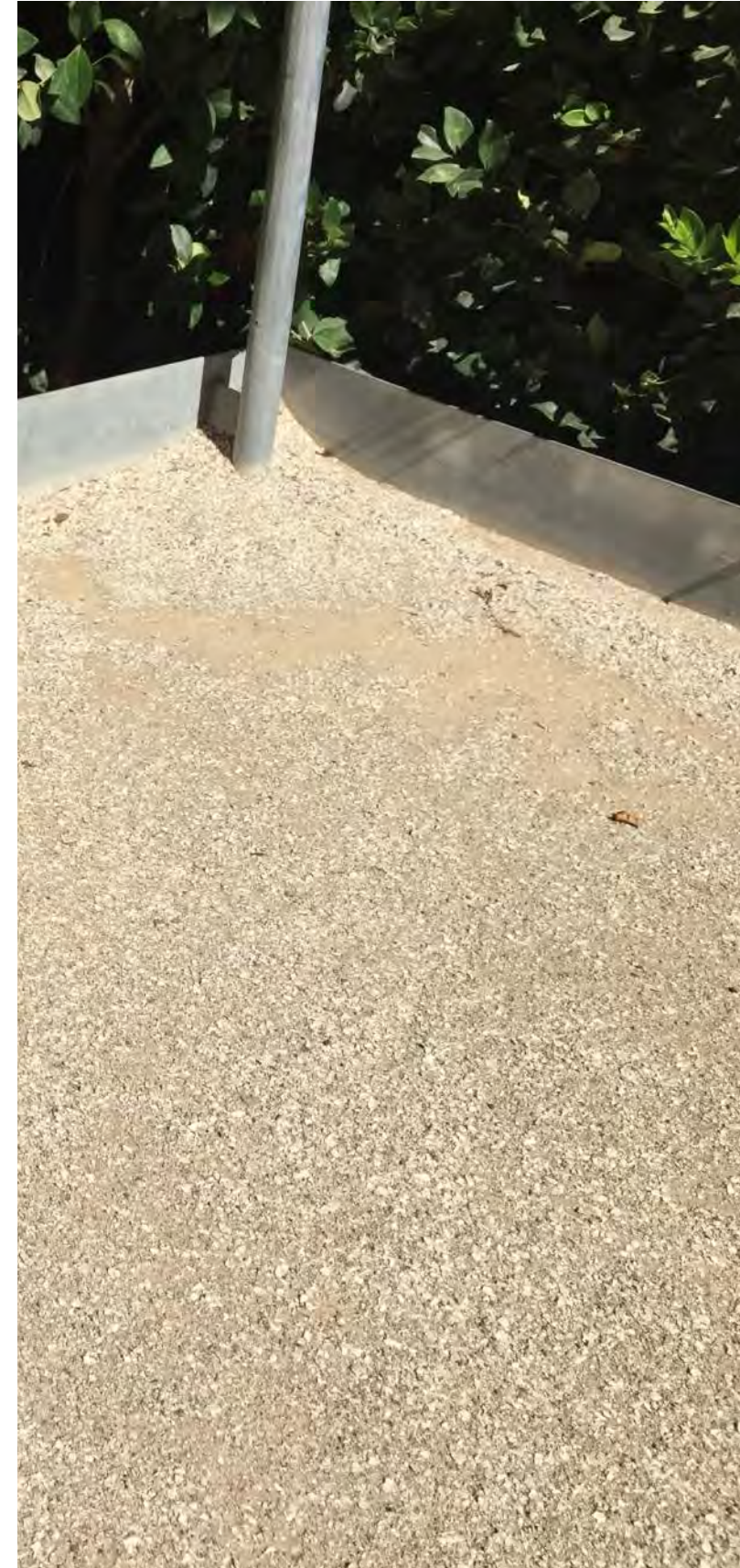
1 NATURAL PLAY GROUND: WOOD LOGS  
CONCEPT IMAGE



2 PLAYGROUND ON A SLOPE  
CONCEPT IMAGE

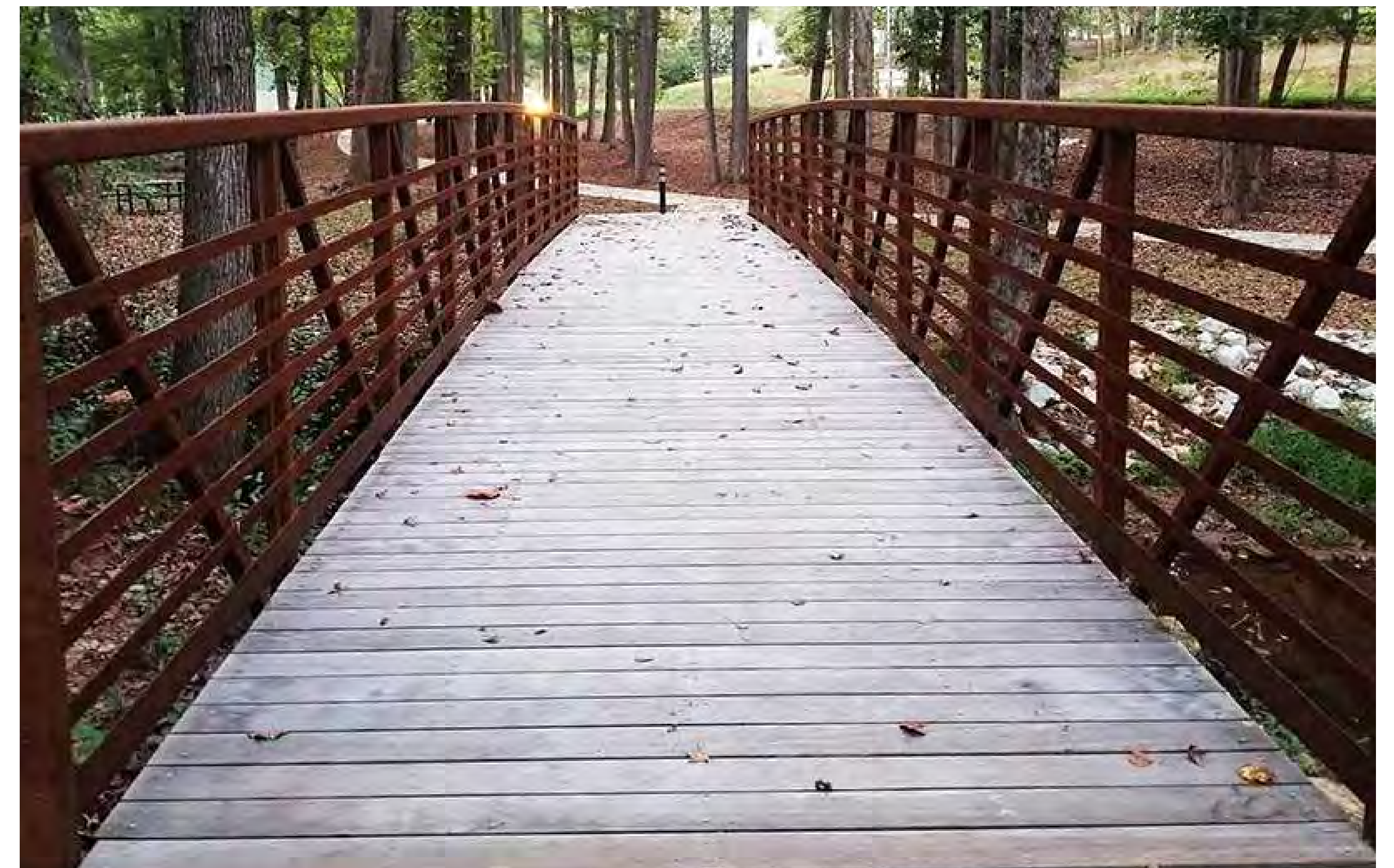


3 OVERLOOK AT SOUTH PARK  
CONCEPT IMAGE



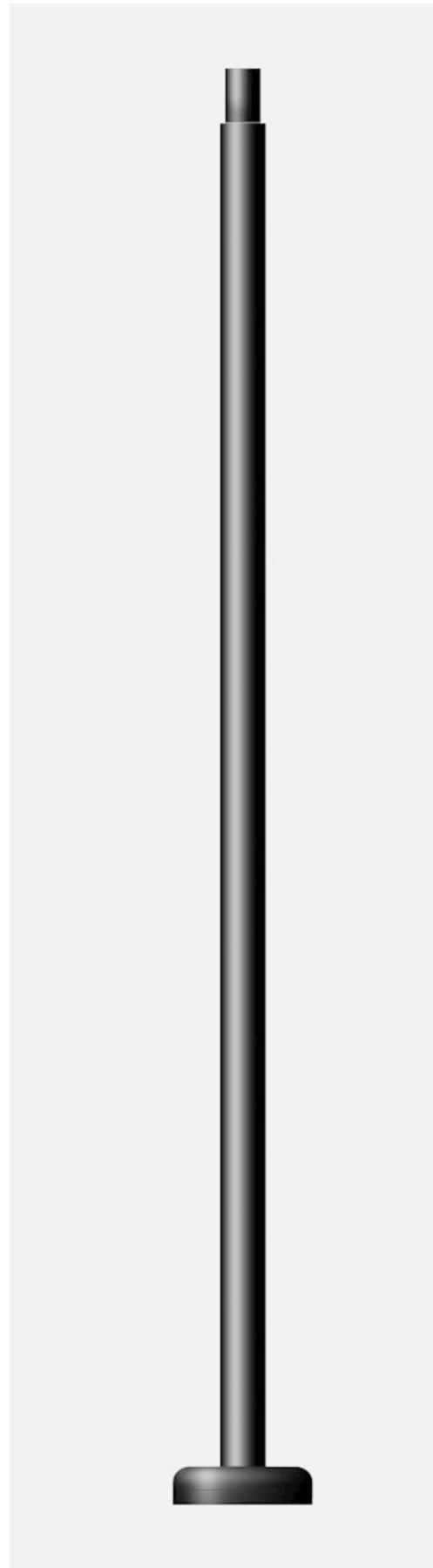
4 SOIL CEMENT TRAIL SYSTEM  
CONCEPT IMAGE

LOGO INTEGRATED IN THE  
BRIDGE DESIGN



5 PREFABRICATED BRIDGE AT TRAIL  
CONCEPT IMAGE





1 POLE-TOP LUMINAIRE- ASYMMETRIC WIDE BEAM 77910 AND 77911 OR SIMILAR  
MANUFACTURER: BEGA

2 BOLLARD: ASYMMETRIC 99056 OR SIMILAR  
MANUFACTURER: BEGA



2 RECESSED WALL LUMINAIRE OR SIMILAR  
MANUFACTURER: BEGA



TREES



ARBUTUS MARINA  
MARINA MADRONE



HETEROMELES ARBUTIFOLIA  
TOYON /CHRISTMAS BERRY



HYMENOSPORUM FLAVUM  
SWEETSHADE



LAGERSTROEMIA INDICA X FAURIEI 'NATCHEZ'  
NATCHEZ CRAPE MYRTLE



OLEA EUROPAEA  
FRUITLESS OLIVE



LOPHOSTEMON CONFERTUS  
BRISBANE BOX



QUERCUS VIRGINIANA 'CATHEDRAL'  
CATHEDRAL LIVE OAK



QUERCUS AGRIFOLIA  
COAST LIVE OAK



QUERCUS ILICIFOLIA  
SCRUB OAK



SHRUBS



ADENANTHOS CUNEATUS  
CORAL DRIFT



ALYOGYNE HUEGELII  
BLUE HIBISCUS



AMORPHA CALIFORNICA  
CALIFORNIA FALSE INDIGO



ANIGOZANTHOS BIG RED  
BIG RED KANGAROO PAW



ARBUTUS UNEDO COMPACTA  
DWARF STRAWBERRY TREE



ARCTOSTAPHYLOS 'PACIFIC MIST'  
PACIFIC MIST MANZANITA



ARTEMISIA POWIS CASTLE  
WORMWOOD



ASCLEPIAS NATIVES  
MILKWEED / BUTTERFLY FLOWER



CALAMINTHA NEPETOIDES  
WHITE NEPETA



CALLISTEMON VIMINALIS  
GREEN JOHN BOTTLEBRUSH



CEANOTHUS 'TASSAJARA BLUE'  
TASSAJARA BLUE CEANOTHUS



CENTENNIAL BACCHARIS  
CENTENNIAL DESERT BROOM



CEONOTHIS CONCHA  
CALIFORNIA MOUNTAIN LILAC



CISTUS CRETICUS SSP. INCANUS  
PINK ROCK ROSE



CONVOLVULUS CNEORUM  
BUSH MORNING GLORY



EPILOBIUM CANUM 'CATALINA'  
CATALINA CALIFORNIA FUCHSIA



GAURA LINDHEIMERI  
LINDHEIMER'S BEEBLOSSOM



JACOBAEA VULGARIS  
COAST WILDFLOWER SONOMA COUNTY



JUSTICIA CALIFORNICA  
BELOPERONE



LAURUS NOBILIS 'MONRIK' PLANT PATENT #25,915  
LITTLE RAGÚ® SWEET BAY



LEPTOSYNE GIGANTEA  
GIANT COREOPSIS



LEUCADENDRON 'HAWAII MAGIC'  
ROYAL HAWAIIAN® HAWAII MAGIC CONEBUSH



LUPINUS & PAPAVER  
LUPINE & POPPIES



LUPINUS ALBIFRONS  
SILVER LUPINE



MYRTUS COMMUNIS 'COMPACTA'  
DWARF MYRTLE



OLEA EUROPAEA 'MONTRA' PP#6266 'LITTLE OLLIE'  
LITTLE OLLIE® DWARF OLIVE



PEROVSKIA X 'FILIGRAN'  
FILAGRAN RUSSIAN SAGE



PENSTEMON X GLOXINOIDES 'APPLE BLOSSOM'  
BEARD TONGUE 'APPLE BLOSSOM'



PITTOSPORUM TENUIFOLIUM  
SILVER SHEEN



POLYGALA FRUTICOSA 'PETITE BUTTERFLY'  
BUTTERFLY PEA SHRUB



RHAMNUS CALIFORNICA 'EVE CASE'  
EVE CASE COFFEEBERRY



RHAPHIOLEPIS INDICA  
CLARA INDIAN HAWTHORN



RIBES SANGUINEUM  
RED FLOWERING CURRANT



ROSMARINUS OFFICINALIS 'TUSCAN BLUE'  
TUSCAN BLUE ROSEMARY



SALVIA BRANDEGEEI  
SANTA ROSA ISLAND SAGE



SALVIA GREGGII 'ALBA'  
WHITE AUTUMN SAGE



STORMWATER PLANTERS



SANTOLINA VIRENS  
GREEN LAVENDER COTTON



TEUCRIUM CHAMAEDRYS  
GERMANDER



TEUCRIUM FRUTICANS 'AZUREUM'  
BUSH GERMANDER



CHONDROPETALUM TECTORUM  
CAPE RUSH



JUNCUS PATENS  
CALIFORNIA RUSH

VINES



CLEMATIS VITICELLA  
ITALIAN CLEMATIS



WISTERIA FRUTESCENS 'AMETHYST FALLS'  
AMETHYST FALLS AMERICAN WISTERIA

GROUNDCOVER



ACHILLEA MILLEFOLIUM 'LA LUNA'  
LA LUNA YARROW



ARCTOSTAPHYLOS SPECIES  
MANZANITA



BACCHARIS PILULARIS  
DWARF COYOTE BUSH



ESCHSCHOLZIA CALIFORNICA  
CALIFORNIA POOPY



ERIOGONUM UMBELLATUM  
SULPHURFLOWER BUCKWHEAT



ERIGERON GLAUCUS X WAYNE RODERICK DAISY  
WAYNE RODERICK DAISY



GREVILLEA LANIGERA 'COASTAL GEM'  
WOOLY GREVILLEA



LIMONIUM PEREZII  
SEA LAVENDER, STATICE



LUPINUS CHAMISSONIS  
CHAMISSO BUSH LUPINE



NEPETA X FAASSENII  
SELECT BLUE CAT MINT



PENSTEMON BARBATUS 'NOVAPENPUR'  
ROCK CANDY™ PURPLE PENSTEMON



RHAMNUS (FRANGULA) CALIFORNICA 'SEAVIEW'  
DWARF CALIFORNIA COFFEEBERRY



SALVIA CHAMAEDRYOIDES  
GERMANDER SAGE



WESTRINGIA FRUTICOSA 'GREY BOX'  
DWARF COASTAL ROSEMARY

GRASS



CAREX DIVULSA  
BERKELEY SEDGE



JUNCUS PATENS  
SPREADING RUSH



MUHLENBERGIA RIGENS  
DEERGRASS



STIPA PULCHRA  
PURPLE NEEDLEGRASS



SPOROBOLUS WRIGHTII  
GIANT SACATON



STIPA LEPIDA  
FOOTHILL NEEDLEGRASS



FESTUCA GLAUCA 'ELIJAH BLUE'  
ELIJAH BLUE FESCUE



**APPENDIX B**

**OFFICIAL UNITED STATES FISH AND WILDLIFE SERVICE (USFWS) SPECIES LETTER**

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# 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:

September 16, 2020

Consultation Code: 08ESMF00-2020-SLI-2905

Event Code: 08ESMF00-2020-E-08939

Project Name: Los Gamos Road Biological Technical Report

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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](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](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.

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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

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## Project Summary

Consultation Code: 08ESMF00-2020-SLI-2905

Event Code: 08ESMF00-2020-E-08939

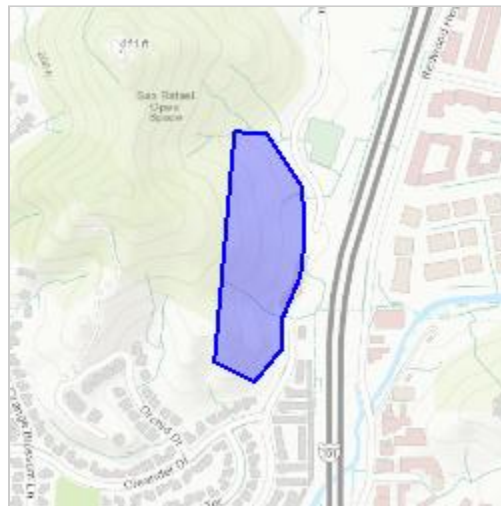
Project Name: Los Gamos Road Biological Technical Report

Project Type: DEVELOPMENT

Project Description: Los Gamos Road Biological Technical Report

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.014459108184N122.54341045609009W>



Counties: Marin, CA

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## Endangered Species Act Species

There is a total of 12 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<sup>1</sup>, 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.

- 
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.

## Mammals

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/613">https://ecos.fws.gov/ecp/species/613</a>	Endangered

---



## Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4240">https://ecos.fws.gov/ecp/species/4240</a>	Endangered
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>	Endangered
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/1123">https://ecos.fws.gov/ecp/species/1123</a>	Threatened
Western Snowy Plover <i>Charadrius nivosus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/8035">https://ecos.fws.gov/ecp/species/8035</a>	Threatened

## Reptiles

NAME	STATUS
Green Sea Turtle <i>Chelonia mydas</i> Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/6199">https://ecos.fws.gov/ecp/species/6199</a>	Threatened

## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a> Species survey guidelines: <a href="https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf">https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf</a>	Threatened

## Fishes

NAME	STATUS
<b>Delta Smelt</b> <i>Hypomesus transpacificus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a>	Threatened
<b>Tidewater Goby</b> <i>Eucyclogobius newberryi</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/57">https://ecos.fws.gov/ecp/species/57</a>	Endangered

## Insects

NAME	STATUS
<b>San Bruno Elfin Butterfly</b> <i>Callophrys mossii bayensis</i> There is <b>proposed</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/3394">https://ecos.fws.gov/ecp/species/3394</a>	Endangered

## Crustaceans

NAME	STATUS
<b>California Freshwater Shrimp</b> <i>Syncaris pacifica</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/7903">https://ecos.fws.gov/ecp/species/7903</a>	Endangered

## Flowering Plants

NAME	STATUS
<b>Marin Dwarf-flax</b> <i>Hesperolinon congestum</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/5363">https://ecos.fws.gov/ecp/species/5363</a>	Threatened

## Critical habitats

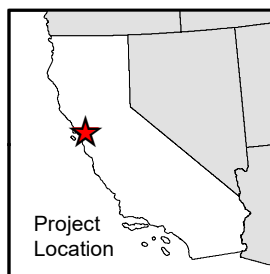
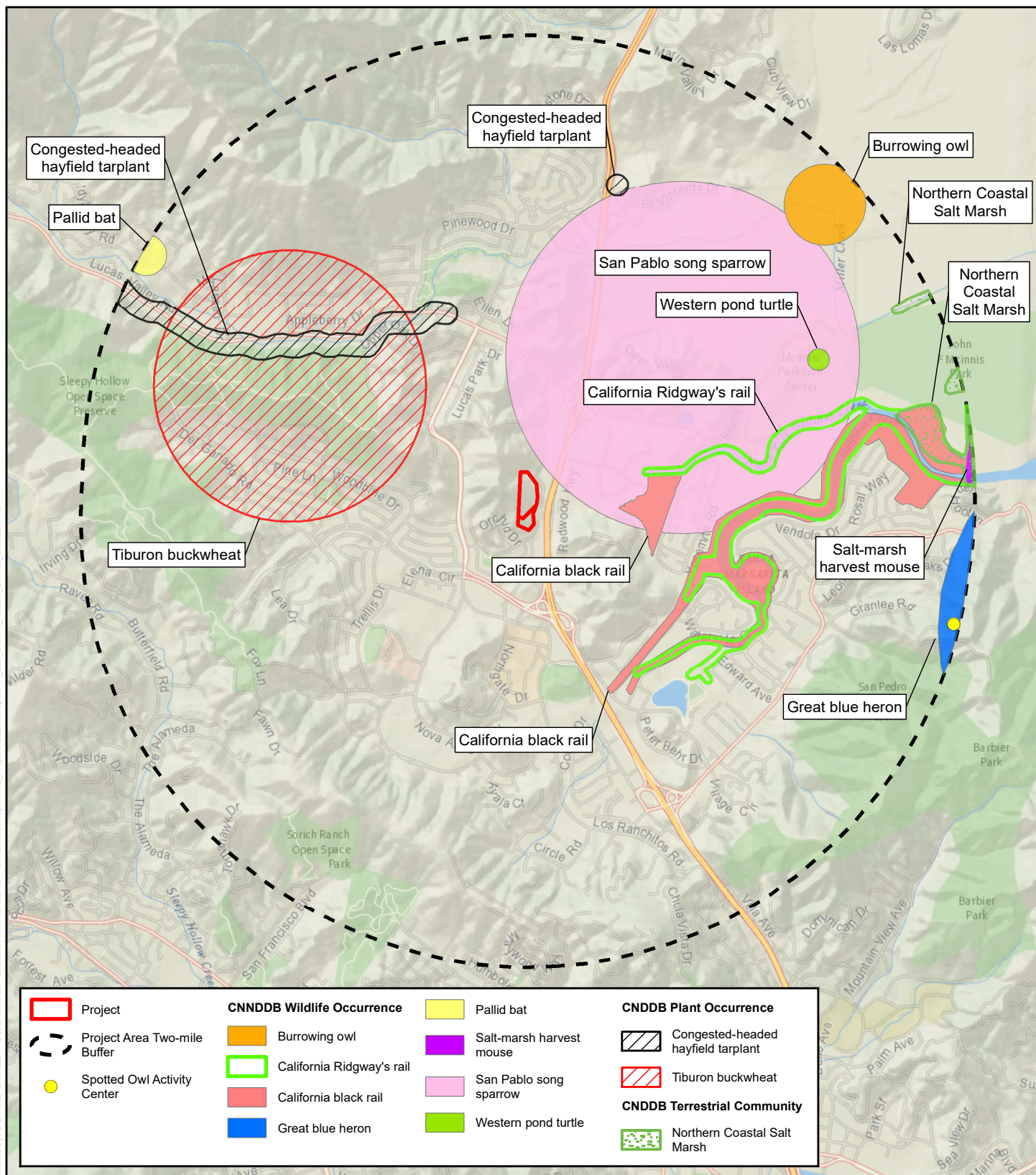
THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

---

**APPENDIX C**

**CALIFORNIA NATURAL DIVERSITY DATABASE (CNDDDB) MAP, 2-MILE BUFFER**

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Source: CDFW CNDB (2020)

0 0.5 1 Mile

0 1 2 Kilometers

Scale 1:40,000

**CNDB Occurrences**  
Los Gamos Road Site Surveys  
Marin County, California

**KLEINFELDER**  
Bright People. Right Solutions.

**GANDA**  
GARCIA and ASSOCIATES



**APPENDIX D**  
**UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)**  
**CUSTOM SOIL RESOURCES REPORT**

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United States  
Department of  
Agriculture

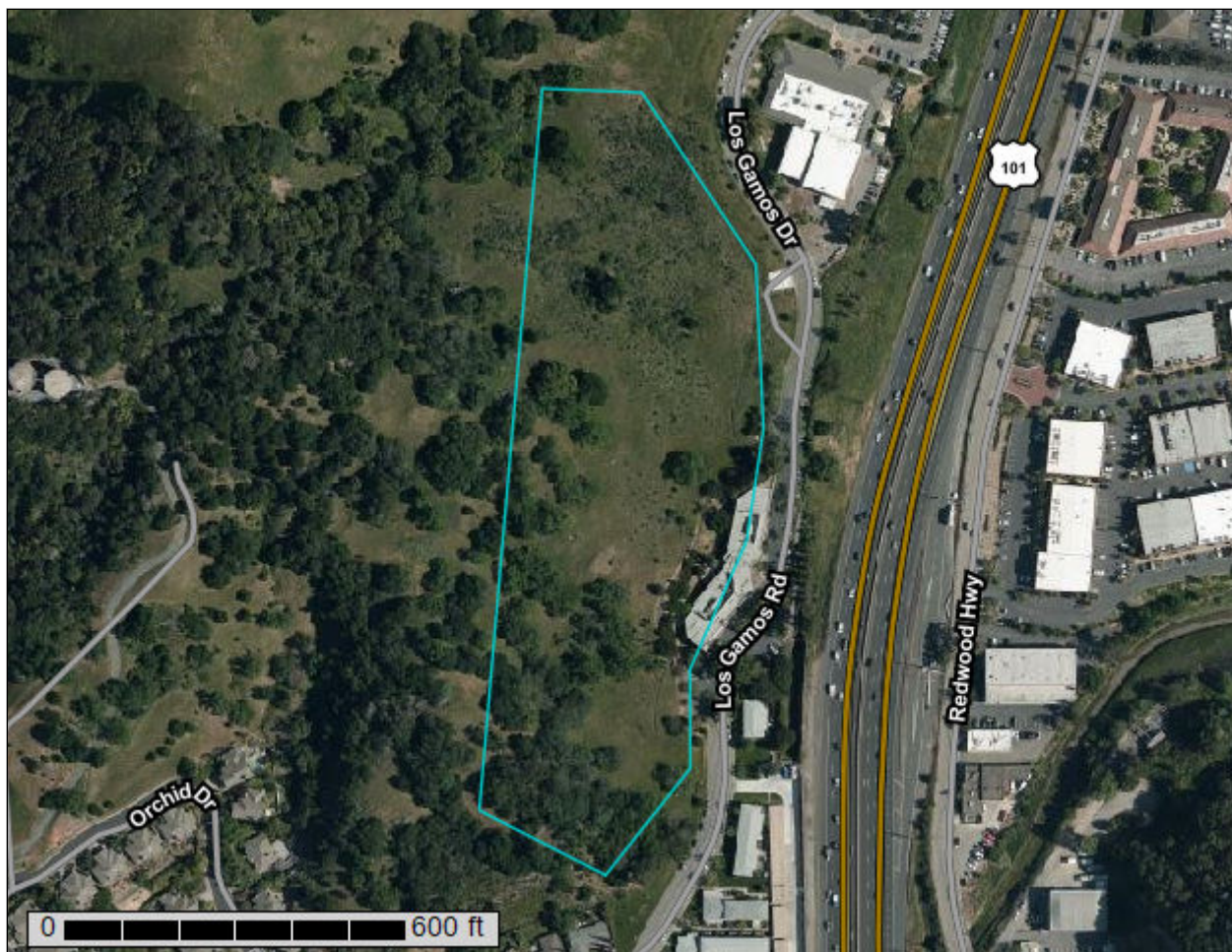
**NRCS**

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 **Marin County, California**

## **Los Gamos Neighborhood Development**



September 16, 2020

# Preface

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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](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.



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# How Soil Surveys Are Made

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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

## Custom Soil Resource Report

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



# Custom Soil Resource Report


## 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: Marin County, California  
Survey Area Data: Version 14, 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: Apr 22, 2019—Apr 25, 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
142	Los Osos-Bonnydoon complex, 30 to 50 percent slopes	11.3	100.0%
<b>Totals for Area of Interest</b>		<b>11.3</b>	<b>100.0%</b>

## 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.

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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.

## Marin County, California

### 142—Los Osos-Bonnydoon complex, 30 to 50 percent slopes

#### Map Unit Setting

*National map unit symbol:* hf2g  
*Elevation:* 200 to 1,200 feet  
*Mean annual precipitation:* 25 to 35 inches  
*Mean annual air temperature:* 59 to 63 degrees F  
*Frost-free period:* 270 to 320 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Los osos and similar soils:* 60 percent  
*Bonnydoon and similar soils:* 20 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Los Osos

##### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Residuum weathered from sandstone and shale

##### Typical profile

*H1 - 0 to 15 inches:* loam  
*H2 - 15 to 30 inches:* clay  
*H3 - 30 to 34 inches:* bedrock

##### Properties and qualities

*Slope:* 30 to 50 percent  
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water capacity:* Low (about 4.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 6e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* D  
*Ecological site:* R015XC032CA - FINE LOAMY CLAYPAN  
*Hydric soil rating:* No

#### Description of Bonnydoon

##### Setting

*Landform:* Hills



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*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Residuum weathered from shale, or sandstone

### Typical profile

*H1 - 0 to 11 inches:* gravelly loam  
*H2 - 11 to 15 inches:* bedrock

### Properties and qualities

*Slope:* 30 to 50 percent  
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock  
*Drainage class:* Somewhat excessively drained  
*Runoff class:* High  
*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:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water capacity:* Very low (about 1.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* 6e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* D  
*Ecological site:* R015XC037CA - SHALLOW GRAVELLY LOAM  
*Hydric soil rating:* No

### Minor Components

#### Rock outcrop

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Tocaloma

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Slumps

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Yorkville

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Unnamed, deep

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Slopes more than 50 percent

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No



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