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SUBJECT: General Biological Resources Assessment and Environmental Studies for the Southern Rubber Boa, Flying Squirrel and Bald Eagle for TTM 20022, Lots 1-6, Angelus Oaks, San Bernardino County, California

Mr. Kennedy:

Environmental Audit, Inc. (EAI) has prepared a general biological resources assessment, as well as specific studies for the Southern Rubber Boa, Flying Squirrel and Bald Eagle, for the development of six residential lots within Tentative Tract Map 20022 (Project), located in the unincorporated community of Angelus Oaks, San Bernardino County, California. The Project is approximately 15 acres in size. San Bernardino County is the lead agency under the California Environmental Quality Act (CEQA) for the Project.

I. PROJECT DESCRIPTION

The Project is located in the San Bernardino Mountains along Mountain Home Creek Road, Angelus Oaks, California (see Figure 1-1). The Project is located in Section 28, Township 1 North, Range 1 West, as shown on the USGS Big Bear Lake, California. 7.5 quadrangle map (see Figure 1-2). The Project includes the construction of six-single family residences on six lots (see Figure 1-3). Four of the lots are approximately one acre each and two of the lots are over five acres in size. Access to each lot will be from Mountain Home Creek Drive. Each lot will have a graded pad for each residence ranging in depth or cut from three to 14 feet depending on the slope. Each pad would have an adjoining infiltration pond for drainage and erosion control. These infiltration ponds would be two to three feet deep. Septic systems for the residences will be excavated to a depth of approximately six feet below ground surface. Utilities for water will be connected to a pre-existing main water line that runs down Mountain Home Creek Road. These lateral connections will be excavated to a depth of approximately three feet deep.

This report summarizes the biological resources present within the property boundaries (survey area) and the potential for the proposed project to impact sensitive biological resources.

II. SURVEY METHODS

A. Literature Review

A literature review was conducted prior to the field reconnaissance survey in order to identify sensitive biological resources within the project area. The literature review included the following research:

- Existing documentation and studies of the biological resources within the immediate project vicinity;
- The Federal Register listing package for each federally-listed endangered or threatened species potentially occurring within the project site;
- Literature pertaining to habitat requirements for special-status species potentially occurring on the project site; and
- The California Department of Fish and Wildlife (CDFW) information on special-status species potentially occurring on the site.

B. Reconnaissance Field Survey

Debra Stevens conducted a reconnaissance habitat assessment of the 15-acre property. Ms. Stevens is a qualified biologist and has conducted numerous biological surveys since 1982, and has extensive experience with the flora and fauna of Southern California, including the local forests.

The generalized reconnaissance survey of the project site was conducted on January 23, 2019 between 10:30 a.m. and 12:35 p.m. Conditions during the survey consisted of clear skies, temperatures between 52-55 degrees Fahrenheit, and winds from zero to 3 miles per hour. It had snowed in Angelus Oaks about a week prior to the survey, but most of the snow had melted and only a few patches of snow remained in the shaded areas. The survey was conducted on foot by walking meandering transects within the project site and recording all vegetation communities, plants, and wildlife observed. Wildlife species were detected during the survey by sight, sound, or other signs. The survey assessed the potential for special status species to occur within the project site.

Although the project site was surveyed, some sensitive resources may not have been detected because of the short duration and seasonal timing of the survey period. Some plants are dormant because of the winter season. Potentially occurring rare annual plants may not have been identifiable and any wildlife species that are not diurnal (e.g., nocturnal), secretive in their habits, or that utilize the site periodically for foraging may not have been detected during the survey.

III. PURPOSE AND REGULATORY REQUIREMENTS

The biological survey was completed at the request of San Bernardino County to process Tentative Tract Map 20022. The potential impacts to biological resources on the project site were analyzed based upon environmental policies and regulations including the Migratory Bird

Treaty Act (MBTA), federal Endangered Species (ESA), California Endangered Species Act (CESA), San Bernardino County Biotic Resources Overlay Map (Chapter 82.11 and Chapter 88.01), and the San Bernardino County General Plan, Section V Conservation.

Migratory Bird Treaty Act: The MBTA is a federal law that prohibits the take of nearly all bird species native to the United States and protects raptors (eagles, hawks, owls, and raptors) and their nest under both federal and state regulations. The MBTA makes it unlawful, unless permitted by regulations, to "pursue; hunt; take; capture; kill; attempt to take capture or kill; offer for sale; sell; offer to purchase; purchase; deliver for shipment; ship; cause to be shipped; deliver for transportation; transport; cause to be transported; carry or cause to be carried by any means whatever; receive for shipment, transportation, or carriage; or export, at any time or in any manner, any migratory bird for the protection of migratory birds or any part, nest or egg of any such bird." (16 USC §703-711). Nesting Bird Protection is provided under state regulations (California Fish and Game Code §§2502, 2502.5 and 2513) that provide further protection of birds-of-prey including their eggs and nests, and limits construction-related disturbance during the breeding season. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" under California regulations.

Federal Endangered Species Act: The Endangered Species Act (ESA) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are the U.S. Fish and Wildlife Service (USFWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA). The FWS maintains a worldwide list of endangered species. Species include birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees.

The law requires federal agencies, in consultation with the USFWS and/or the NOAA Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife. Likewise, import, export, interstate, and foreign commerce of listed species are all generally prohibited.

California Endangered Species Act (CESA): CESA declares that "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved." In California, the Department of Fish and Wildlife (CDFW) oversees CESA and makes sure that citizens are following laws/regulations that are in place. CESA prohibits the take of any species of wildlife designated by the CDFW as endangered, threatened, or candidate species. CDFW may authorize the take of any such species if certain conditions are met. CDFW also surveys species in the wild and determines which species qualify to be considered rare, endangered or threatened. The CDFW issues citation to violators, fines of up to $50,000 and/or one year imprisonment for crimes involving endangered species, and fines of up to $25,000 and/or six months imprisonment for crimes involving threatened species.

Jurisdictional Waters: In addition to potential impacts to designated critical habitats and special status species, potential impacts to jurisdictional waters must be considered. Impacts to jurisdictional waters typically require regulatory approvals from one or more of the following agencies: U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or CDFW.

San Bernardino County: The property occurs within the Biotic Resources Overlay Zone of San Bernardino County. The Overlay Zone is established by Sections 82.01.020 (Land Use Plan and Land Use Zoning Districts) and 82.01.030 (Overlays) implements General Plan policies regarding protection and conservation of beneficial rare and endangered plants and animal resources and their habitats, which have been identified within unincorporated areas of the County. When proposing development within the biotic Resources Overlay Zone, the project proponent must prepare a biotic resources report that identifies all biotic resources located on the site and those on adjacent parcels that could be impacted by the project. The report must also include mitigation measures designed to reduce or eliminate impacts to identified resources. This Biological Resources Assessment Report has been prepared to meet those requirements.

IV. SURVEY RESULTS

The approximately 15-acre site is located within the community of Angelus Oaks in the San Bernardino National Forest, adjacent to State Route 38. The project site is located on the west side of San Bernardino Peak and on the east side of Constance Peak. Elevation on-site ranges from approximately 5,750 feet above mean sea level (amsl) in the vicinity of Lot 1 to a high of approximately 5,950 feet amsl along the northern portions of Lots 5 and 6. Therefore, the site slopes from west to east. All lots are accessed from Mountain Home Creek Road.

The lots are undeveloped and support native vegetation. The exception is that the remains of an old wooden building are located on Lot 1 (see Site Photos). The project site is bounded by undeveloped land owned by the U.S. Forest Service west and north of Lots 5 and 6. Private homes are located east and adjacent to Lot 5 and southwest and adjacent to Lot 4. Homes that are part of the Angelus Oaks community are located south of the project site along Mountain Home Creek Road, as well as other roads including Robin Oak Drive, Lake Drive, and Tripp Lane. Shadow Lake is located in the southern portion of the community and flows into Mountain Home Creek. The expected location of the building pads within the proposed Tentative Tract Map No. 20022 are shown on Figure 1-3.

A. Vegetation Communities

The 15-acre project site is predominately Mixed Oak/Coniferous Forest which contains a diversity of oak and conifer species. The dominant tree species found at the site include Ponderosa pine (*Pinus ponderosa*), Jeffrey pine (*Pinus jeffrey*), White fir (*Abies concolor*), black oak (*Quercus kelloggii*), and Canyon live oak (*Quercus chrysolepis*). Lots 1 through 4 were generally covered with vegetation associated with the Mixed Oak/Coniferous Forest. The understory of this habitat type included sagebrush scrub, as well as a number of immature trees. Approximately 12.34 acres of the site consists of Mixed Oak/Coniferous Forest habitat.

The vegetation in Lots 5-6 included dense patches of trees associated with the Mixed Oak/Coniferous Forest along the upper slopes, but also some open areas. The open portion of Lots 5 and 6 adjacent to Mountain Home Creek Road was dominated by big sagebrush scrub (*Artemisia tridentate*) and Manzanita. Approximately 2.66 acres of the project site consists of Big Sagebrush Scrub (see Figure 1-4). Oak scrub, oak trees and some young pine trees were located adjacent to the big sagebrush, along Mountain Home Creek Road.

The plants identified during the site survey are listed in Table 1. Some of the plant species may include annuals that were not currently in bloom, and were not identifiable during the time of the survey as they are currently dormant.

TABLE 1

Plants Observed During Site Survey

Common Name	Scientific Name
Abies concolor	White Fir
Arctostaphylos glandulosa	Manzanita
Artemisia californica	California Sage
Bromus sp.	Brome grass
Eriogonum fasciculatum	California buckwheat
Phoradendron villosum	Mistletoe
Pinus jeffreyi	Jeffrey pine
Pinus ponderosa	Ponderosa pine
Quercus berberidifolia	Scrub oak
Quercus chrysolepis	Canyon live oak
Quercus kelloggii	California black oak

B. General Wildlife Observations

Wildlife species observed during the biological survey included acorn woodpecker (*Melanerpes formicivorus*) and California scrub jay (*Aphelocoma californica*). These species are common to the mixed oak/conifer habitat. The project site contains 15 acres of mostly native habitat that can be used by nesting birds or raptors.

V. SPECIAL-STATUS WILDLIFE AND PLANT SPECIES

Special-status biological resources are those defined as follows: (1) species that have been given special recognition by federal, state or local conservation agencies and organizations due to limited, declining, or threatened populations sizes; (2) species and habitat types recognized by local and regional resource agencies as sensitive; (3) habitat areas or plant communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; and (4) wildlife corridors and habitat linkages.

A. Wildlife

Twenty-four special-status wildlife species were identified by the California Natural Diversity Database (CNDDB) search as potentially occurring within five miles of the project vicinity (see Table 2). No special-status wildlife species were detected during the survey. Several special-status species have the potential to occur at the project site. California species of concern do not have legal protection under ESA or CESA but are recognized as sensitive by CDFW and require an independent assessment to determine if project-related impacts would occur. The County has asked for more detailed studies on the listed southern rubber boa (*Charina umbratica*), San Bernardino Northern flying squirrel (*Glaucomus sabrinus californicus*), and the Bald Eagle (*Haliaeetus leucocephalus*) which are provided in Sections VII, VIII, and IX below.

TABLE 2

Special Status Wildlife Species Potential for Occurrence

Common Name (Scientific Name)	Status	Habitat	Potential for Occurrence
Birds			
Cooper's hawk (*Accipiter cooperii*)	SSC	Mixed deciduous forests and open woodlands	Not observed, potential to occur due to suitable nesting and foraging habitat present throughout the site
Long-eared owl (*Asio otus*)	SSC	Deciduous and coniferous forests adjacent to grasslands	Not observed, low potential to occur due to lack of suitable habitat.
Bald Eagle (*Haliaeetus leucocephalus*	SSC, BEPA	Uncommon resident forages over grassland and chaparral or sage scrub near water sources	Not observed and low potential due to lack of suitable habitat and water at the site.
Yellow warbler (*Dendroica petechial brewsteri*)	SSC	Dense shrubs near marshes and water courses	Not observed, low potential for occurrence due to lack of suitable habitat and water.
Southernwestern willow flycatcher (*Empidonax trailii extimus*)	FE, SE	Dense riparian and shrub communities associated with rivers and other wetlands	Not observed, low potential for occurrence due to lack of suitable habitat and water.
Yellow-breasted chat (*Ictera virens*)	SSC	Dense thickets and brush	Not observed, low potential for occurrence due to lack of suitable habitat.
Loggerhead Shrike (*Lanius lucovicianus*)	SSC	Grasslands, orchards, open areas with scattered trees, deserts	Not observed, low potential for occurrence due to lack of suitable habitat.
California spotted owl (*Strix occidentalis occidentalis*)	SSC, FSS	Closed canopy mature forests	Not observed, moderate potential for occurrence due to presence of mature canopy.
Reptiles and Amphibians			
Silvery legless lizard (*Anniella pulchra pulchra*)	SSC	Moist sandy loams near sparse vegetation	Not observed, low potential for occurrence due to lack of suitable habitat.
Coastal rosy boa (*Charina trivirgata*)	FSC, FSS	Chaparral and scrub habitats up to 6,700 feet	Not observed, low potential for occurrence due to lack of suitable habitat.
Southern rubber boa (*Charina umbratica*)	ST, FSS	Oak and conifer forests at elevations between 5,000 to 8,200 feet	Not observed, potential to occur due to available shelter under rocks, logs and leaf litter.
San Bernardino ringneck snake (*Diadophis punctatus modestus*)	FSC, FSS	Wide variety of habitats near streams up to 6,400 feet.	Not observed, low potential for occurrence due to lack of suitable habitat and no presence of water.
Large-blotched Ensatina Salamander (*Ensatina eschololtzii*)	FSS	Open woodlands dominated oak, pine and fir species	Not observed, potential to occur.
California mountain kingsnake (*Lampropeltis zonata*)	SSC	Chaparral, lower montane coniferous forest. Most common 3,000-4500 feet	Not observed, low potential to occur.

TABLE 2 (CONT.)

Common Name (Scientific Name)	Status	Habitat	Potential for Occurrence
Coast horned lizard (*Phrynosoma blainvillii*)	SSC, FSS	Open sandy areas with low vegetation	Not observed, low potential for occurrence due to lack of suitable habitat.
Mountain yellow-legged frog (*Rana muscosa*)	FE, SE	Mountain creeks, lakes, streams, and pools. Tadpoles require a permanent water habitat	Not observed, low potential for occurrence due to lack of suitable habitat and no continuous water source.
Two-striped garter snake (*Thamnophis hammondii*)	SSC, FSS	Along streams bordered by riparian growth.	Not observed, low potential for occurrence due to lack of suitable habitat and limited water.
Mammals			
Pallid bat (*Antrozous pallidus*)	SSC	Found throughout California in forested regions and brushy areas; roosts in buildings, trees, and crevices in cliffs	Not observed, low potential for occurrence due to lack of suitable habitat for roosting.
Townsend's big-eared bat (*Corynorhinus townsendii*)	FSC,SSC, FSS	Humid coastal regions; roosts in mines, caves and old buildings; utilizes a variety of habitats including oak woodlands, arid grasslands, and deserts.	Not observed, low potential for occurrence due to lack of suitable habitat for roosting.
Greater western mastiff bat (*Eumops perotis californicus*)	FSC, SSC	Rocky areas within open shrub/grassland and cultivated fields, chaparral and chaparral/oak interfaces.	Not observed, low potential for occurrence due to lack of suitable habitat.
San Bernardino northern flying squirrel (*Glaucomys sabrinus californicus*)	SSC, FSS	Coniferous forests and mixed coniferous forests from 5,000 to 8,000 feet	Not observed, moderate potential to occur.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	SSC	Rocky areas with relatively high cliffs, usually using rock crevices for roosting	Not observed, low potential for occurrence due to lack of suitable habitat.
Lodgepole chipmunk (*Tamias speciosus*)	SSC	Open-canopy forest of mixed conifer, Jeffrey pines, lodgepole and limber pine, and chaparral.	Not observed, moderate potential to occur.
Fish			
Unarmored three-spined stickleback (*Gasterosteus aculeatus williamsoni*)	FE, SE	Permanent water such as lakes, ponds, ditches and rivers	Not observed, low potential for occurrence due to lack of suitable habitat and no continuous water source.

NOTES:
FE = Federally Endangered
FC = Federal Candidate for Listing
FT = Federally Threatened
FSC = Federal Species of Concern
FSPE = Federal proposed for listing as Endangered
SE = State Endangered
SSC = California Species of Special Concern
FSS = Forest Service Sensitive Species
CFP = California Fully Protected
BEPA = Bald and Golden Eagle Protection Act

B. Plants

Thirty-two special-status plant species were identified by the CNDDB search as potentially occurring within the project vicinity. No special-status species were detected during the survey. Table 3 identifies special-status plant species that may occur within the project vicinity.

TABLE 3

Special Status Plant Species Potential for Occurrence

Common Name (Scientific Name)	Status	Habitat	Potential for Occurrence
Cushberry milk-vetch (*Astragulus albens*)	FE, CRPR 1B	Carbonate soils with scrub and dwarf woodland with open canopies	Not observed, not expected due to a lack of carbonate soils.
San Bernardino milk-vetch (*Astragalus bernardinus*)	CRPR 1B	Stony washes, pinyon and juniper woodlands	Not observed, not expected due to a lack of suitable habitat.
Big Bear Valley milk-vetch (*Astragalus lentiginosus var. sierra*)	SRPR 1B	Sagebrush scrub	Not observed, not expected due to a lack of suitable habitat.
Big Bear Valley woollypod (*Astragalus leucolobus*)	CRPR 1B	Gravelly or rocky desert scrub, meadows, pinyon an djuniper woodland, upper montane coniferous forest	Not observed, not expected due to a lack of suitable habitat.
Pinyon rockcress (*Boechera dispar*)	CRPR 2	Joshua tree woodland, desert scrub, pinyon and juniper woodlands	Not observed, not expected due to a lack of suitable habitat.
Shockley's rockcress (*Boechera shockleyi*)	CRPR 2	Pinyon and juniper woodlands	Not observed, not expected due to a lack of suitable habitat.
Palmer's mariposa lily (*Calochortus palmeri*)	CRPR 1B	Meadows and moist habitats	Not observed, not expected due to a lack of suitable habitat.
Western sedge (*Carex occidentalis*)	CRPR 2	Lower montane coniferous forest, and meadows and seeps	Not observed, not expected due to a lack of suitable habitat.
Ash-gray paintbrush (*Castilleja cinerea*)	FT, DRPR 1B	Clay opening in desert scrub, pinon-juniper woodland, and coniferous forest above 5900 feet	Not observed, not expected due to a lack of clay soils onsite.
San Bernardino Mt. owl's clover (Castilleja lasioryncha)	CRPR 1B	Meadow, yellow-pine forests	Not observed, not expected due to a lack of suitable habitat.
Big Bear Valley sandwort (*Eremogane ursina*)	FT, CRPR 1B	Pebble plains, pinyon and juniper woodland in moist rocky areas	Not observed, not expected due to a lack of suitable habitat.
Parish's daisy (*Erigeron parishii*)	FT, CRPR 1B	Desert scrub and pinyon woodland, sandy washes	Not observed, not expected due to a lack of suitable habitat.
Southern mountain buckwheat (*Eriogonum kennedyi*)	FT, CRPR 1B	Stony, sage-brush covered pebble plains	Not observed, not expected due to a lack of suitable habitat.

TABLE 3

Common Name (Scientific Name)	Status	Habitat	Potential for Occurrence
Cushenbury ovalifolium (*Eriogonum ovalifolium*)	FE, CRPR 1B	Carbonite soils, pinyon and juniper woodlands.	Not observed, not expected due to a lack of suitable soils.
San Bernardino Mt. gilia (*Gilia leptantha*)	CRPR 1B	Sandy or gravelly soils, open pine forests	Not observed, moderate potential to occur.
Parish's alumroot (*Houchera parishii*)	CRPR 1B	Montane coniferous forests	Not observed, not expected due to a lack of suitable habitat.
Barton Flats horkelia (*Horkelia wilderae*)	CRPR 1B	Montane chaparral and woodlands	Not observed, not expected due to a lack of suitable habitat.
Silver-haired ivesia (*Ivesia argyrocoma*)	CRPR 1B	Dry meadows, 6500-7500 feet, pebble plains, montane coniferous forest	Not observed, not expected due to a lack of suitable habitat.
Short-separated lewisia (*Lewisia cotyledon*)	CRPR 1B	Rocky, lower montane forest	Not observed, not expected due to a lack of suitable habitat.
Lemon lily (*Lillium parryi*)	CRPR 1B	Meadows, streambanks and seeps within montane coniferous forests	Not observed, not expected due to a lack of suitable habitat.
San Bernardino Mt. monkey flowers (*Mimulus exiguous*)	CRPR 1B	Moist rocky habitat, mountain meadows	Not observed, not expected due to a lack of suitable habitat.
San Bernardino ragwort (*Packera vernardino*)	CRPR 1B	Pebble plans, pine forests	Not observed, not expected due to a lack of suitable habitat.
Parish's yampah (*Perideridia parishii*)	CRPR 2	Montane coniferous forest, meadows, and seeps	Not observed, not expected due to a lack of suitable habitat.
Big Bear Valley phlox (*Phlox dolichantha*)	CRPR 1B	Pebble plain in upper montane forest	Not observed, not expected due to a lack of suitable habitat.
San Bernardino bluegrass (*Poa atropurpurea*)	FE, CRPR 1B	Meadows and grassy, moist opening in pine forest	Not observed, low potential to occur due to lack of suitable habitat.
Plantain goldenweed (*Pyrrocoma uniflora*)	FE, CRPR 1B	Forest, meadows with alkali soils	Not observed, not expected due to a lack of suitable habitat.
Bear Valley checkerbloom (*Sidalcea malviflora*)	CRPR 1B	Lower montane coniferous forest	Not observed, not expected due to a lack of suitable habitat.
Bird-foot checkerbloom (*Sicalcea pedata*)	FE, SE, CRPR 1B	Pebble plains, meadows above 5250 feet	Not observed, not expected due to a lack of suitable habitat.
San Bernardino aster (*Symphyotrichum defoliatum*)	CRPR 1B	Grassland and meadows	Not observed, not expected due to a lack of suitable habitat.
California dandelion (*Taraxacum californicum*)	FE, CRPR 1B	Wetlands, moist meadows	Not observed, not expected due to a lack of suitable habitat.
Slender-petaled mustard (*Thelyopodium stenopetalum*)	FE, SE, CRPR 1B	Wetlands, meadows and seeps, lake shores	Not observed, not expected due to a lack of suitable habitat.

Note:
FE= Federally endangered
FT = Federally threatened
SE = State endangered
CRPR = California Native Plant Society Rare Plant Rank (1B = Rare throughout their range, and 2 = rare in California but common beyond boundaries of California).

C. Jurisdictional Wetlands and Waters

No CDFW jurisdictional streams or associated riparian habitat were observed to occur on the project site, In addition, no waters of the United States or wetlands occur on the project site. Further, no vernal pools are located on the project site. Further, no riparian or hydrophilic plants were identified at the project site.

D. Wildlife Corridors

Construction of the proposed project will not impede wildlife movement. The project is adjacent to Highway 38 and the existing residential community of Angelus Oaks and, therefore, not a wildlife corridor. The project would result in a minor increase in traffic that would not have a substantial effect on wildlife through the area.

VI. PROJECT IMPACT ANALYSIS

Based on the project's preliminary design, the proposed project would impact an estimated 0.45 acres of Oak/Coniferous Forest and 0.05 acres of Big Sagebrush Scrub. Table 4 details the project impacts to vegetation communities within the proposed project site.

TABLE 4

Potential Project Impacts

Vegetation Community	Acreage within Project Boundary	Estimated Impact Area (acres)
Oak/Coniferous Forest	12.34	0.45
Big Sagebrush Scrub	2.66	0.05

Note: See Figure 1-4 for locations.

Lot 1 would be located in the lower portion of the site within the Mixed Oak/Coniferous Forest habitat. The site has heavy vegetation which would need to be cleared and thinned out. Most of the trees that would need to be removed are oak or smaller pine trees.

Lot 2 would also be located within the Mixed Oak/Coniferous Forest habitat and would require clearing of mostly undergrowth and immature trees. Approximately 5-10 trees would need to be removed, with 2-3 mature trees potentially impacted.

Lot 3 would also be located within the Mixed Oak/Coniferous Forest habitat and would require clearing of mostly undergrowth and immature trees. Approximately 5-10 trees would need to be removed, with 2-3 mature trees potentially impacted.

Lot 4 would also be located within the Mixed Oak/Coniferous Forest habitat and would require clearing of undergrowth and trees. Approximately 5 trees would need to be removed, with 2-3 mature trees potentially impacted.

Lot 5 would be located within the Big Sagebrush Scrub habitat and would require clearing on bushes. No mature trees would need to be removed, but several immature trees may require removal.

Lot 6 would be located within the Mixed Oak/Coniferous Forest and Big Sagebrush Scrub habitat and would require clearing of bushes. No mature trees are expected to be removed, but several immature Jeffrey pines may require removal.

VII. SOUTHERN RUBBER BOA HABITAT ASSESSMENT

Southern Rubber Boa Biology: The southern rubber boa is a small snake reaching 14-25 inches in total length. Dorsal coloration ranges from tan to olive green in adults, while juveniles are pink to tan in color. The boa occupies oak-conifer and mixed-conifer forests from 5,000 to 8,200 feet in elevation where it uses fallen trees, rotting logs, rocks, and other debris as cover, and makes extensive use of rodent burrows. Its preferred habitat is damp woodland and forest, large grassy meadows, and moist sandy areas along rocky streams.

The southern rubber boa hibernates through the winter and females emerge from hibernation around April. Mating occurs as soon as the snakes merge from hibernation and continues through mid-May. By late August through September, female boas give birth to 2-8 live young, about seven inches in length in loose soils, often under rocks or other objects, or inside decaying logs. The snakes are mainly active in the evening or sometimes on warm, moist, overcast days. Because of its secrecy and the fact that it lives below ground most of the time, the southern rubber boa is seldom seen.

Southern Rubber Boa Survey Methodology: Prior to the site visit, maps, technical reports, and biological databases were reviewed to assess the likelihood of the Southern Rubber Boa inhabiting the site. Following the literature review, a single day habitat assessment was conducted by walking the site to record the presence or absence of suitable habitat, with specific observations made near and around logs.

Southern Rubber Boa Habitat: Soils on the project site are limited to Morical, very deep-Hecker families complex, 2 to 15 % slopes (BoD), and Morical, very deep-Hecker families complex, 15 to 30% slopes (BoE). Soils from the Morical complex are formed from alluvium weathered from granitic and metamorphic rocks. The Morical family consists of moderately deep to very deep, well drained fine-loamy, soils (see Figure 1-5).

Survey Results: A single-day habitat assessment of the 15-acre property was conducted on January 23, 2019. The purpose was to identify the potential for these species to occur on the project site. Based on a review of the literature and databases, and the observations made during the site visit, the site contains limited suitable habitat for the Southern Rubber Boa.

Discussion and Recommendations: Limited suitable habitat for the Southern Rubber Boa occurs within the 15-acre site and marginal habitat for this species occurs within the project

footprint intended for development. Most of the residential lots are located in open areas where minimal site clearing would be required. Several downed trees were located on Lots 1 through 4, indicating the potential for boa habitat, generally adjacent to the slopes next to Highway 38. Lots 5 and 6 are located on larger parcels with fairly steep slopes. The location for houses on Lots 5 and 6 did not include any downed trees/logs and available habitat for the Southern Rubber Boas was not observed. Downed trees were identified in areas of Lots 5 and 6 further up the slope.

Limited suitable habitat for the Southern Rubber Boas occurs within the 15-acre site and marginal habitat for this species may occur within the project footprint. It is recommended that preconstruction focused surveys be performed within the project footprint where suitable habitat is present (i.e., including rocks, rocky outcrops, fallen trees, rotting logs). The surveys should be completed within 30-days of any clearing, grubbing, or construction activities and would only be required in areas with suitable rubber boa habitat. The survey should be performed between April through October when the rubber boa is more likely to be active.

VIII. SAN BERNARDINO FLYING SQUIRREL HABITAT ASSESSMENT

In 2010, the Center for Biological Diversity petitioned the USFWS to list the San Bernardino flying squirrel as a threatened or endangered species under the ESA. In 2016, the USFWS determined that the San Bernardino flying squirrel did not warrant protection under ESA, citing that flying squirrels are abundant and that existing conservation measures were sufficient to protect the species. The CDFW lists the San Bernardino flying squirrel as a species of special concern.

San Bernardino Flying Squirrel Biology: The San Bernardino flying squirrel lives in high-elevations, mixed-conifer forest dominated by Jeffrey pin, white fir and black oak between 4,600 and 7,500 feet. Flying squirrels thrive in old growth or mature forests with big trees and closed-canopy cover, large snags (standing dead or dying tree) that provide nesting cavities, downed logs that foster the growth of truffles, understory cover that provides protection from predators, and close proximity to annual or ephemeral streams. Their diet largely consists of hypogeous fungi supplemented by secondary foods such as berries, seeds, nuts, and eggs.

The San Bernardino flying squirrel is restricted to the upper-elevation forests of San Bernardino, and geographic barriers prevent it from moving to other regions. It is isolated from flying squirrel populations to the north by 150 miles of Mojave Desert, to the west by the Cajon Pass between the San Gabriel and San Bernardino Mountains, and to the south by the Banning Pass between the San Bernardino and San Jacinto Mountains.

Survey Results: A single-day habitat assessment of the 15-acre property was conducted on January 23, 2019. The purpose was to identify the potential for these species to occur on the project site. The weather was 52-55 degrees Fahrenheit and sunny during the survey. The survey was intended to evaluate the suitability of the project site for the San Bernardino flying squirrel nesting and foraging habitat. The onsite visit was not intended to confirm occupancy or temporary use for nesting, dispersal or foraging behavior. Specific site features evaluated were

dominant tree species present, canopy close, duff (detritus) layers, presence of large snags, presence of coarse woody debris, cavity nesting sites, and site proximity to annual or ephemeral water sources.

Historic sightings confirmed the presence of the flying squirrels within about 1 mile of the site at elevations ranging from 5,800 feet to 7,600 feet. The project site elevation is within the reported range of suitable habitat.

There were no observations of the San Bernardino flying squirrel during the site visit. Multiple habitat features were observed that could provide low quality foraging habitat in the vicinity of Lots 1 through 4 and the upper portions of Lots 5 and 6. Habitat in Lots 1 through 4 contained a number of mature trees, canopy cover, and several large snags. Lots 5 and 6 do not have a continuous canopy adjacent to Mountain Home Creek Road, in the vicinity of the proposed housing development areas, although the mature trees, a continuous canopy and large snags were observed in the upper portions of the slopes along Lots 5 and 6. No annual or ephemeral water sources were located within the project area. A dense understory was only observed on Lot 1 and a portion of Lot 2.

Discussion and Recommendations: Limited suitable habitat (mature trees and canopy cover) for the flying squirrel is found in Lots 1 through 4 and the upper slopes of Lots 5 and 6. Mature trees and canopy cover is provided on Lots 1 through 4. However, Lots 1 and 4 are located adjacent to Highway 38 (to the east), Mountain Home Creek Drive (to the west), and other residents (to the south) which limits the use of Lots 1 through 4 for suitable habitat as there is little connection to mature trees and canopy cover on adjacent properties. The upper slopes of Lots 5 and 6 provides suitable habitat with snags, mature trees and canopy cover, which is located adjacent to the San Bernardino National Forest and undeveloped, natural lands. The proposed development locations on Lots 5 and 6 are in the lower portions of the property, in relatively open locations adjacent to Mountain Home Creek Drive, where there are no mature trees and development of these lots would not impact flying squirrel habitat.

There is little reported or published information specifically addressing the habitat needs and rigorous survey methods for the San Bernardino flying squirrel. Given the results of this habitat assessment and the available technical literature, the following mitigation measures are recommended to minimize impact to the San Bernardino flying squirrels.

- Minimize the removal of standing snags and large trees, which provide structural complexity and potential nesting habitat.
- Prioritize the retention of large trees and snags with visible potential cavity nesting structures, which are associated with higher densities of flying squirrels.
- Prior to the removal of snags or large trees, conduct a preconstruction site survey to determine if the trees are is used by flying squirrels.

IX. BALD EAGLE HABITAT ASSESSMENT

The Bald Eagle (*Halieaeetus leucocephalus*) was added to the Federal list of endangered species in 1967, and to the California list of endangered species in in 1971. The USFWS removed the bald eagle from the list of threatened and endangered species in August 8, 2007, but it remains endangered and fully protect in California. Although the USFWS removed the bald eagle from endangered status, the bird is still protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Both laws prohibit killing, selling or otherwise harming eagles, their nest, or eggs.

Bald Eagle Biology: Normally, the eagles build their large stick nests in the upper canopy of the tallest trees in the area. In most of California, the breeding season lasts from about January through July or August. Nests may reach 10 feet across and weigh 1,000 pounds. One or two eggs are laid in late winter or early spring, and incubation lasts about 35 days. Chicks fledge when they are 11 or 12 weeks old. In a matter of weeks after leaving the nest, many of the young birds strike out on their own and migrate hundreds of miles to the north. Some of these young birds reach northern and western Canada before returning to California a few months later. California's resident breeding pairs remain in California during winter, typically in the vicinity their nesting areas, except when winter conditions are too severe and they must move to lower elevations.

Hundreds of migratory bald eagles from nesting areas in northwestern states and provinces spend the winter in California, arriving during fall and early winter. These wintering birds may remain until February or March, or even into April. In late winter, some adult bald eagles in California have already started nesting, while other eagles have not yet returned to their nesting territories north or northeast. Some of the adults that winter in California have been tracked to their nesting territories in north-central Canada 2,000 miles away.

Bald Eagle Habitat: Bald eagles are found around estuaries, large lakes, reservoirs, rivers and some coastal areas, with an abundance of fish and are known to winter near Big Bear Lake The U.S. Forest Service conducts annual surveys for bald eagles in the Big Bear Valley. A survey of bald eagles conducted in December 2018 around Big Bear Lake identified a total of 11 eagles, 6 adults and 5 juveniles. In winter the birds congregate near open water in tall trees for spotting prey and night roost for shelter. Perches (tall trees) in the immediate vicinity of Big Bear Lake form the essential habitat for the bald eagle. Bald eagles prey on a variety of small animals, usually fish or waterfowl, rabbits, snakes and other small animals and eat carrion.

Survey Results: A single-day habitat assessment of the 15 acre property was conducted on January 23, 2019. The purpose was to identify the potential for these species to occur on the project site. The weather was 52-55 degrees Fahrenheit and sunny during the survey. The survey was intended to evaluate the presence of bald eagles at the site. These birds are known to winter near Big Bear Lake. The mature trees on Lots 1 – 6 were observed over a two hour period and no eagles or other raptors were identified during the site survey.

Discussion and Recommendations: The project site is located about five miles south of Big Bear Lake. The prime habitat for bald eagles is located adjacent to Big Bear Lake. However, there is suitable perching and foraging habitat for this species within the project vicinity. The site contains suitable habitat (mature trees) that could be used for foraging or nesting by bald eagles in Lots 1 through 4 and the upper slopes of Lots 5 and 6. Mature trees are provided on Lots 1 through 4. However, Lots 1 through 4 are located adjacent to Highway 38 (to the east), Mountain Home Creek Drive (to the west), and other residents (to the south) which limits the use of Lots 1 through 4 for suitable habitat due to routine traffic. The upper slopes of Lots 5 and 6 provides suitable habitat and is located adjacent to the San Bernardino National Forest and undeveloped, natural lands. The proposed development locations on Lots 5 and 6 are in the lower portions of the property, in relatively open locations adjacent to Mountain Home Creek Drive, where there are no mature trees and development of these lots would not require the removal of mature trees.

To protect bald eagles and other raptors, preconstruction Nesting Bird Surveys are recommend prior to construction activities that would require the removal of mature trees during the bird nesting season, typically January through July for eagles, and February through August for other raptors.

X. TREE ASSESSMENT

The U.S. Department of Agriculture has conducted aerial detection surveys in the San Bernardino, Los Angeles, and Cleveland National Forests to detect recently killed and damaged trees. Most of the mortality and damage is cause by insects and diseases. Recent tree mortality is mostly comprised of Jeffrey/Ponderosa pine, white fir, and mixed oak. Jeffrey, Coulter, and ponderosa pine mortality was detected on 5,900 acres and was primarily concentrated around the northern boundary of the San Gorgonio Wildness and the San Bernardino National Forest at light to moderate intensities (USDA, 2018).

Survey Methodology: A single-day habitat assessment of the 15 acre property was conducted on January 23, 2019. The purpose was to identify the types and health of the tree species on the project site. The weather was 52-55 degrees Fahrenheit and sunny during the survey.

Survey Results: The 15-acre project site is predominately Mixed Oak/Coniferous Forest which contains a diversity of oak and conifer species. Lots 1 through 4 and the upper portions of Lots 5 and 6 were generally covered with vegetation associated with the Mixed Oak/Coniferous Forest. The understory of this habitat type included sagebrush scrub, as well as a number of immature trees. Approximately 12.34 acres of the site consists of Mixed Oak/Coniferous Forest habitat. Approximately 2.66 acres of the project site consists of Big Sagebrush Scrub (see Figure 1-4). Oak scrub, oak trees and some young pine trees were located adjacent to the big sagebrush, along Mountain Home Creek Road.

The canopy cover is variable but is approximately 75-80 percent on Lots 1 through 4. Canopy cover is 35 to 50 percent on Lots 5 and 6. The primary tree species on the project site are the Jeffrey pine, Ponderosa pine, and live/black oak. White fir trees also contribute to the canopy

cover. A number of immature white fir trees were located on Lots 1 through 4. A number of immature Jeffrey and Ponderosa pine were identified on lower portion of Lots 5 and 6.

The site supports approximately 150 -200 trees. The exact number of trees that will be impacted is difficult to estimate until specific development plans are developed. Based on preliminary site information, an estimated 15-25 trees are expected to be directly impacted and 6-9 mature trees (over 30 feet, with diameter at 4.5 feet over 20 inches) (Jeffrey/Ponderosa Pine, and white fir) are estimated to be removed.

The trees on the site appear to be largely healthy with little evidence of disease. Several trees were found on Lots 2 and 3 that appear to have been cut down (see site photos). Several snags were identified on the slopes of Lots 2 and 3, adjacent to Highway 38. Additional snags were identified on Lots 5 and 6. The bark of trees was evaluated to identify holes, flaking, pitch tubes, boring activity, and wood dust. No such activity was identified. Most trees were healthy and green, with the exception of the perennials that were dormant.

The exception to the above is that the very crown of one Pine tree on Lot 3 was noted to have some browning vegetation, which may be top dieback, the cause of which is unknown. In addition, an acorn woodpecker (*Melanerpes formicivorus*) was identified in the vicinity of the tree, indicating the potential presence of insect infestation (most likely pine bark beetle). The tree is located near the location of the building pad for Lot 3 and would likely be one of the mature trees that need to be removed to develop a residential dwelling on the site.

In addition, several mature trees on Lots 1 through 4 would need to be removed to provide building pads for residents and the understory of the areas would need to be thinned for development but also to minimize the threat of wildlife damage to homes. The County Development Code Division 8 - Resource Management and Conservation, Chapter 88.01 – Plant Protection and Management provides regulations and guidelines for the management of plant resources in San Bernardino County. A Tree Permit is required from the County for the removal of any trees on the property.

To retain the value of the mixed oak/coniferous forest, the following is recommended:

- Prior to development of the site, a preconstruction survey should be completed to confirm the health of the trees within the proposed development areas of the lot, verify any diseased trees, treat diseased trees (if feasible) or remove them, and assure that the diseased dead trees are removed.
- Avoid damage during construction by erecting barriers around existing trees to be retained.
- Limit access to construction crews and allow only one route into and out from each Lot.
- Communicate the need to protect the trees and related habitat to the construction workers and identify the protected trees on construction specifications.

Prior to development of the site, a preconstruction survey should be completed to confirm the health of the trees within the proposed development areas of the lot, verify any diseased trees,

treat diseased trees (if feasible) or remove them, and assure that the diseased dead trees are removed.

XI. CONCLUSION AND SUMMARY

While the site has natural vegetation, no special status species of wildlife or vegetation were identified at the site. Although not likely, the site may provide habitat for several special status species including the Southern Rubber boa, the San Bernardino flying squirrel and the Bald eagle. The following are the recommendations from the report.

- It is recommended that preconstruction focused surveys be performed within the project footprint where suitable habitat for the Southern Rubber boa is present (i.e., including rocks, rocky outcrops, fallen trees, rotting logs). The surveys should be completed within 30-days of any clearing, grubbing, or construction activities and would only be required in areas with suitable rubber boa habitat. The survey should be performed between April through October when the rubber boa is more likely to be active.
- Minimize the removal of standing snags and large trees, which provide structural complexity and potential nesting habitat for the San Bernardino flying squirrel.
- Prioritize the retention of large trees and snags with visible potential cavity nesting structures, which are associated with higher densities of flying squirrels.
- Prior to the removal of snags or large trees, conduct a preconstruction site survey to determine if the trees are used by flying squirrels.
- Preconstruction Nesting Bird Surveys are recommend prior to construction activities that would require the removal of mature trees during the bird nesting season, typically January through July for eagles, and February through August for other raptors.
- Prior to development of the site, a preconstruction survey should be completed to confirm the health of the trees within the proposed development areas of the lot, verify any diseased trees, treat diseased trees (if feasible) or remove them, and assure that the diseased dead trees are removed.
- Avoid damage during construction by erecting barriers around existing trees to be retained.
- Limit access to construction crews and allow only one route into and out from each Lot.
- Communicate the need to protect the trees and related habitat to the construction workers and identify the protected trees on construction specifications.

Our professional services have been performed using that degree of knowledge, diligence, care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at this time. Topics not explicitly discussed within this report should not be assumed to have been investigated. EAI assumes that information provided by third parties is true, accurate and reliable. This report has been prepared for Highest and Best Use, LLC. Use of this report by any other party shall be at such party's sole risk. The findings and recommendations contained in this report are based on information contained and/or referenced herein, and our best judgment based on the time of year the study was completed. No other warranty, expressed or implied, is made as to the professional advice

contained in this report. It is recommended that the results of these surveys are confirmed during the spring time when the difference between dead and dormant plants are easier to determine.

Respectfully submitted,

ENVIRONMENTAL AUDIT, INC.

Debra Bright Stevens

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