

Attachment 1

Biological Resources Evaluation
for the
El Dorado Senior Resort Project
El Dorado County, CA

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30 August 2018

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El Dorado Senior Resort Project

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I. SUMMARY OF FINDINGS AND CONCLUSIONS

This biological resources evaluation (BRE) was prepared for the El Dorado Senior Resort Project located in the unincorporated community of Diamond Springs in El Dorado County, CA. The approximately 8.18-acre Biological Study Area (BSA) consists mostly of blue oak woodland, and California annual grassland. There are no wetlands or waters.

The BSA provides potential habitat for some special-status wildlife and plant species that are considered during project review under the California Environmental Quality Act (CEQA). The BSA provides nesting habitat for birds regulated by State Fish and Game Code and listed under the Federal Migratory Bird Treaty Act (MBTA). No special-status wildlife or active nests were found in the BSA; however, active nests could become established prior to construction.

The BSA provides potential habitat for three special-status plant species. The three species, Nissenan manzanita (*Arctostaphylos nissenana*), Parry's horkelia (*Horkelia parryi*), and oval-leaved viburnum (*Viburnum ellipticum*) are ranked by the California Native Plant Society (CNPS). A botanical survey was conducted according to California Department of Fish and Wildlife and U.S. Fish and Wildlife Service guidelines. None of the special-status plant species were found in the BSA.

The BSA contains oak woodlands that are regulated under County ordinance implementing the Oak Resources Management Plan (ORMP). The County considers impacts to oak resources during the CEQA process. Mitigation may consist of paying an in-lieu fee, or preserving or replacing oaks on- or off-site.

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II. INTRODUCTION

A. Purpose of Report

The purpose of this report is to document baseline biological resources in the BSA. This report may be used in support of permit applications and in the California Environmental Quality Act (CEQA) review process. Project design is in preparation and biological impacts will be prepared separately.

B. Project Location

The BSA is in Diamond Springs, an unincorporated community in El Dorado County, CA. The approximately 8.18acre BSA is assessor's parcel numbers (APN) 331-221-30 and -32. The BSA is on the Placerville U.S. Geological Survey topographic quad (T10N, R10E, Section 35; Figure 1), and is in the South Fork American hydrologic unit (18020129). Its centroid is 38.680648° north, 120.840485° west, UTM coordinate 687,843 meters E, 4,283,553 meters N, Zone 10S (WGS84). Figure 2 is an aerial photograph of the BSA and surrounding area.

El Dorado County parcel data indicates that the eastern corner of the BSA is located in County rare plant mitigation zone 2, which is defined as the El Dorado Irrigation District Service Area. The rest of the BSA is not within a rare plant mitigation zone. The BSA is outside the U.S. Fish and Wildlife Service (USFWS) recovery boundary for the Pine Hill plants (USFWS 2002b). The BSA is located outside the El Dorado County Important Biological Corridor (IBC) and Ecological Preserve (EP) overlay areas (El Dorado County 2004b).

C. Project Applicant

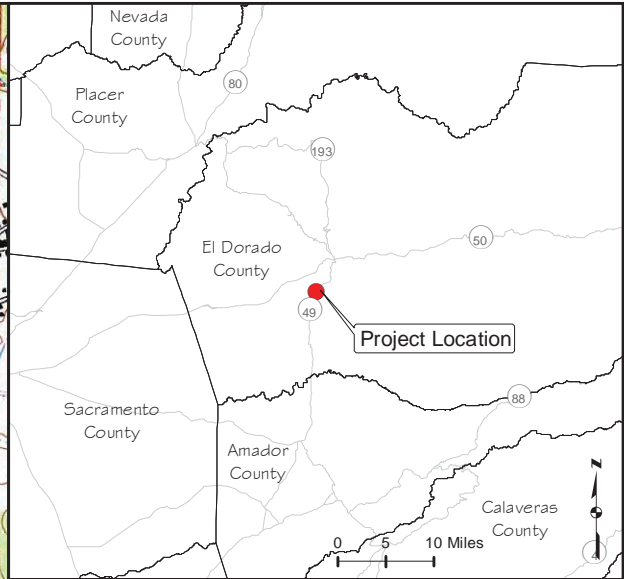
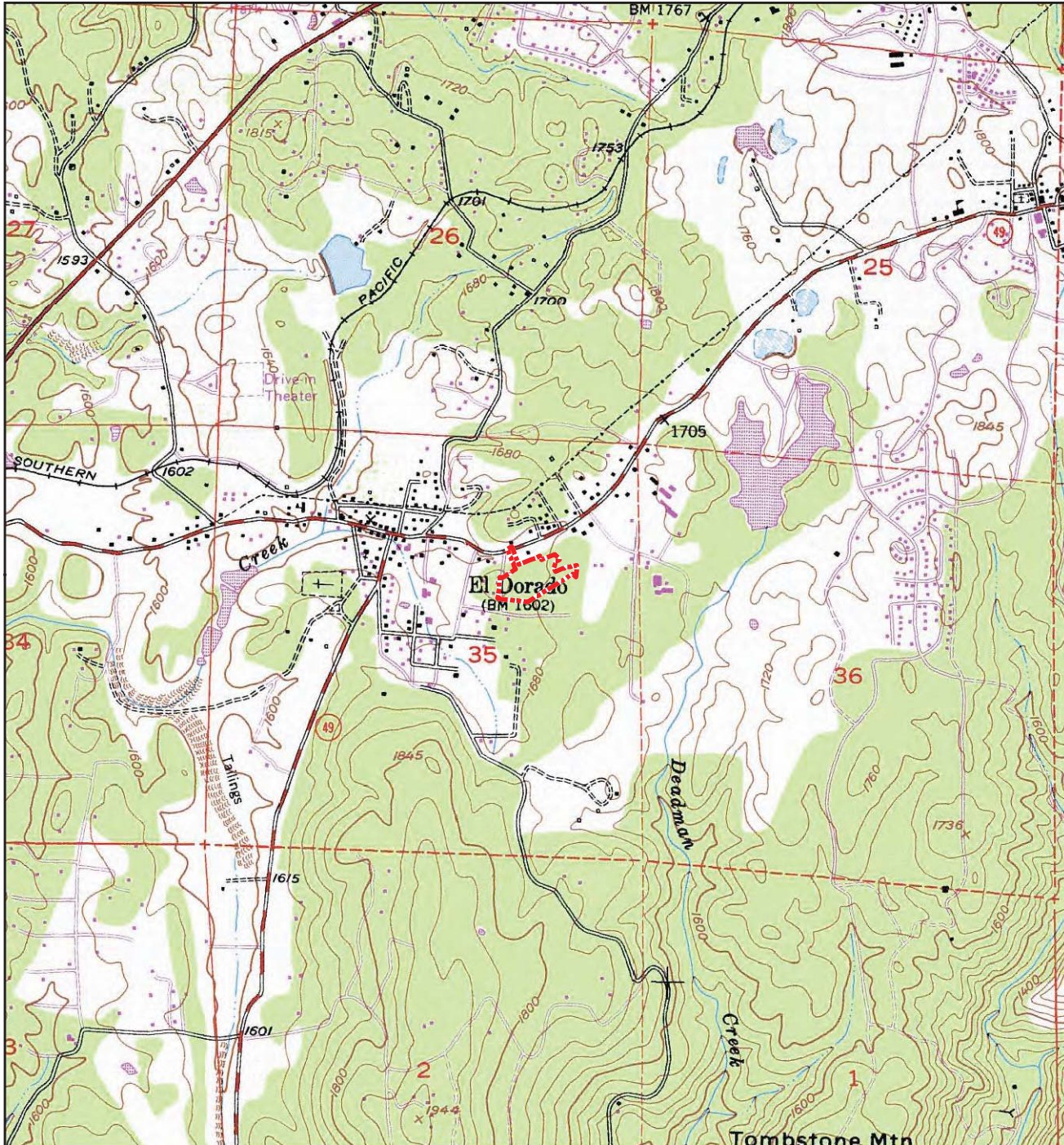
El Dorado Senior Housing, LLC
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Phone: 925/ 984-1222

D. Project Description

The project intends to design a senior housing development at the site. Project design has not been finalized, and this report does not quantify impacts or propose mitigation.

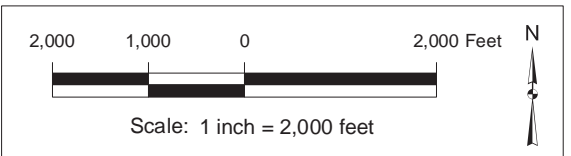
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El Dorado Senior Resort
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Figure 1. Location Map

 Project Location



Topo Basemap:
 Placerville Quad, CA 1973
 USGS 7.5' Quadrangle DRG
 CASIL California Digital Raster Graphics,
 7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
 o_nw0102.sid, o_nw0101.sid

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III. STUDY METHODS

A. Studies Conducted

An evaluation of biological resources was conducted to determine whether any special-status plant or wildlife species, their habitat, or sensitive habitats occur in the BSA. Data on known special-status species and habitats in the area was obtained from state and federal agencies. Maps and aerial photographs of the BSA and surrounding area were reviewed. A general biological survey, wetland reconnaissance survey, and appropriately-timed floristic botanical survey were conducted. The field surveys, map review, and a review of the biology of evaluated species and habitats were used to determine the special-status species and sensitive habitats that could occur in the BSA.

Special-status species in this report are those listed under the federal or state endangered species acts, under the California Native Plant Protection Act, as a California species of special concern or fully protected by the California Department of Fish and Wildlife (CDFW), that are Ranked 1 or 2 by the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2018), or are rare plants listed in the El Dorado County Ordinance Code §130.71.030. Special-status natural communities are waters, wetlands, riparian communities, any natural community ranked S1, S2, or S3 by CDFW (2018a), and any community identified as sensitive in the El Dorado County General Plan EIR (2004a).

B. Literature Search

Sycamore Environmental obtained a list from the U.S. Fish and Wildlife Service (USFWS) that identifies federal-listed species that could potentially occur in or be affected by a project in the BSA. The California Natural Diversity Database (CNDDDB) and the California Native Plant Society (CNPS) Inventory were queried for the Placerville quad and eight surrounding USGS quads to determine known records of special-status species that occur in the vicinity of the BSA. The CNDDDB tracks some species that have not been designated by CDFW as a California species of special concern and do not otherwise meet the criteria for special-status species in this BRE. These species are not evaluated in this BRE. The results of the database queries are in Appendix A.

C. Field Survey Methods

1. Survey History, Dates, and Personnel

Fieldwork for this BRE was conducted by Chuck Hughes, M.S., and Nicole (Desideri) Ibañez on 20 June 2018.

2. Precipitation Conditions

Historic average precipitation for the nearby Placerville gauge from 1 July through 20 June is 37.97 inches (CDEC 2018). From 1 July 2017 through 20 June 2018, the Placerville

gauge reported 35.44 inches of precipitation. Precipitation for the rain-year at the time of the surveys was about 93% of normal at the nearby Placerville Gauge.

3. Biological Survey

The general biological survey consisted of walking through the BSA while assessing potential habitat for special-status species and sensitive communities. Wildlife species and vegetation communities were identified and recorded. A list of plant and wildlife species observed in the BSA is in Appendix C. Photographs of the BSA are in Appendix D.

4. Botanical Survey

The botanical survey followed the guidelines set forth by USFWS (1996) and CDFW (2018b). The June 2018 fieldwork was conducted during the published blooming period of special-status plants with potential to occur in the BSA, with the exception of Nissenan manzanita. Manzanitas generally bloom very early in the season, and the blooming period of Nissenan manzanita is February through March (CNPS 2018). However, Nissenan manzanita is best distinguished from the other manzanitas native to the area by bark characteristics, inflorescence bracts, and to a lesser extent by leaf size. The gray, shredding bark of Nissenan manzanita is clearly distinguishable from the red, smooth bark of the more common manzanitas native to the area. The botanical survey was conducted during the evident and identifiable period of Nissenan manzanita.

Systematic transects were walked throughout the BSA to search for all vascular plant species present. Frequent deviations were made from the transects to search areas of different microhabitat, areas that were more likely to support special-status plants, or identify additional plant species. Approximately 8 person-hours were spent in the field during the June 2018 surveys. An additional 1.5 person-hours were spent keying plants collected in the field. All vascular plants found in the BSA were identified to the taxonomic level necessary to determine legal status. A list of all vascular plants observed in the BSA is in Appendix C. Scientific nomenclature follows the Jepson Flora Project (2018), based on Baldwin et al. (2012).

D. Mapping

Aerial photographs acquired from ESRI ArcMap provided the base layer for Figures 2 and 4. Aerial photographs and field notes were used to estimate the boundaries of upland biological communities. Areas mapped as oak woodlands have a minimum of 10% cover of oak tree canopy, consistent with the County Oak Resources Management Plan (ORMP) adopted in 2017. Acreages were calculated using ArcMap functions.

E. Problems Encountered and Limitations That May Influence Results

This BRE is intended to identify baseline biological resources to support review of a project under the California Environmental Quality Act (CEQA). The surveys conducted for this

BRE are not intended to meet the documentation requirements of any published agency protocol or guideline surveys for special-status wildlife. A survey according to agency protocol for plants was conducted. No other problems or limitations were encountered during the fieldwork that would influence the results.

IV. ENVIRONMENTAL SETTING

The BSA is in the community of Diamond Springs in the foothills of the Sierra Nevada Mountains. The elevation ranges from approximately 1,660 to 1,710 feet. Most of the BSA is characterized by oak woodland, with a small patch of California annual grassland. The area surrounding the BSA consists of areas developed to residential and commercial uses, and undeveloped land with similar vegetation.

A. Soils

The primary component soils of mapping units in the BSA (Figure 3) are summarized below (NRCS 1974). Reported colors are for moist soil.

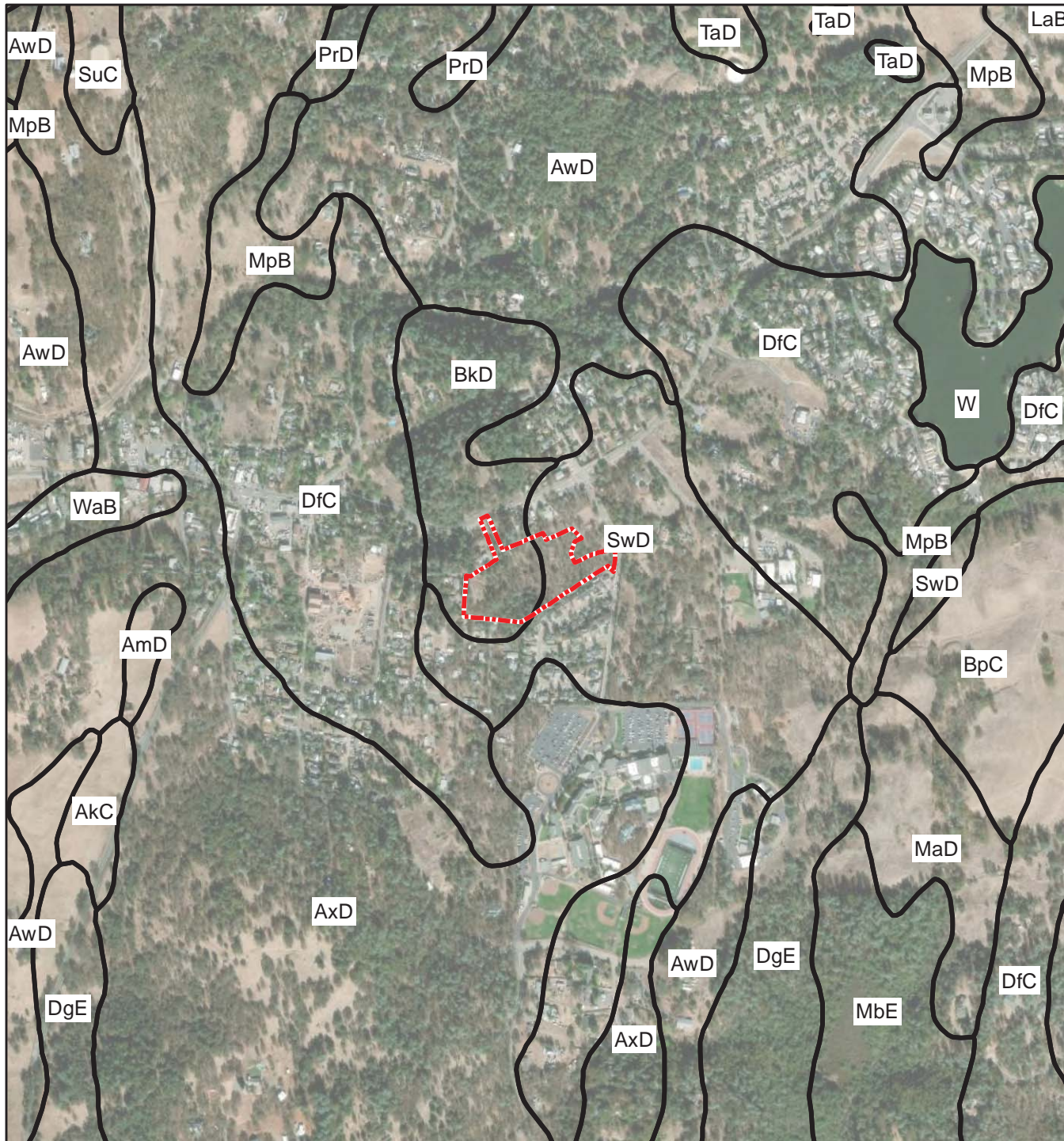
Boomer very rocky loam, 3 to 30% slopes:

The Boomer series consists of well-drained soils underlain by basic schists at a depth of 24 to 52 inches. A typical profile has dark reddish brown (5YR 3/4) gravelly loam from 0 to 13 inches, dark red (2.5YR 3/6) gravelly clay loam from 13 to 24 inches, dark red (2.5YR 3/6) and yellowish red (5YR 4/6) gravelly sandy clay loam from 24 to 37 inches, red (2.5YR 4/6) and yellowish red (5YR 4/6) very gravelly sandy clay loam from 37 to 52 inches, and well-fractured schist that has variable dark red (2.5YR 3/6), yellowish red (5YR 4/6), and strong brown (7.5YR 5/6) sandy clay loam in cracks below 52 inches. Surface runoff is medium, and the erosion hazard is slight to moderate. Boomer soils are used in woodland and range. Rock outcrops cover 5 to 25 percent of the surface.

Sobrante very rocky silt loam, 3 to 30% slopes:



The Sobrante series consists of well-drained soils that are underlain by fine-grained metamorphic rocks at a depth of 22 to 36 inches. A typical profile has dark reddish brown (5YR 3/4) silt loam from 0 to 5 inches, yellowish red (5YR 3/6) silt loam from 5 to 11 inches, dark red (2.5YR 3/6) light clay loam near silty clay loam from 11 to 24 inches, soft, well-weathered basic schist from 24 to 30 inches, and hard basic schist with pockets of slightly weathered material below 30 inches. Surface runoff is slow to medium and erosion hazard is slight to moderate. The soil profile has slight to moderate acidity in the top 5 inches. Sobrante very rocky silt loam is similar to the typical profile except that it is more sloping and rock outcrops make up 5 to 25 percent of the surface area.

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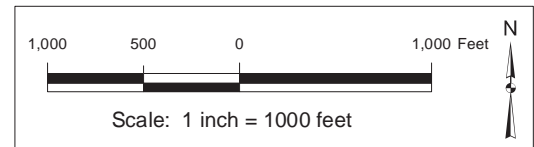
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Figure 3. Soils Map

-  Biological Study Area (BSA)
-  Soil Boundary

Soil Mapping Unit
Symbol Name

- BkD Boomer very rocky loam,
3 to 30 percent slopes
- SwD Sobrante very rocky silt loam
3 to 30 percent slopes



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Soil Survey Geographic (SSURGO) database for
 El Dorado Area, California, USDA, NRCS
 URL:<http://SoilDataMart.nrcs.usda.gov/>

Aerial Photograph: 7 November 2017
 NAIP2016 USDA FSA Imagery
 ESRI ArcGIS Basemap Layer

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B. Biological Communities

Biological communities are defined by species composition and relative abundance. The biological communities described below correlate where applicable with the California Natural Community List (CDFW 2018a) and the El Dorado County General Plan EIR (2004a). The communities were identified based on Sawyer et al. (2009). Communities are identified at the alliance level. The list of sensitive associations within each alliance was checked to see if any occur (CDFW 2018a). Biological communities are mapped on Figure 4 and listed in Table 1. Representative photographs of the BSA are in Appendix D. There are no wetlands or waters in the BSA.

Table 1. Biological Communities.

Biological Community Common Name (Scientific Name [CDFW Code] ¹)	El Dorado County Major Habitat Type ²	Area (ac)
Blue Oak Woodland (<i>Quercus douglasii</i> [71.020.02])	Blue Oak-Foothill Pine Woodland	7.69
California annual grassland (<i>Avena spp.</i> – <i>Bromus spp.</i> [42.027.00])	Annual grassland	0.49
Total:		8.18

¹ Sawyer et al. 2009; CDFW 2018a

² El Dorado County 2004a

1. Blue Oak Woodland

Blue oak woodland occurs across the majority of the BSA (Appendix D, photos 1, 5, 6). Blue oaks (*Quercus douglasii*) and foothill pines (*Pinus sabiniana*) are co-dominant in this community. Other trees in this community include interior live oak (*Q. wislizeni*), and Valley oak (*Q. lobata*). The canopy is mostly open, although some denser patches occur. The understory shrub layer is patchy, and where present is dominated by poison oak (*Toxicodendron diversilobum*). Other shrub layer associates include buckbrush (*Ceanothus cuneatus* var. *cuneatus*) and chamise (*Adenostoma fasciculatum*). The herb layer is dominated by native and nonnative grasses, such as blue wild rye (*Elymus glaucus*), bromes (*Bromus spp.*), fescues (*Festuca spp.*) and native and nonnative forbs.

Blue oak woodland is not a CDFW sensitive community (CDFW 2018a).

1. California annual grassland

There is a small opening in the blue oak woodland that is characterized by California annual grassland (Appendix D, photo 3). This community is dominated by nonnative grasses, including bromes, fescues, slender wild oat (*Avena barbata*), and bristly dogtail grass (*Cynosurus echinatus*), with some native grass associates such as blue wild rye. This community has no canopy or shrub layer. California annual grassland is dominated by nonnatives and is not a CDFW sensitive community (CDFW 2018a).


C. The Existing Level of Disturbance

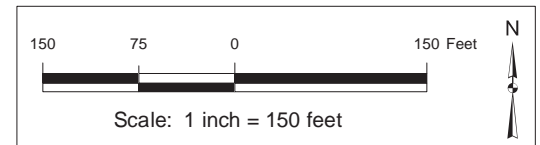
The northern end of the BSA has some disturbance related to its proximity to an adjacent residence. The northernmost extension of the BSA is an existing gravel driveway that connects the residence to Highway 49. Several tire tracks and short dirt roads occur throughout the northern half of the BSA. There are a couple of abandoned cars near the residence. The rest of the BSA is relatively undisturbed.

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Figure 4. Biological Resource Map



-  Biological Study Area (BSA)
-  Biological Community Boundary



Biological Community	Area (ac)
Blue Oak Woodland	7.69
California Annual Grassland	0.49
Total:	8.18



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Aerial Photograph: 7 November 2017
 NAIP2016 USDA FSA Imagery
 ESRI ArcGIS Basemap Layer

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V. BIOLOGICAL RESOURCES IN THE STUDY AREA

A. Determination of Special-Status Species in the Study Area

USFWS file data, CNDDDB/CNPS records, and field surveys were used to determine the special-status species that could occur in the BSA (Appendix A). A field survey was conducted to determine whether habitat for special-status species identified in the file data is present in the BSA. Special-status species for which suitable habitat is present in the BSA are listed in Table 2.

Table 2. Special-Status Species and Natural Communities.

Special-Status Species	Common Name	Federal Status ^a	State Status ^a & other codes ^b	Source ^c	Habitat Present? / Species Observed?
Birds					
Nesting Birds (MBTA or CA regulated)		--	--	3	Yes/Yes
Plants /CNPS List ^b					
<i>Arctostaphylos nissenana</i>	Nissenan manzanita	--	--/1B.2	2, 3	Yes/No
<i>Horkelia parryi</i>	Parry's horkelia	--	--/1B.2	2	Yes/No
<i>Viburnum ellipticum</i>	Oval-leaved viburnum	--	--/2B.3	2	Yes/No
Natural Communities					
Oak Woodlands and Trees		--	--	3	Yes/Yes

^a **Listing Status:** Federal status determined from USFWS letter. State status determined from CDFW (2018c, d, e, f). Codes used in table are: **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; * = Possibly extinct.

^b **Other Codes:** Other codes determined from USFWS letter; CDFW (2018c, d, e, f). Codes used in table are as follows:

SSC = CDFW Species of Special Concern; **FP** = CDFW Fully Protected; **Prot** = CDFW Protected; **CH** = Critical habitat designated.

CNPS List (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution

CNPS List Decimal Extensions: **.1** = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3** = Not very endangered in CA (< 20% of occurrences threatened or no current threats known).

^c **Source:** **1** = USFWS letter. **2** = CNDDDB. **3** = Observed or included by Sycamore Environmental.

B. Special-Status Species not in the Project Study Area

Special-status species for which suitable habitat is not present, or whose distributional limits preclude the possibility of their occurrence in the BSA, are not discussed in Section V of this report. An evaluation of these species is in Appendix B.

C. Evaluation of Special-Status Wildlife Species

1. Birds

Nesting Birds Listed Under the MBTA or Regulated by CA Fish and Game Code

California Fish and Game Code §3503 protects most birds and their nests. CA Fish and Game Code §3503.5 further protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). Birds of prey include raptors, falcons, and owls. The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) also protects most birds and their nests, including most non-migratory birds in California. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a ‘take’ of the species under federal law.

HABITAT PRESENT IN THE BSA: The BSA provides potential nesting habitat for birds listed under the MBTA or regulated by California Fish and Game Code. Depending on the species, birds may nest on trees, shrubs, in or on the ground, and on artificial structures such as buildings, poles, and signs.

DISCUSSION: Bird species observed in the BSA are identified in Appendix C. Active nests could become established prior to construction. The nesting season is typically considered to be 15 February to 31 August for most bird species. Avoidance of vegetation removal during that time period, and surveys and avoidance of nests during that time period, could avoid impacts to nesting birds.

D. Evaluation of Special-Status Plants

Nissenan Manzanita (*Arctostaphylos nissenana*)

HABITAT AND BIOLOGY: Nissenan manzanita is an evergreen shrub found on rocky soil and ridges in closed-cone coniferous forest, chaparral, or woodland habitats from about 1,475 to 5,400 feet. It typically blooms from February through March (CNPS 2018, Jepson 2018).

RANGE: Nissenan manzanita is known from three counties (Placer, El Dorado, and Tuolumne) in the northern Sierra Nevada Mountains and central Sierra Nevada foothills (CNPS 2018, Jepson 2018).

KNOWN RECORDS: There are 11 CNDDDB records in the 9-quad area centered at the BSA. North Fork Associates conducted a botanical survey in 2009 for a site approximately 1.2 miles northeast of the BSA. North Fork reported 62 Nissenan manzanita plants from this site. Sycamore Environmental visited the site briefly in 2013, made a collection of Nissenan manzanita that was deposited at the UC Davis herbarium, and became CNDDDB Occurrence 14. Sycamore Environmental conducted a botanical survey of the site in 2017 and counted a total of 88 Nissenan manzanita shrubs (Sycamore 2018). Nearly all of the Nissenan manzanitas on the site occur in areas that were graded for development prior to 1993. They

co-occur with *Arctostaphylos viscida*. CNDDDB Occurrence 1 is much larger and is 1.2 miles to the east of the BSA. All known Nissenan manzanita records are east of the BSA.

HABITAT PRESENT IN THE BSA: The oak woodland in the BSA provides marginal potential habitat for Nissenan manzanita. The BSA is near the edge of the range of Nissenan manzanita.

DISCUSSION: Nissenan manzanita was not observed in the BSA during the botanical surveys. While the survey was conducted outside of the blooming period, Nissenan manzanita is an evergreen shrub with bark characteristics that make it evident and identifiable year-round. The Sycamore biologists conducting the survey have identified Nissenan manzanita on a nearby site, outside of the blooming period, and are familiar with identifying the shrub in its vegetative state.

Parry's Horkelia (*Horkelia parryi*)

HABITAT AND BIOLOGY: Parry's horkelia is a perennial herb found in chaparral and cismontane woodland, especially of the Ione formation, from about 250 to 3,400 feet in elevation. It blooms April through September (CNPS 2018, Jepson 2018).

RANGE: Parry's horkelia is known from the northern and central Sierra Nevada foothills in Amador, Calaveras, El Dorado, Mariposa, and Tuolumne counties (CNPS 2018, Jepson 2018).

KNOWN RECORDS: There are 13 CNDDDB records in the 9-quad area centered on the BSA. The nearest record occurs approximately 3 miles northeast of the BSA. The record is a 1923 collection, with the exact location unknown and mapped as best guess in the vicinity of Placerville. The nearest detailed record occurs 9 miles east of the BSA in habitat described as a grassy site at the edge of chaparral and oak woodland. A total of 30 clumps of about 1-20 plants were observed in 1994; 20-30 clumps of 1 or more plants were observed in 2004; and one clump remained in 2015.

HABITAT PRESENT IN THE BSA: The oak woodland in the BSA provides marginal potential habitat for Parry's horkelia.

DISCUSSION: Parry's horkelia was not observed in the BSA during the botanical surveys conducted during the evident and identifiable period.

Oval-leaved Viburnum (*Viburnum ellipticum*)

HABITAT AND BIOLOGY: Oval-leaved viburnum is a deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forest from 700 to 4,600 feet (CNPS 2016). Jepson (2018) describes it as occurring above 980 feet in chaparral or yellow-pine forest, generally on north facing slopes. It blooms May through August (CNPS 2018, Jepson 2018).

RANGE: Known from the north coast, Klamath ranges, north Coast Ranges, Bay Area, and northern/central Sierra Nevada foothills (Jepson 2018).

KNOWN RECORDS: There is one CNDDDB record in the 9-quad area centered on the BSA. The record is a 1901 collection mapped approximately 3 miles northeast of the BSA. The exact location of the record is unknown, so it is mapped as best guess in the vicinity of Placerville.

HABITAT PRESENT IN THE BSA: The oak woodland in the BSA may provide potential habitat for oval-leaved viburnum.

DISCUSSION: Oval-leaved viburnum was not observed in the BSA during the botanical survey conducted during the evident and identifiable period.

E. Evaluation of Sensitive Natural Communities

Oak Woodlands and Trees

A total of 7.79 acres in the BSA is comprised of blue oak woodland. Areas mapped as oak woodland have at least 10% canopy cover, consistent with the Oak Resources Management Plan (ORMP) adopted by the County in October 2017. Several of the oak trees in the oak woodland qualify as heritage trees under the ORMP. Blue oak woodland is not classified as sensitive habitat in the El Dorado County General Plan EIR (2004a).

DISCUSSION: The ORMP regulates oak woodlands, individual oak trees outside of oak woodlands, and heritage trees. Oak woodlands, areas with at least 10% cover of oak canopy, are regulated by acreage. Individual oak trees outside oak woodlands, of at least six inches diameter at breast height (dbh), are regulated by size. Heritage oaks, of at least 36 inches dbh, are regulated by size at a higher mitigation ratio, both inside and outside of oak woodlands. Mitigation may occur based on on-site replacement, off-site replacement or preservation, or payment of an in-lieu fee. The ORMP requires an oak resources technical report that is being prepared separately.

VI. LITERATURE CITED

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PREPARERS

Chuck Hughes, M.S., Plant Biology, Michigan State University. Over 15 years of experience preparing biological/botanical resource evaluations, wetland delineations, arborist reports, impact analyses, and mitigation/restoration plans. He is a Professional Wetland Scientist (#2029), an ISA Certified Arborist (WE-6885A), holds a California Department of Fish and Wildlife Rare, Threatened and Endangered Plant Voucher Collecting Permit (2081(a)-14-072-V), is a Principal Scientific Investigator on the CDFW Scientific Collecting Permit (SC-7617), and is authorized individual on a USFWS recovery permit for listed vernal pool branchiopods (TE799564-4). His bachelor's degree from UC Davis is in environmental horticulture and urban forestry, with an emphasis in plant biodiversity.

Responsibilities: Fieldwork and report preparation.

Nicole Ibañez, B.S., Biological Sciences (concentration in Field and Wildlife Biology), California Polytechnic State University. Conducts monitoring, plant and wildlife surveys, and assists with preparation of Biological Resource Evaluations, Natural Environment Study reports, permit applications, and documents used in the CEQA/NEPA process. Serves as both field biologist and technical report writer, and conducts database research on special status species' biology, habitat and distribution. She prepares maps and figures for biological and permitting documents such as project location maps, aerial photograph exhibits, soils maps, biological resource maps, wetlands/waters delineation maps, tree location maps and other supporting graphics. She holds a California Department of Fish and Wildlife Rare, Threatened and Endangered Plant Voucher Collecting Permit (2081(a)-16-107-V) and is an authorized individual on the CDFW Scientific Collecting Permit (SC-7617).

Responsibilities: Fieldwork, report and figure preparation.

Jeffery Little, Vice President, Sycamore Environmental.

Responsibilities: Principal in charge.

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APPENDIX A.

Database Queries



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:

August 30, 2018

Consultation Code: 08ESMF00-2018-SLI-3095

Event Code: 08ESMF00-2018-E-09295

Project Name: El Dorado Senior Housing

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-3095

Event Code: 08ESMF00-2018-E-09295

Project Name: El Dorado Senior Housing

Project Type: DEVELOPMENT

Project Description: Senior Housing Community Development

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.679521422512465N120.84198639085494W>



Counties: El Dorado, CA

Endangered Species Act Species

There is a total of 3 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 Fisheries¹, 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.

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Flowering Plants

NAME	STATUS
Layne's Butterweed <i>Senecio layneae</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4062	Threatened

Critical habitats

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



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Placerville (3812067) OR Shingle Springs (3812068) OR Camino (3812066) OR Coloma (3812078) OR Garden Valley (3812077) OR Slate Mtn. (3812076) OR Aukum (3812056) OR Fiddletown (3812057) OR Latrobe (3812058))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter gentilis</i> northern goshawk	ABNKC12060	None	None	G5	S3	SSC
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
<i>Allium jepsonii</i> Jepson's onion	PMLIL022V0	None	None	G2	S2	1B.2
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Arctostaphylos nissenana</i> Nissenan manzanita	PDERI040V0	None	None	G1	S1	1B.2
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Calochortus clavatus var. avius</i> Pleasant Valley mariposa-lily	PMLIL0D095	None	None	G4T2	S2	1B.2
<i>Calystegia stebbinsii</i> Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1
<i>Calystegia vanzuukiae</i> Van Zuurk's morning-glory	PDCON040Q0	None	None	G2Q	S2	1B.3
<i>Carex cyrtostachya</i> Sierra arching sedge	PMCYP03M00	None	None	G2	S2	1B.2
<i>Carex xerophila</i> chaparral sedge	PMCYP03M60	None	None	G2	S2	1B.2
<i>Ceanothus roderickii</i> Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G1	S1	1B.1
<i>Central Valley Drainage Hardhead/Squawfish Stream</i> Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA	None	None	GNR	SNR	
<i>Central Valley Drainage Resident Rainbow Trout Stream</i> Central Valley Drainage Resident Rainbow Trout Stream	CARA2421CA	None	None	GNR	SNR	
<i>Chlorogalum grandiflorum</i> Red Hills soaproot	PMLIL0G020	None	None	G3	S3	1B.2
<i>Clarkia biloba ssp. brandegeeeae</i> Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2



Selected Elements by Scientific Name
 California Department of Fish and Wildlife
 California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Cosumnoperla hypocreana</i> Cosumnes stripetail	IIPLE23020	None	None	G2	S2	
<i>Crocانthemum suffrutescens</i> Bisbee Peak rush-rose	PDCIS020F0	None	None	G2?Q	S2?	3.2
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Erethizon dorsatum</i> North American porcupine	AMAFJ01010	None	None	G5	S3	
<i>Fremontodendron decumbens</i> Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1	1B.2
<i>Galium californicum ssp. sierrae</i> El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1	1B.2
<i>Horkelia parryi</i> Parry's horkelia	PDROS0W0C0	None	None	G2	S2	1B.2
<i>Lasionycteris noctivagans</i> silver-haired bat	AMACC02010	None	None	G5	S3S4	
<i>Myotis yumanensis</i> Yuma myotis	AMACC01020	None	None	G5	S4	
<i>Packera layneae</i> Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2	1B.2
<i>Pekania pennanti</i> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sacramento-San Joaquin Foothill/Valley Ephemeral Stream Sacramento-San Joaquin Foothill/Valley Ephemeral Stream	CARA2130CA	None	None	GNR	SNR	
<i>Strix nebulosa</i> great gray owl	ABNSB12040	None	Endangered	G5	S1	
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3
<i>Wyethia reticulata</i> El Dorado County mule ears	PDAST9X0D0	None	None	G2	S2	1B.2

Record Count: 37

Plant List

Inventory of Rare and Endangered Plants

16 matches found. [Click on scientific name for details](#)

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B], Found in Quads 3812078, 3812077, 3812076, 3812068, 3812067, 3812066, 3812058 3812057 and 3812056;

[Modify Search Criteria](#)
[Export to Excel](#)
[Modify Columns](#)
[Modify Sort](#)
[Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	Apr-Aug	1B.2	S2	G2
Arctostaphylos nissenana	Nissenan manzanita	Ericaceae	perennial evergreen shrub	Feb-Mar	1B.2	S1	G1
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	1B.2	S2	G4T2
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jul	1B.1	S1	G1
Calystegia vanzuukiae	Van Zuuk's morning-glory	Convolvulaceae	perennial rhizomatous herb	May-Aug	1B.3	S2	G2Q
Carex cyrtostachya	Sierra arching sedge	Cyperaceae	perennial herb	May-Aug	1B.2	S2	G2
Carex xerophila	chaparral sedge	Cyperaceae	perennial herb	Mar-Jun	1B.2	S2	G2
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	perennial evergreen shrub	Apr-Jun	1B.1	S1	G1
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	May-Jun	1B.2	S3	G3
Erigeron miser	starved daisy	Asteraceae	perennial herb	Jun-Oct	1B.3	S3?	G3?
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	perennial evergreen shrub	Apr-Jul	1B.2	S1	G1
Galium californicum ssp. sierrae	El Dorado bedstraw	Rubiaceae	perennial herb	May-Jun	1B.2	S1	G5T1
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.2	S2	G2
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	Apr-Aug	1B.2	S2	G2
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	2B.3	S3?	G4G5
Wyethia reticulata	El Dorado County mule ears	Asteraceae	perennial herb	Apr-Aug	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 29 June 2018].

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[California Natural Diversity Database](#)

[The Jepson Flora Project](#)

[The Consortium of California Herbaria](#)

[CalPhotos](#)

Questions and Comments

rareplants@cnps.org

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APPENDIX B.

Species Evaluated Table

Special-Status Species from USFWS Letter, CNDDDB Data, CNPS Data

Special-Status Species/ Common Name	Federal Status ^{a, b}	State Status ^{a, b}	Source ^c	Habitat Requirements	Potential to Occur in the BSA
Fish					
<i>Hypomesus transpacificus</i> Delta smelt	T, CH	E	1	Euryhaline (tolerant of a wide salinity range) species that spawns in freshwater dead-end sloughs and shallow edge-waters of channels of the Delta (USFWS 1994). Confined to the San Francisco Estuary, principally in the Delta and Suisun Bay. Currently found only from the San Pablo Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo cos. Can be washed into San Pablo Bay during high-outflow periods, but do not establish permanent populations there (Moyle 2002).	No. There is no suitable habitat. The BSA is not in critical habitat.
Amphibians					
<i>Rana boylei</i> Foothill yellow-legged frog	--	CT, SSC	2	Found in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types. Egg clusters are attached to gravel or rocks in moving water near stream margins. This species is rarely encountered (even on rainy nights) far from permanent water. Its elevation range extends from near sea level to 6,370 ft in the Sierra (CWHR 2018).	No. There is no suitable habitat in the BSA.
<i>Rana draytonii</i> California red-legged frog	T, CH	SSC	1, 2	Inhabits ponds, quiet pools of streams, marshes, and riparian areas with dense, shrubby, or emergent vegetation. Requires permanent or nearly permanent pools for larval development (CWHR 2018; USFWS 2010). May use ephemeral water bodies for breeding if permanent water is nearby (Thomson et al. 2016). The range of CA red-legged frog extends from near sea level to approximately 5,200 ft, though nearly all sightings have occurred below 3,500 ft. CA red-legged frog was probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002a).	No. There is no suitable habitat in the BSA.
Reptiles					
<i>Emys marmorata</i> Western pond turtle	--	SSC	2	Occurs in suitable aquatic habitat throughout CA, west of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries from near sea level to approximately 4,690 ft. Associated with permanent or nearly permanent water in a wide variety of habitats with basking sites such as submerged logs, rocks, mats of floating vegetation, or open mud banks (CWHR 2018).	No. There is no suitable habitat in the BSA.

Special-Status Species/ Common Name	Federal Status ^{a, b}	State Status ^{a, b}	Source ^c	Habitat Requirements	Potential to Occur in the BSA
<i>Phrynosoma blainvillii</i> Coast (California) horned lizard	--	SSC	2	Occurs in valley-foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grassland habitats, especially sandy areas, washes, flood plains and wind-blown deposits. Basks in the early morning (CWHR 2018). Needs loose or sandy soil for burrowing and reproduction. Needs open areas for thermoregulation and shrub cover or kangaroo rat burrows for refugia. Negatively associated with non-native Argentine ant (<i>Linepithema humile</i>) presence; positively associated with presence of native ants, and chaparral vegetation (Thomson et al. 2016). Occurs in the Sierra Nevada foothills from Butte Co. to Kern Co. and throughout the central and southern California coast. Found up to 4,000 ft in the northern end of its range and 6,000 ft in the southern end (CWHR 2018).	No. There is no suitable chaparral habitat in the BSA. Records from El Dorado County are in gabbroic chaparral.
Birds					
<i>Accipiter gentilis</i> Northern goshawk	--	SSC	2	Breeds in the North Coast Ranges, Sierra Nevada, Klamath, Cascade, and Warner Mountains. Also breeds in the Piños, San Jacinto, San Bernardino, and White Mtns. Remains yearlong in breeding areas as an uncommon resident. Prefers middle and higher elevations in mature, dense conifer forests. Habitat requirements include meadows and riparian habitat. Casual in winter along north coast, throughout foothills, and in northern deserts, where it may be found in pinyon-juniper and low-elevation riparian habitats. Usually nests near water on north slopes, in the densest parts of vegetation stands, staying close to openings (CWHR 2018). In the west side Ponderosa pine zone, northern goshawks are known to nest down to approximately 2,500 ft. Nest stands consistently have larger trees, greater canopy cover, and relatively more open understories than stands lacking nests (Shuford and Gardali 2008). Goshawks generally do not nest near areas of human habitation or paved roads (USFWS 2001).	No. There are no dense mature conifer groves. The BSA is below the nesting elevation range.
<i>Agelaius tricolor</i> Tricolored blackbird	--	CE/ SSC	2	Mostly a resident in California. Common locally throughout the Central Valley and in coastal districts from Sonoma Co. south. Breeds near freshwater, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, tall herbs, and wild rose. Highly colonial; nesting area must be large enough to support a minimum colony of about 50 pairs (CWHR 2018). Chooses areas with widespread water and large, thick patches of vegetation for colonies to reduce predation (Hamilton 2004). Nesting colonies are of concern to CDFW (2018c).	No. There is no suitable nesting habitat.
<i>Riparia riparia</i> Bank swallow	--	T	2	Found primarily west of CA deserts in riparian and other lowland habitats during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine textured sandy soils, into which it digs nesting holes. About 75% of the breeding population in CA occurs along banks of the Sacramento and Feather Rivers in the northern Central Valley. Other colonies are known from the central coast from Monterey to San Mateo cos., and in northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc cos. Breeding colonies can have between 10 and 1,500, but typically between 100 and 200, nesting pairs (CWHR 2018). Nesting sites are of concern to CDFW (2018c).	No. There is no suitable nesting habitat.

Special-Status Species/ Common Name	Federal Status ^{a, b}	State Status ^{a, b}	Source ^c	Habitat Requirements	Potential to Occur in the BSA
<i>Strix nebulosa</i> Great gray owl	--	E	2	Occurs between 4,500 and 7,500 ft in the Sierra Nevada in the vicinity of Quincy in Plumas Co. south to Yosemite. Occasionally reported in Northwestern CA in winter and in the Warner Mtns. in summer. Breeds in old-growth red fir, mixed conifer, and lodgepole pine habitats in the vicinity of wet meadows. Uses trees in dense forest stands for roosting cover and small trees and snags in or bordering meadows for hunting perches. Nests in large, broken-topped snags 25 to 72 ft above the ground. Often uses old hawk or eagle nests (CWHR 2018). Nesting sites are of concern to CDFW (2018c).	No. The BSA is below the elevation range. There is no old-growth coniferous forest suitable for nesting habitat.
Mammals					
<i>Pekania pennanti</i> Fisher – West Coast DPS	--	T/ SSC	2	Uncommon permanent resident of the Sierra Nevada, Cascades, Klamath Mountains, and the North Coast Ranges (CWHR 2018). Occurs above 3,200 ft in the Sierra Nevada and Cascades (Jameson and Peeters 2004). Today, fisher distribution in CA is represented by two populations: northwestern California and the southern Sierra Nevada. Fishers apparently no longer inhabit the area between the Pit River in the northern Sierra Nevada/Cascades to the Merced River in the southern Sierra Nevada; a separation of approximately 270 miles. There is little empirical evidence that fishers previously inhabited this gap in the Sierra Nevada (CDFW 2010). Occurs in intermediate- to large-stages of coniferous forest and deciduous-riparian habitat with high percent canopy closure. Canopy closure must be greater than 50% to be suitable habitat. Dens in a variety of protected cavities, brush piles, logs, and upturned trees. Hollow logs, trees, and snags are especially important. Mostly nocturnal and crepuscular, with some diurnal activity (CWHR 2018).	No. There is no mature conifer forest with >50% canopy cover. The BSA occurs below the elevation range.
<i>Antrozous pallidus</i> Pallid bat	--	SSC	2	Occupies a wide variety of habitats including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. The species is most common in open, dry habitats with rocky areas for roosting. It feeds on a wide variety of insects and arachnids, foraging over open ground, usually 1.6 to 8 ft above level ground. Day roosts in caves, crevices, mines, and occasionally buildings and in hollow trees. Roost must protect bats from high temperatures. Night roosts may be in more open sites, such as porches and open buildings. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Locally common in low elevations in CA, it occurs throughout CA except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County. It is a yearlong resident in most of the range (CHWR 2018).	No. There are no suitable rock outcrops/cliffs, or mature conifer forests likely to have suitable hollow trees.
Plants / CNPS ^d					
<i>Allium jepsonii</i> Jepson's onion	--	--/ 1B.2	2	Bulbiferous herb found in serpentine or volcanic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 984 to 4,331 ft. Known from Butte, El Dorado, Placer, and Tuolumne cos. Blooms April through August (Baldwin et al. 2012; CNPS 2018).	No. There are no serpentine or volcanic soils.

Special-Status Species/ Common Name	Federal Status ^{a, b}	State Status ^{a, b}	Source ^c	Habitat Requirements	Potential to Occur in the BSA
<i>Arctostaphylos nissenana</i> Nissenan manzanita	--	--/ 1B.2	2	Perennial evergreen shrub found on highly acidic rocky (slate and shale) soils. Often associated with closed-cone conifer forest and chaparral from about 1,475 to 5,400 ft (USFS 2009, CNPS 2018, Jepson 2018). Known from approximately 15 occurrences in Placer, El Dorado and Tuolumne cos. Blooms February through March (Baldwin et al. 2012; CNPS 2018).	Yes. See discussion.
<i>Calochortus clavatus</i> var. <i>avius</i> Pleasant Valley mariposa lily	--	--/1B.2	2	Perennial bulbiferous herb found on Josephine silt loam and volcanic soils in lower montane coniferous forests, from 1,000 to 5,900 ft (USFS 2009 and CNPS 2018). Known from Amador, Calaveras, El Dorado, and Placer cos. Presumed extirpated from Mariposa Co. Blooms May through July (CNPS 2018).	No. There is no suitable habitat and soil.
<i>Calystegia stebbinsii</i> Stebbins' morning-glory	E	E/ 1B.1	2	Perennial rhizomatous herb found in serpentine or gabbroic soils in openings in chaparral and cismontane woodland from 607 to 3,576 ft. Known from El Dorado and Nevada cos. Blooms April through July (Baldwin et al. 2012, CNPS 2018).	No. There are no suitable soils.
<i>Calystegia vanzuukiae</i> Van Zuuk's morning-glory	--	--/1B.3	2	Perennial rhizomatous herb found in gabbroic or serpentinite soils in chaparral and cismontane woodlands from 1,640 to 3,870 ft. Known only from the Central Sierra Nevada foothills, from El Dorado and Placer cos. Blooms May through August (CNPS 2018).	No. There are no suitable soils.
<i>Carex cyrtostachya</i> Sierra arching sedge	--	--/1B.2	2	Perennial herb found in mesic lower montane coniferous forest, meadows and seeps, marshes and swamps, and riparian forest margins from 2,000 to 4,460 ft. Known from Butte, El Dorado, and Yuba cos. Blooms May through August (CNPS 2018).	No. There is no suitable habitat.
<i>Carex xerophila</i> Chaparral sedge	--	--/1B.2	2	Perennial herb found in serpentinite or gabbroic soil in chaparral, cismontane woodland, and lower montane coniferous forest from 1,445 to 2,530 ft. Known from Butte, El Dorado, Nevada and Yuba cos. Blooms March through June (CNPS 2018).	No. There are no suitable soils.
<i>Ceanothus roderickii</i> Pine Hill ceanothus	E	R/ 1B.1	2	Perennial evergreen shrub found on serpentine or gabbroic soils in chaparral and cismontane woodland from 804 to 3,576 ft. This species is found in nutrient-deficient forms of gabbro-derived soils characterized by low concentrations of available potassium, phosphorous, sulfur, iron and zinc. Known from less than 10 occurrences in El Dorado Co. Blooms April through June (Baldwin et al. 2012, CNPS 2018).	No. There are no suitable soils.
<i>Chlorogalum grandiflorum</i> Red Hills soaproot	--	--/ 1B.2	2	Perennial bulbiferous herb found in serpentine, gabbroic, and other soils in chaparral, cismontane woodland, and lower montane coniferous forest from 800 to 5,540 ft. Known from Amador, Butte, Calaveras, El Dorado, Placer, and Tuolumne cos. Blooms May through June (Baldwin et al. 2012, CNPS 2018).	No. There are no suitable soils. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
<i>Crocianthemum</i> (= <i>Helianthemum</i>) <i>suffrutescens</i> Bisbee Peak rush-rose	--	--/ 3.2	3	Perennial evergreen shrub often found in gabbroic or Ione soils in chaparral from 245 to 2,198 ft. Often found in burned or disturbed areas. Known from Amador, Calaveras and El Dorado cos. Blooms April through August (CNPS 2018).	No. There are no suitable soils.
<i>Erigeron miser</i> Starved daisy	--	--/1B.3	2	Perennial herb found on rocky substrates in upper montane coniferous forest from 6,000 to 8,600 ft. This species is endemic to CA, and found in Lassen, Mono, Nevada and Placer Cos. Blooms June through October (CNPS 2018).	No. The BSA is below the elevation range and there is no suitable habitat.

Special-Status Species/ Common Name	Federal Status ^{a, b}	State Status ^{a, b}	Source ^c	Habitat Requirements	Potential to Occur in the BSA
<i>Fremontodendron decumbens</i> Pine Hill flannelbush	E	R/ 1B.2	2	Perennial evergreen shrub found on rocky, gabbroic, and serpentine soil in chaparral and cismontane woodland from 1,394 to 2,494 ft. Known from 10 occurrences in El Dorado, Nevada, and Yuba cos. Uncertain about distribution or identity in Nevada and Yuba cos. Blooms April through July (Baldwin et al. 2012, CNPS 2018).	No. There are no suitable soils. In El Dorado County, this species is only known from gabbro soils on Pine Hill and its the immediate surrounding foothills.
<i>Galium californicum</i> ssp. <i>sierrae</i> El Dorado bedstraw	E	R/ 1B.2	2	Perennial herb found on gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 328 to 1,920 ft. Known from fewer than 20 occurrences in El Dorado Co. (CNPS 2018). Blooms March through July (Baldwin et al. 2012).	No. There are no suitable soils.
<i>Horkelia parryi</i> Parry's horkelia	--	--/ 1B.2	2	Perennial herb found on Ione formation and in other soils in chaparral and cismontane woodland from 260 to 3,510 ft. Known from Amador, Calaveras, El Dorado, Mariposa, and Tuolumne cos. Blooms April through September (Baldwin et al. 2012, CNPS 2018). Jepson (2018) describes the habitat as open chaparral.	Yes. See discussion.
<i>Packera</i> (= <i>Senecio</i>) <i>layneae</i> Layne's ragwort	T	R/ 1B.2	1, 2	Perennial herb found in rocky, serpentine, or gabbroic soils in chaparral and cismontane woodland from 650 to 3,560 ft. Known from Butte, El Dorado, Placer, Tuolumne, and Yuba cos. Blooms April through August (Baldwin et al. 2012, CNPS 2018).	No. There are no suitable soils. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
<i>Viburnum ellipticum</i> Oval-leaved viburnum	--	--/ 2B.3	2	Deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forest from 700 to 4,600 ft. Known from Alameda, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Lake, Mendocino, Mariposa, Napa, Placer, Shasta, Solano, Sonoma, and Tehama cos. Blooms May through August (Baldwin et al. 2012, CNPS 2018). Jepson (2018) describes the habitat as chaparral, yellow-pine forest, generally on north-facing slopes.	Yes. See discussion.
<i>Wyethia reticulata</i> El Dorado County mule ears	--	--/ 1B.2	2	Perennial rhizomatous herb found on clay or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 600 to 2,100 ft. Known from El Dorado and Yuba cos. Blooms April through August (Baldwin et al. 2012, CNPS 2018).	No. There are no suitable soils.

Special-Status Species/ Common Name	Federal Status ^{a, b}	State Status ^{a, b}	Source ^c	Habitat Requirements	Potential to Occur in the BSA
Natural Communities					
Central Valley drainage hardhead/ squawfish stream	--	--	2	Hardhead occur in low- to mid-elevation streams in the main Sacramento-San Joaquin drainage and in the Russian River. Their range extends from the Kern River in Kern County, in the south, to the Pit River in Modoc County in the north. In the San Joaquin drainage, the species is scattered in tributary streams and absent from valley reaches of the San Joaquin River. In the Sacramento drainage, the hardhead is present in most large tributary streams as well as in the Sacramento River. Hardhead are typically found in undisturbed areas of larger low- to mid-elevation streams, although they are also found in the mainstem Sacramento River at low elevations and in its tributaries to about 4,920 ft. They prefer clear, deep (>32 inches) pools and runs with sand-gravel-boulder substrates and slow velocities. Hardhead are always found in association with Sacramento pikeminnow (squawfish) and usually with Sacramento sucker. They tend to be absent from streams where introduced species, especially centrarchids (sunfish), predominate and from streams that have been severely altered by human activity. Sacramento pikeminnow occur in clear rivers and creeks of central California and occur in small numbers in the Sacramento-San Joaquin Delta. They are most characteristic of low- to mid-elevation streams with deep pools, slow runs, and undercut banks, and overhanging vegetation. They are most abundant in lightly disturbed, tree-lined reaches that also contain other native fish (Moyle 2002).	No. This community does not occur in the BSA.
Central Valley drainage resident rainbow trout stream	--	--	2	Rainbow trout occur in low order (high elevation) cold streams with a high gradient. These streams are dominated by rainbow trout and often riffle sculpin (Moyle and Ellison 1991).	No. This community does not occur in the BSA.
Sacramento-San Joaquin foothill/valley ephemeral stream	--	--	2	Low elevation streams that flow primarily in response to winter and spring rainfall. Found in oak woodland/ valley grassland areas. Some water may be present in semi-permanent bedrock pools. Streams have a distinct succession of invertebrates and may be important spawning areas for Sierran treefrogs (<i>Pseudacris sierra</i>) and newts (<i>Taricha</i> spp.; Moyle and Ellison 1991).	No. This community does not occur in the BSA.

^a **Listing Status:** **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; **D** = Delisted; * = Possibly extinct.

^b **Other Codes:** **SSC** = CA Species of Special Concern; **FP** = CA Fully Protected; **Prot** = CA Protected; **CH** = Critical habitat designated.

CNPS Rank: (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution

CNPS List Decimal Extensions: **.1** = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3** = Not very endangered in CA (<20% of occurrences threatened or no current threats known).

^c **Source:** **1** = USFWS letter. **2** = CNDDDB/CNPS. **3** = Observed or included by Sycamore Environmental.

APPENDIX C.

Plant and Wildlife Species Observed

El Dorado Senior Resort
 El Dorado County, CA

Plant Species Observed.

Family	Scientific Name	Common Name	N/I ¹	Cal-IPC
CONIFERS				
Pinaceae	<i>Pinus sabiniana</i>	Foothill pine	N	
EUDICOTS				
Anacardiaceae	<i>Toxicodendron diversilobum</i>	Western poison oak	N	
Apiaceae	<i>Daucus pusillus</i>	Daucus	N	
	<i>Periperidia</i> sp.	Yampah	N	
	<i>Sanicula bipinnatifida</i>	Purple sanicle, shoe buttons	N	
	<i>Sanicula crassicaulis</i>	Sanicula	N	
	<i>Scandix pecten-veneris</i>	Venus' needle	I	
	<i>Torilis arvensis</i>	Hedge parsley	I	Moderate
Apocynaceae	<i>Vinca major</i>	Greater periwinkle	I	Moderate
Asteraceae	<i>Achillea millefolium</i>	Yarrow	N	
	<i>Agoseris grandiflora</i>	Agoseris	N	
	<i>Baccharis pilularis</i>	Coyote brush	N	
	<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	Italian thistle	I	Moderate
	<i>Centaurea solstitialis</i>	Yellow star-thistle	I	High
	<i>Centromadia</i> sp.	Tarweed	N	
	<i>Grindelia camporum</i>	Gumplant	N	
	<i>Lactuca serriola</i>	Prickly lettuce	I	
	<i>Leontodon saxatilis</i>	Hairy hawkbit	I	
	<i>Madia subspicata</i>	Tarweed, tarplant	N	
	<i>Micropus californicus</i> ssp. <i>californicus</i>	Cottontop	N	
	<i>Pseudognaphalium</i> sp.	Cudweed, everlasting	--	
	<i>Psilocarphus</i> sp.	Woolly-marbles, woollyheads	N	
	<i>Sonchus oleraceus</i>	Common sow thistle	I	
	<i>Tragopogon dubius</i>	Yellow salsify	I	
	<i>Tragopogon porrifolius</i>	Salsify, oyster plant	I	
	<i>Wyethia angustifolia</i>	Mule's ears	N	
Caprifoliaceae	<i>Lonicera</i> sp.	Honeysuckle	N	
Caryophyllaceae	<i>Cerastium glomeratum</i>	Sticky mouse-ear chickweed	I	
	<i>Stellaria media</i>	Common chickweed	I	
Convolvulaceae	<i>Calystegia occidentalis</i>	Morning-glory	N	
	<i>Convolvulus arvensis</i>	Bindweed, orchard morning-glory	I	
Euphorbiaceae	<i>Euphorbia spathulata</i>	Spurge	N	
Fabaceae	<i>Acmispon americanus</i> var. <i>americanus</i>	Deervetch, deerweed	N	
	<i>Cytisus scoparius</i>	Scotch broom	I	
	<i>Trifolium dubium</i>	Little hop clover	I	
	<i>Trifolium glomeratum</i>	Clustered clover	I	
	<i>Trifolium hirtum</i>	Rose clover	I	Limited
	<i>Vicia sativa</i>	Spring vetch	I	
	<i>Vicia villosa</i>	Hairy vetch, winter vetch	I	

Family	Scientific Name	Common Name	N/I ¹	Cal-IPC
Fagaceae	<i>Quercus douglasii</i>	Blue oak	N	
	<i>Quercus lobata</i>	Valley oak, roble	N	
	<i>Quercus wislizeni</i> var. <i>wislizeni</i>	Interior live oak	N	
Gentianaceae	<i>Centaureum</i> sp.	Centaury	I	
Geraniaceae	<i>Geranium</i> sp.	Cranesbill, geranium	--	
Hypericaceae	<i>Hypericum perforatum</i> ssp. <i>perforatum</i>	Klamathweed	I	Moderate
Lamiaceae	<i>Marrubium vulgare</i>	Horehound	I	Limited
	<i>Monardella villosa</i> ssp. <i>villosa</i>	Coyote mint	N	
Malvaceae	<i>Sidalcea</i> sp. (annual)	Checkerbloom	N	
	<i>Sidalcea malviflora</i>	Checkerbloom	N	
Montiaceae	<i>Claytonia perfoliata</i>	Miner's lettuce	N	
Orobanchaceae	<i>Castilleja attenuata</i>	Valley tassels	N	
Plantaginaceae	<i>Plantago lanceolata</i>	English plantain	I	Limited
	<i>Veronica arvensis</i>	Speedwell, brooklime	I	
Polemoniaceae	<i>Gilia capitata</i>	Bluehead gilia	N	
	<i>Navarretia intertextata</i> ssp. <i>intertextata</i>	Navarretia	N	
Polygonaceae	<i>Polygonum aviculare</i>	Knotweed, knotgrass	I	
	<i>Rumex crispus</i>	Curly dock	I	Limited
Ranunculaceae	<i>Delphinium</i> sp.	Larkspur	N	
	<i>Ranunculus muricatus</i>	Buttercup	I	
Rhamnaceae	<i>Ceanothus cuneatus</i> var. <i>cuneatus</i>	Buckbrush	N	
	<i>Frangula californica</i> ssp. <i>tomentella</i>	California coffee berry	N	
	<i>Rhamnus ilicifolia</i>	Hollyleaf redberry	N	
Rosaceae	<i>Adenostoma fasciculatum</i>	Chamise	N	
	<i>Dryocallis glandulosa</i>	Woodbeauty	N	
	<i>Heteromeles arbutifolia</i>	Christmas berry, toyon	N	
	<i>Prunus</i> sp. ⁴	Prunus	--	
	<i>Rubus armeniacus</i>	Himalayan blackberry	I	High
Rubiaceae	<i>Galium aparine</i>	Goose grass	N	
	<i>Galium murale</i>	Tiny bedstraw	I	
	<i>Galium parisiense</i>	Wall bedstraw	I	
	<i>Galium porrigens</i> var. <i>tenuis</i>	Climbing bedstraw	N	
Viscaceae	<i>Phoradendron leucarpum</i> ssp. <i>tomentosum</i>	American mistletoe	N	
MONOCOTS				
Agavaceae	<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	Soaproot	N	
Cyperaceae	<i>Cyperus eragrostis</i>	Nutsedge	N	
Iridaceae	<i>Iris</i> sp. (waif)	Iris	I	
	<i>Sisyrinchium bellum</i>	Western blue-eyed-grass	N	
Juncaceae	<i>Juncus bufonius</i>	Toad rush	N	
	<i>Juncus tenuis</i>	Poverty or slender rush	N	
	<i>Luzula comosa</i>	Hairy wood rush	N	
Liliaceae	<i>Calochortus albus</i>	White globe lily, fairy-lantern	N	
	<i>Calochortus superbus</i>	Calochortus	N	
Poaceae	<i>Aegilops triuncialis</i>	Barbed goat grass	I	High
	<i>Aira caryophyllea</i>	Silver hair grass	I	
	<i>Avena barbata</i>	Slender wild oat	I	Moderate
	<i>Briza minor</i>	Small quaking grass	I	
	<i>Bromus diandrus</i>	Ripgut grass	I	Moderate
	<i>Bromus hordeaceus</i>	Soft chess	I	Limited
	<i>Cynosurus echinatus</i>	Bristly dogtail grass	I	Moderate

Family	Scientific Name	Common Name	N/I ¹	Cal-IPC
	<i>Dactylis glomerata</i>	Orchard grass	I	Limited
	<i>Elymus caput-medusae</i>	Medusa head	I	High
	<i>Elymus glaucus</i>	Blue or western wild-rye	N	
	<i>Festuca arundinacea</i>	Tall fescue	I	Moderate
	<i>Festuca bromoides</i>	Brome fescue	I	
	<i>Festuca perennis</i>	Rye grass	I	Moderate
	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley	I	Moderate
	<i>Melica torreyana</i>	Torrey's melic	N	
	<i>Poa bulbosa</i> ssp. <i>vivipara</i>	Blue grass	I	
Themidaceae	<i>Brodiaea elegans</i> ssp. <i>elegans</i>	Harvest brodiaea	N	
	<i>Dichelostemma volubile</i>	Twining brodiaea	N	

¹ N = Native to CA; I = Introduced.

² Degree of negative ecological impact (Cal-IPC 2017).

⁴ Seedling

Wildlife Species Observed.

COMMON NAME	SCIENTIFIC NAME
BIRDS	
Acorn woodpecker	<i>Melanerpes formicivorus</i>
Anna's hummingbird	<i>Calypte anna</i>
Chestnut-backed chickadee	<i>Poecile rufescens</i>
Mourning dove	<i>Zenaida macroura</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Oak titmouse (Plain titmouse)	<i>Baeolophus inornatus</i>
Western bluebird	<i>Sialia mexicana</i>
Western scrub-jay	<i>Aphelocoma californica</i>

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APPENDIX D.

Photographs
20 June 2018



Photo 1. View of the oak woodland community in the BSA. The canopy is mostly open, and there is a grassy understory.



Photo 2. View of the gravel driveway in the northern end of the BSA, connecting Hwy 49 to the adjacent residence.



Photo 3. View of the California annual grassland community in the west side of the BSA.



Photo 4. View of the north end of the BSA with disturbance from the adjacent residence.



Photo 5. View of oak woodland. Several tire tracks occur in this community in the north end of the BSA.



Photo 6. View of the oak woodland in the eastern edge of the BSA, along Koki Lane.

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Attachment 2

30 August 2018

Mr. Jim Davies
El Dorado Senior Housing, LLC
854 Diablo Road
Danville, CA 94526

Subject: Oak Resources Technical Report for El Dorado Senior Resort Project, El Dorado County, CA.

Dear Mr. Davies:

El Dorado County regulates impacts to oak trees and woodlands with the Oak Resources Management Plan (ORMP; El Dorado County 2017). The El Dorado Senior Resort (Project) is a senior citizen's residential facility on approximately 8.18 acres in the community of Diamond Springs. A biological resource evaluation was separately prepared for the Project site (Sycamore Environmental 2018). The Project site contains oak woodlands. This technical report was prepared to quantify oak resources and impacts, and recommend preservation and mitigation methods based on the specifications of the ORMP.

Methods

Nicole Ibañez and I conducted a field review of the Project site on 20 June 2018. A recent aerial photograph for the site was selected as the base for the oak woodland map. The field review and aerial photograph were used to determine the areas of oak woodland on the site. One grassy area without trees was excluded from oak woodland. The ORMP defines oak woodland as "an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover" (CA Fish and Game Code §1361). The County ORMP focuses on existing oak woodlands. Oak woodland at the site was classified under the California Department of Fish and Wildlife's Natural Communities List (CDFW 2018, Sawyer *et al.* 2009).

Data for individual trees was collected as necessary. The ORMP requires collection of individual data for oaks at least 6 inches diameter at breast height (dbh) that are outside of oak woodlands, and for any trees that meet heritage tree criteria. There are no oak trees at the Project site that are outside of oak woodlands. County application materials for oak removal permits also request individual tree data for trees between 24–36 inches dbh. Data for individual trees between 24–36 inches dbh is not used for impact and mitigation calculations, but for future County evaluation of the threshold for heritage trees. Attachment C is a map of trees between 24–36 inches dbh, and they are included in the tree table in Attachment D.

The ORMP defines a Heritage Tree as “Any live native oak tree of the genus *Quercus* (including blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), California black oak (*Quercus kelloggii*), interior live oak (*Quercus wislizeni*), canyon live oak (*Quercus chrysolepis*), Oregon oak (*Quercus garryana*), oracle oak (*Quercus x morehus*), or hybrids thereof) with a single main trunk measuring 36 inches dbh or greater, or with a multiple trunk with an aggregate trunk diameter measuring 36 inches or greater.” Further, the ORMP requires mitigation for the removal of Heritage Trees, regardless of whether the Heritage Tree is inside or outside oak woodland.

Heritage trees, and oaks between 24–36 inches dbh were individually surveyed. For each individual tree included, the dbh was measured, dripline and height were estimated, and a general assessment of condition was made. Dbh was measured at 4.5 feet above the ground, unless a tree characteristic, such as a branch attachment, interfered with the measurement at that height. In such cases the diameter was measured at the narrowest point in the trunk between the ground and 4.5 ft, or above the point of interference (Council of Tree and Landscape Appraisers 2000). Individual trees included in the survey were located with a global positioning system.

Tree condition was judged in five categories with respect to structure, health, vigor, defects, and conformance to generally accepted arboricultural standards of care, disease, general health, damage, danger of falling, and suitability for retention in a developed area. The five categories were good (G; no defects or minor defects), fair to good (F-G; defects), fair (F; obvious defects), fair to poor (F-P; severe defects), and poor (P; severe defects, and short-term death or structural failure of the tree is expected). Condition was judged based on an external inspection of each tree from the ground.

A grading footprint was provided by the Project engineer and used to determine oak woodland and heritage tree impacts. The Count in-lieu fee was estimated. An area in the northeastern corner of the Project site is tentatively planned for a community garden (see note on Attachment B). This area could result in the removal of oak woodland, or could be designed in a way that some or all of the oaks are retained. The oak woodland impacts and mitigation section below identifies two scenarios, one in which all of the woodland in this area is preserved and one in which it is all removed.

Results

- Blue oak woodland covers 7.69 acres (Attachment A). Most of the oaks on the Project site are blue oaks, with lesser numbers of interior live oak and valley oak. Gray (foothill) pines (*Pinus sabiniana*) are also common at the site.
- The Project, if oaks in the community garden area are removed, will result in the removal of 7.37 acres of oak woodland. The Project would remove 95.8% of the oak woodlands at the site (7.37/7.69).

- The Project, if oaks in the community garden area are retained, will result in the removal of 7.12 acres of oak woodland. The Project would remove 92.6% of the oak woodlands at the site (7.12/7.69).
- The County ORMP requires 2:1 mitigation for removed oak woodland for projects that remove between 75.1–100% of on-site oak woodland.
- There are seven heritage trees in the BSA (Attachment A). None of the heritage trees are in the area of the community garden. The Project will remove six of the heritage trees (Attachment B). The total dbh of the six removed heritage trees is 237 inches. The County ORMP requires 3:1 mitigation per inch for heritage trees.
- Several additional heritage trees (Tree #8, 16, 18, 22) could be retained based on final design, or final design may retain more oak woodland acreage. If so, the in-lieu fee will need to be revised.
- The Project landscaping plan identifies the planting of 28 native oaks (24-inch box size). If the Project claimed these as replacement trees under the ORMP, the in-lieu fee could be reduced. The ORMP requires 7 years of monitoring and a deed restriction or conservation easement for replacement trees.
- The Project intends to mitigate for impacts to oak woodlands and heritage trees through payment of the in-lieu fees identified in the County ORMP. The table below estimates the fee based on the Project impacts.

Estimated ORMP in-lieu fee

	Project, Community Garden Oaks Removed	Project, Community Garden Oaks Retained
Oak Woodland Impacts (acres)	7.37	7.12
Oak Woodland Mitigation Ratio	2:1	2:1
Oak Woodland Fee Per Acre	\$8,285	\$8,285
Oak Woodland In-lieu Fee Subtotal:	\$122,120.90	\$117,978.40
Heritage Tree removal (total dbh inches)	237	237
Heritage Tree Mitigation Ratio	3:1	3:1
Mitigation Fee per dbh inch	\$153	\$153
Heritage Tree In-lieu Fee Subtotal:	\$108,783	\$108,783
Total In-lieu Fee:	\$230,903.90	\$226,761.40

- Notes:
1. The ultimate fee determination will be made by El Dorado County.
 2. Several additional heritage trees (Tree #8, 16, 18, 22) could be retained based on final design, or final design may retain more oak woodland acreage. If so, the in-lieu fee will need to be revised.
 3. The Project landscaping plan identifies the planting of 28 native oaks (24-inch box size). If the Project claimed these as replacement trees under the ORMP, the in-lieu fee could be reduced.

Recommended Oak Tree Preservation Measures

The Project will retain oak woodland along part of the southern boundary, and possibly in part of the northeastern corner depending on the layout of a community garden. Oak preservation measures were developed for the project based on Matheny and Clark (1998). Retained trees may be affected by project activities such as clearing, grading, and pruning for clearance requirements. The tree preservation measures below are recommended for preservation of retained trees during the construction process.

Pre-construction

- A tree protection zone (TPZ) shall be established around retained trees. The TPZ shall extend 20 feet beyond the dripline where possible given grading limits. The TPZ around retained trees near the limit of grading will be much smaller.
- The TPZ shall be marked with minimum 4-foot high orange construction fence hung on posts (such as T-posts) before clearing occurs. The fence shall not be supported by trees or other vegetation. The fence shall remain in place until construction is complete.
- There shall be no driving, parking, or storage of supplies or equipment within the TPZ. Entry of construction personnel into the TPZ is not allowed except for maintenance of the fence or other activities undertaken for the protection of trees.
- The tree canopy along the TPZ boundary shall be inspected prior to vegetation clearing in the area of grading. The canopy of trees to be removed shall be pruned where it is intertwined with the canopy of retained trees, or wherever felling of trees to be removed may damage the canopy of retained trees. The canopy of retained trees that overhangs the area to be graded shall be pruned to the minimum height required for construction.
- Pruning of retained trees shall be conducted in accordance with American National Standard Institute (ANSI) A300 Pruning Standard and adhere to the most recent edition of ANSI Z133.1.

During Vegetation Clearing

- Brush clearing along the TPZ boundary may be necessary in some areas for installation of a fence. Brush along the TPZ boundary, outside areas to be graded, shall be cut near ground level, not removed by the roots. Brush shall be cut and removed so that trees in the TPZ are not harmed. Brush shall not be disposed of in the TPZ.
- Trees in the area of grading shall be felled in a direction away from the TPZ.

Project Operation

- Most of the trees in the areas of avoided oak woodland are mature. All of them have been growing under the natural moisture regime without irrigation and are adapted to dry summer/fall conditions. Extra irrigation water should not be applied to the trees, especially within a few feet of the trunk.

We appreciate the opportunity of assisting you with this project. If you have any questions please contact me.

Cordially,



Chuck Hughes, M.S.
Senior Biologist
(ISA Certified Arborist WE-6885A)




- Attachment A. Oak Resources Map
- Attachment B. Oak Impact Map
- Attachment C. Map of 24-36 inch dbh oak trees
- Attachment D. Tree Table
- Attachment E. Photographs
- Attachment F. County Checklist & Data Sheet

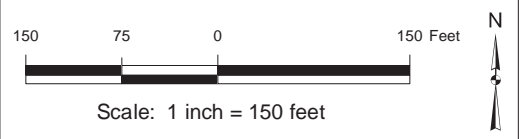
Literature Cited

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El Dorado Senior Resort
El Dorado County, CA
30 August 2018

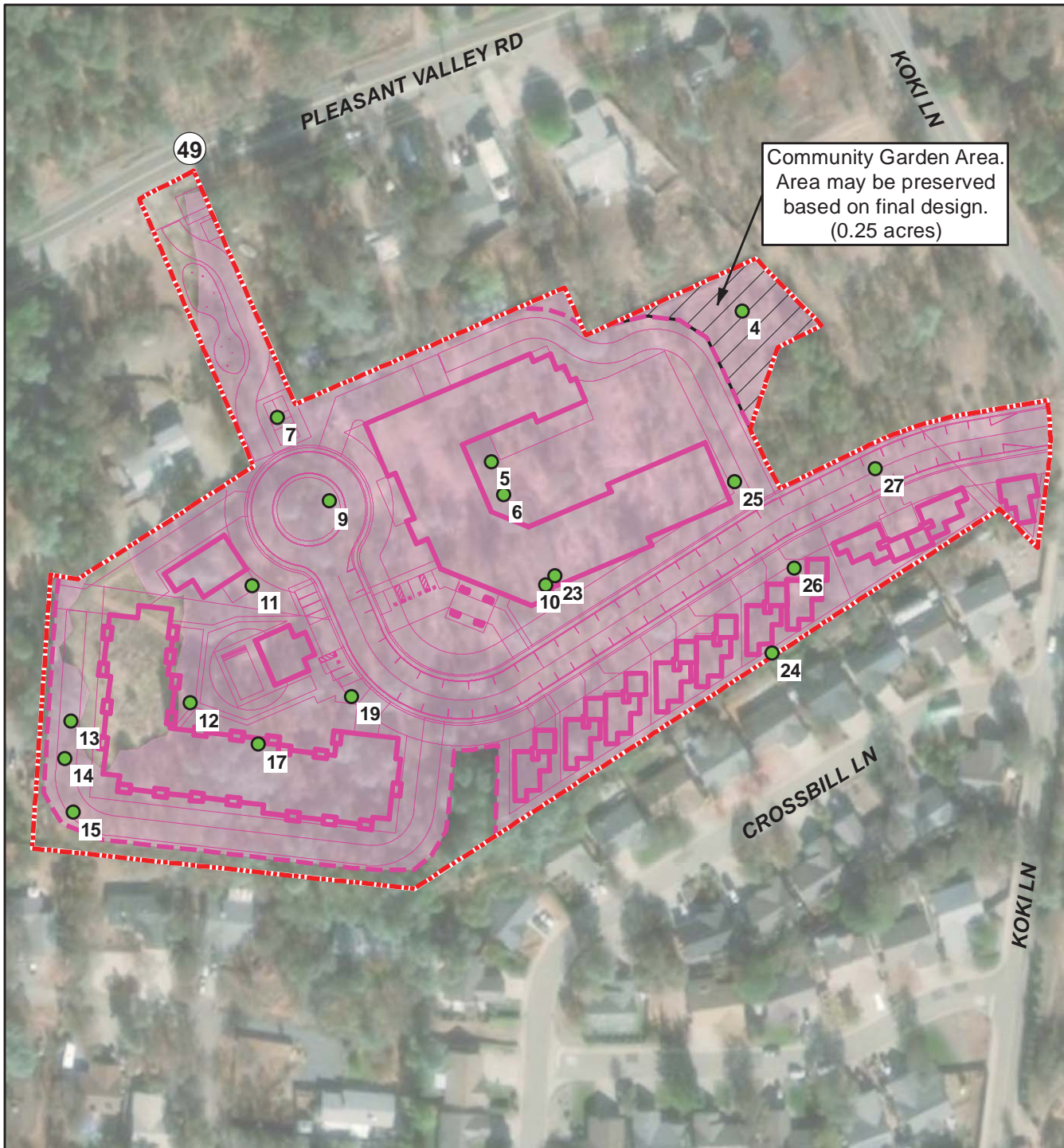
Attachment A.
Oak Resources Map

-  Biological Study Area (BSA; 8.18 acres)
-  Biological Community Boundary
-  Heritage Oak Tree Location



Aerial Photograph: 7 November 2017
NAIP2016 USDA FSA Imagery
ESRI ArcGIS Basemap Layer







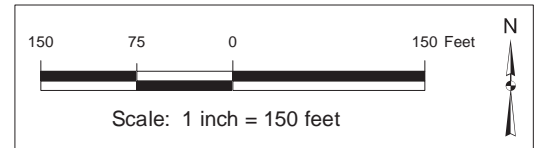


Community Garden Area.
Area may be preserved
based on final design.
(0.25 acres)

El Dorado Senior Resort
El Dorado County, CA
30 August 2018

Attachment C.
Map of 24-36 inch dbh Oak Trees

-  Biological Study Area (BSA; 8.18 acres)
-  Community Garden Area
-  Impacts to Oak Woodland (7.37 ac)
-  Oak trees (24-36 inch dbh)



SYCAMORE
Environmental
Consultants, Inc.

Site Plan for El Dorado Senior Housing (4 Dec. 2012)
by Wright Architecture Studio
CAD file: xbm.dwg (Rec'd. 24 July 2018)

Aerial Photograph: 7 November 2017
NAIP2016 USDA FSA Imagery
ESRI ArcGIS Basemap Layer

Attachment D

Tree Table

Tree	Common Name	Scientific Name	DBH (Each Trunk in Inches)	Total DBH (Total Inches)	Dripline	Height	Condition	Retained/Removed	Comments
1	Interior Live Oak	<i>Quercus wislizeni</i>	8, 6.5, 13, 10, 8	45.5	25	32	F-G	Retained	Pruned for clearance over sidewalk. Some decay. Heritage Tree
2	--	--	--	--	--	--	--	--	Removed from survey; outside BSA.
3	--	--	--	--	--	--	--	--	Removed from survey; outside BSA.
4	Blue Oak	<i>Quercus douglasii</i>	9.5, 9.5, 9.5	28.5	20	37	G	Undetermined	Old tag #3047.
5	Blue Oak	<i>Quercus douglasii</i>	16.5, 16	32.5	25	52	F-G	Removed	Codominant trunks with narrow attachment, and wood grown over old cable. Canopy slightly uneven.
6	Blue Oak	<i>Quercus douglasii</i>	34.5	34.5	30	51	F-G	Removed	Codominant trunks with narrow attachment. Hanger.
7	Blue Oak	<i>Quercus douglasii</i>	10.5, 16	26.5	25	40	F-G	Removed	Woundwood seam.
8	Blue Oak	<i>Quercus douglasii</i>	13, 13.5, 12.5	39.0	25	45	G	Removed	Narrow main trunk attachments. Heritage Tree.
9	Blue Oak	<i>Quercus douglasii</i>	24	24.0	25	45	G	Removed	Narrow main trunk attachments.
10	Blue Oak	<i>Quercus douglasii</i>	24	24.0	30	40	G	Removed	Narrow trunk attachment. Barbed wire in trunk.
11	Blue Oak	<i>Quercus douglasii</i>	11, 15	26.0	20	40	G	Removed	Minor dieback.
12	Interior Live Oak	<i>Quercus wislizeni</i>	8.5, 8, 9, 6	31.5	15	25	F-P	Removed	Much dieback.
13	Blue Oak	<i>Quercus douglasii</i>	14, 14.5	28.5	25	40	F-G	Removed	Narrow trunk attachment. Uneven canopy.

Tree	Common Name	Scientific Name	DBH (Each Trunk in Inches)	Total DBH (Total Inches)	Dripline	Height	Condition	Retained/Removed	Comments
14	Blue Oak	<i>Quercus douglasii</i>	32	32.0	35	45	G	Removed	
15	Valley Oak	<i>Quercus lobata</i>	24	24.0	35	50	G	Removed	
16	Blue Oak	<i>Quercus douglasii</i>	19, 13.5, 12	44.5	30	45	G	Removed	Narrow trunk attachment. Heritage Tree.
17	Blue Oak	<i>Quercus douglasii</i>	25	25.0	30	45	F-G	Removed	Minor dieback.
18	Interior Live Oak	<i>Quercus wislizeni</i>	8, 11, 6, 9, 5.5	39.5	25	35	G	Removed	Old tree tag appears to be #3304, but hard to read. Heritage Tree.
19	Blue Oak	<i>Quercus douglasii</i>	14.5, 11	25.5	30	30	F	Removed	Narrow trunk attachment. Suppressed canopy.
20	Blue Oak	<i>Quercus douglasii</i>	10.5, 8.5, 8.5, 9	36.5	20	35	F-G	Removed	Narrow trunk attachments. Heritage Tree.
21	Interior Live Oak	<i>Quercus wislizeni</i>	7, 5.5, 11, 7, 8	38.5	25	30	F	Removed	Narrow trunk attachments. Some decay. Heritage Tree.
22	Interior Live Oak	<i>Quercus wislizeni</i>	17, 15.5, 6.5	39.0	30	35	G	Removed	Uneven Canopy. Heritage Tree.
23	Blue Oak	<i>Quercus douglasii</i>	14, 9.5, 9.5	33.0	20	35	G	Removed	Narrow trunk attachments.
24	Interior Live Oak	<i>Quercus wislizeni</i>	7, 10, 12	29.0	20	30	F	Removed	Decay at base.
25	Blue Oak	<i>Quercus douglasii</i>	7, 6.5, 8, 7	28.5	15	30	G	Removed	
26	Blue Oak	<i>Quercus douglasii</i>	8.5, 7.5, 7, 7	30.0	20	30	G	Removed	Narrow trunk attachments. Old tag #3095.
27	Blue Oak	<i>Quercus douglasii</i>	11, 9, 12.5	32.5	25	35	F-G	Removed	Decay at base.

ATTACHMENT E.

Photographs
20 June 2018



Photo 1. View of the oak woodland community in the BSA. The canopy is mostly open, and there is a grassy understory. This photo is near the center of the BSA.



Photo 2. Another view of the oak woodland community in the BSA. This photo is along the southern edge of the BSA.



Photo 3. Tree #1, a heritage interior live oak. The tree has 5 trunks, that together sum to 45.5 inches dbh. The heritage tree threshold is 36 inches dbh.



Photo 4. Tree #15, a blue oak with a single trunk of 24 inches dbh.



Photo 5. Tree #20, a heritage blue oak. The tree has 4 trunks, that together sum to 36.5 inches dbh.



COMMUNITY DEVELOPMENT SERVICES PLANNING AND BUILDING DEPARTMENT

2850 Fairlane Court, Placerville, CA 95667

Phone: (530) 621-5355 www.edcgov.us/Planning/

OAK RESOURCES TECHNICAL REPORT CHECKLIST

The following information is required for all Oak Resources Technical Reports consistent with Section 2.5 (Oak Resources Technical Reports) of the Oak Resources Management Plan (ORMP):

FORMS AND MAPS REQUIRED

Place a check (✓) on the "Applicant" lines for those items completed. The planner receiving the application will check (✓) the "County" line.

Check
(✓)

Applicant County

- | | | |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1) <u>Identify, locate, and quantify all oak resources on the property, as applicable:</u> |
| | | <ul style="list-style-type: none"> a) Oak woodlands shall be mapped and assessed in accordance with the CDFG 2009 <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities</i> and subsequent updates, and the <i>List of Vegetation Alliances and Associations</i> (CDFG 2010) and subsequent updates; b) Data collected for individual native oak trees and Heritage Trees shall include: location, species, trunk diameter (dbh), height, canopy radius, and general health and structural condition. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 2) Identify and quantify project-related impacts to oak resources |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3) Measures identifying how specific trees and woodlands (or retained portions thereof) shall be protected during development and related work |

Revised 11/22/2017

Check
(✓)
Applicant County

- 4) Proposed actions to mitigate impacts to oak resources, consistent with the requirements included in the ORMP:
 - a) For replacement planting, the report shall provide detail regarding the quantity, location, planting density, replacement tree size(s), and acorn/seedling source consistent with the definition of Replacement Planting included in the ORMP;
 - b) For conservation easement placement/acquisition and/or land acquisition in fee title, the report shall provide documentation of easement placement on-site and/or documentation of easement or land acquisition off-site to the satisfaction of the County;
 - c) For in-lieu fee payment, the report shall document the quantity of impacts (acreage of oak woodlands and/or total diameter inches of individual native oak trees/Heritage Trees) and the total in-lieu fee payment necessary (presented separately for oak woodlands, individual native oak trees, and Heritage Trees, where applicable).
- 5) Identification of responsible parties
- NA 6) Identification of maintenance, monitoring, and reporting requirements
- NA 7) Analysis of non-PCA conservation easement areas, where applicable
- 8) Site map(s) depicting:
 - a) location of all oak woodlands, individual native oak trees, and Heritage Trees;
 - b) location of all proposed project-related improvements (including, but not limited to, the limits of grading, fuel modification/defensible space areas, and above- and below-ground infrastructure);
 - c) Site map(s) shall also clearly identify impacted oak resources.
- 9) Planning and Building Department Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits.

SUPPLEMENTAL DATA FOR INDIVIDUAL NATIVE OAK TREES WITHIN OAK WOODLANDS:

The ORMP and Oak Resources Conservation Ordinance (No. 5061) was adopted on October 24, 2017 and the Board of Supervisors will review implementation within 12 months after adoption. The Board requested the following supplemental information:

- 10) Provide an inventory (species and size) of impacted Individual Native Oak Trees greater than 24 inches and less than 36 inches (dbh) in oak woodlands.

Revised 11/22/2017



COMMUNITY DEVELOPMENT SERVICES PLANNING AND BUILDING DEPARTMENT

2850 Fairlane Court, Placerville, CA 95667
Phone: (530) 621-5355 www.edcgov.us/Planning/

Summary Data Sheet of Oak Resources Impacts for Oak Tree/Oak Woodland Removal Permits

Description	Blue (<i>Quercus douglasii</i>)	California Black (<i>Quercus kelloggii</i>)	Canyon Live (<i>Quercus chrysolepis</i>)	Interior Live (<i>Quercus wislizeni</i>)	Oregon White (<i>Quercus garryana</i>)	Valley (<i>Quercus laobata</i>)	Oracle (hybrid) (<i>Quercus x morehus</i>)
Individual Native Oak Trees							
Quantity (number of trees) of individual native oak trees to be removed, by species	NA	- No oaks outside of oak woodland.					
Quantity (number of trees) of individual native oak trees to be removed, greater than 24 inches and less than 36 inches (dbh), by species		15	--	--	2	--	1 --
Total trunk diameter inches (dbh) to be removed*	0	24-36" oaks in oak woodlands not subject to additional mitigation.					
Heritage Trees							
Quantity (number of trees) of Heritage Trees to be removed, by species		3	--	--	4	--	--
Total trunk diameter inches (dbh) to be removed*	237						
Oak Woodlands							
Total Acreage of existing oak woodlands**	7.69						
Acreage of existing oak woodlands to be removed	7.37	- Could be 0.25 ac less depending on community garden.					
Percentage of existing oak woodlands to be removed*	95.8%						

* Information used for purposes of calculating in-lieu mitigation fee payment.

** If Heritage Trees occur within oak woodlands, the area of impacted Heritage Tree(s) should be included in oak woodland acreage calculations.

Revised 11/22/2017

**APPLICATION FOR CONDITIONAL USE PERMIT
OAK TREE/OAK WOODLAND REMOVAL**

Document No: S-011

Title: Item 4 – Security Deposit

Assessor’s Parcel Nos.: 331-221-30-100 & -32-100

Project Name: El Dorado Senior Resort

Applicant: Jim Davies

Mailing Address: 854 Diablo Rd., Danville, CA

Phone: 925-984-1222

Email: j854davies@att.net

Property Owner: El Dorado Sr. Housing, LLC.

Application Requirement:

Security deposit for on-site oak tree/oak woodland retention and/or replacement planting (if proposed as part of project mitigation) consistent with Section 130.39.070.F (Security Deposit for On-Site Oak Tree/Oak Woodland Retention and Section 130.30.070.G (Security Deposit for On-Site Oak Tree/Oak Woodland Replacement Planting).

Applicant Response

The extent of any on-site oak tree/oak woodland retention and/or replacement planting that may become a part of the project mitigation is unknown at this time.

**APPLICATION FOR CONDITIONAL USE PERMIT
OAK TREE/OAK WOODLAND REMOVAL**

Document No: S-012

Title: Item 5 – Explanation for Impact

Assessor's Parcel Nos.: 331-221-30-100 & -32-100

Project Name: El Dorado Senior Resort

Applicant: Jim Davies

Mailing Address: 854 Diablo Rd., Danville, CA

Phone: 925-984-1222

Email: j854davies@att.net

Property Owner: El Dorado Sr. Housing, LLC.

Application Requirement:

Reason and objective for impact to oak trees and/or oak woodlands.

Applicant Response

It is necessary to remove a portion of the existing oak woodlands to provide space for the construction of access ways and buildings. It is a project objective to maximize retention of oak resources wherever practical. To this end a significant portion of the woodlands is being retained as a mini "forest" to provide a recreational area for the residents of the project.

Attachment 3

Environmental Noise and Vibration Assessment

El Dorado Senior Resort

El Dorado County, California

BAC Job # 2018-134

Prepared For:

Sycamore Environmental Consultants, Inc.

Attn: Ms. Paris Krause
6355 Riverside Boulevard, Suite C
Sacramento, CA 95831

Prepared By:

Bollard Acoustical Consultants, Inc.



Paul Bollard, President

August 22, 2018



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Executive Summary

The proposed El Dorado Senior Resort (project) is located south of California State Route 49 (SR-49) and west of Koki Lane in El Dorado County, California. The project proposes the development of a 74-unit assisted living facility, 64-unit independent apartments, 9 single-family residences, 2 commercial buildings (1 containing a restaurant), and a community center. Due to the proximity of the proposed development to adjacent existing residential uses, and the potential for elevated Highway 49 traffic noise levels at the project site, Bollard Acoustical Consultants, Inc. (BAC) was contracted by Sycamore Environmental Consultants, Inc. to complete an environmental noise and vibration assessment. The purposes of this analysis are to quantify the existing noise and vibration environments, identify potential noise and vibration impacts due to and upon the project, identify appropriate mitigation measures, and provide a quantitative and qualitative analysis of impacts associated with the project.

The project site contains undeveloped land consisting of natural vegetation. Existing land uses in the project vicinity include residential in all directions. After review of the project description and site plans, BAC determined that the potentially significant noise impacts as a result of the project consist of increases in off-site traffic, noise generated by proposed commercial mechanical (HVAC) equipment, and noise generated by construction-related activities. Potential impacts from project-generated construction vibration levels were also identified. To quantify the existing ambient noise environments in the project vicinity, a continuous (24-hour) noise measurement survey was conducted at the project site on July 26, 2018. To quantify predicted noise environments as a result of the project, Federal Highway Administration (FHWA) traffic data was utilized in analysis. During a site visit on July 25, 2018, vibration levels were below the threshold of perception at the project site and in the immediate project vicinity.

In the assessment of exterior and interior traffic noise levels at the project site, it was determined that predicted future traffic noise exposure at the proposed primary common outdoor areas and interior areas of the residential uses constructed within the development would result in a less than significant impact. In the assessment of changes related to existing, near-term, and future (cumulative) off-site traffic noise levels in the project vicinity, a less than significant project impact was determined. In the assessment of vibration exposure, it was determined that the project would not result in the exposure of persons to or generation of excessive groundborne vibration levels (less than significant impact). However, in the assessment of off-site non-transportation noise exposure, it was determined that commercial mechanical equipment (HVAC) noise levels could potentially exceed the El Dorado County evening and nighttime noise level standards at the nearest existing residences. Similarly, it was determined that noise from project-construction activities could also potentially exceed the applicable El Dorado County noise criteria at the nearest existing residences. Therefore, the impacts related to commercial mechanical equipment and construction noise are considered to be potentially significant. Mitigation measures to reduce mechanical equipment and construction generated noise levels to a state of compliance with the applicable El Dorado County noise standards are included in this report.

CEQA Checklist

NOISE AND VIBRATION – Would the Project Result in:	NA – Not Applicable	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above level existing without the project?			X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project to excessive noise levels?					X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?					X

Introduction

The proposed El Dorado Senior Resort (project) is located south of California State Route 49 (SR-49) and west of Koki Lane in El Dorado County, California. The project proposes the development of a 74-unit assisted living facility, 64-unit independent apartments, 9 single-family residences, 2 commercial buildings (1 including a restaurant), and a community center. Existing land uses in the project vicinity include residential in all directions. The project area and site plan are shown on Figures 1 and 2, respectively.

Due to the proximity of the proposed development to adjacent existing residential uses, and the potential for elevated Highway 49 traffic noise levels at the project site, El Dorado County has requested an environmental noise and vibration assessment to ensure that the applicable noise standards are satisfied. In response to this request, the project applicant has retained Bollard Acoustical Consultants, Inc. (BAC) to prepare this noise and vibration assessment. The purposes of this analysis are to quantify the existing noise and vibration environments, identify potential noise and vibration impacts due to and upon the project, identify appropriate mitigation measures, and provide a quantitative and qualitative analysis of impacts associated with the project. Specifically, impacts are identified if project-related activities would cause a substantial increase in ambient noise or vibration levels at existing sensitive land uses in the project vicinity, or if traffic or project generated noise or vibration levels would exceed applicable El Dorado County standards at the residences proposed within this development.

Noise and Vibration Fundamentals

Noise

Noise is simply described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. Discussing sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are compared to the reference pressure and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB.

To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed. There is a strong correlation between the way humans perceive sound and A-weighted sound levels. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment for community exposures. All sound levels expressed as dB in this section are A-weighted sound levels, unless noted otherwise. Definitions of acoustical terminology are provided in Appendix A.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise

descriptors, day-night average level (L_{dn}) and the community noise equivalent level (CNEL), and shows very good correlation with community response to noise for the average person. The median noise level descriptor, denoted L_{50} , represents the noise level which is exceeded 50% of the hour. In other words, half of the hour ambient conditions are higher than the L_{50} and the other half are lower than the L_{50} .

The L_{dn} is based upon the average noise level over a 24-hour day, with a +10 dB weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. Where short-term noise sources are an issue, noise impacts may be assessed in terms of maximum noise levels, hourly averages, or other statistical descriptors.

The perceived loudness of sounds and corresponding reactions to noise are dependent upon many factors, including sound pressure level, duration of intrusive sound, frequency of occurrence, time of occurrence, and frequency content. As mentioned above; however, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighting network. Appendix B shows examples of noise levels for several common noise sources and environments.

It is generally recognized that an increase of at least 3 dB of similar sources is usually required before most people will perceive a change in noise levels in the community, and an increase of 5 dB is required before the change will be clearly noticeable. A common practice is to assume that a minimally perceptible increase of 3 dB represents a significant increase in ambient noise levels. This approach is very conservative, however, when applied to noise conditions substantially below levels deemed acceptable in general plan noise elements or in noise ordinances.




Vibration

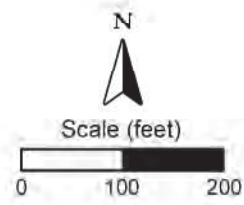
Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, while vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency. A person's response to vibration will depend on their individual sensitivity as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of velocity in inches per second or root-mean-square (RMS) in VdB. Standards pertaining to perception as well as damage to structures have been developed for vibration in terms of peak particle velocity as well as RMS velocities.



Legend

-  Project Border (Approximate)
-  Long-Term Noise Level Measurement Location
-  Short-Term Noise Level Measurement Location

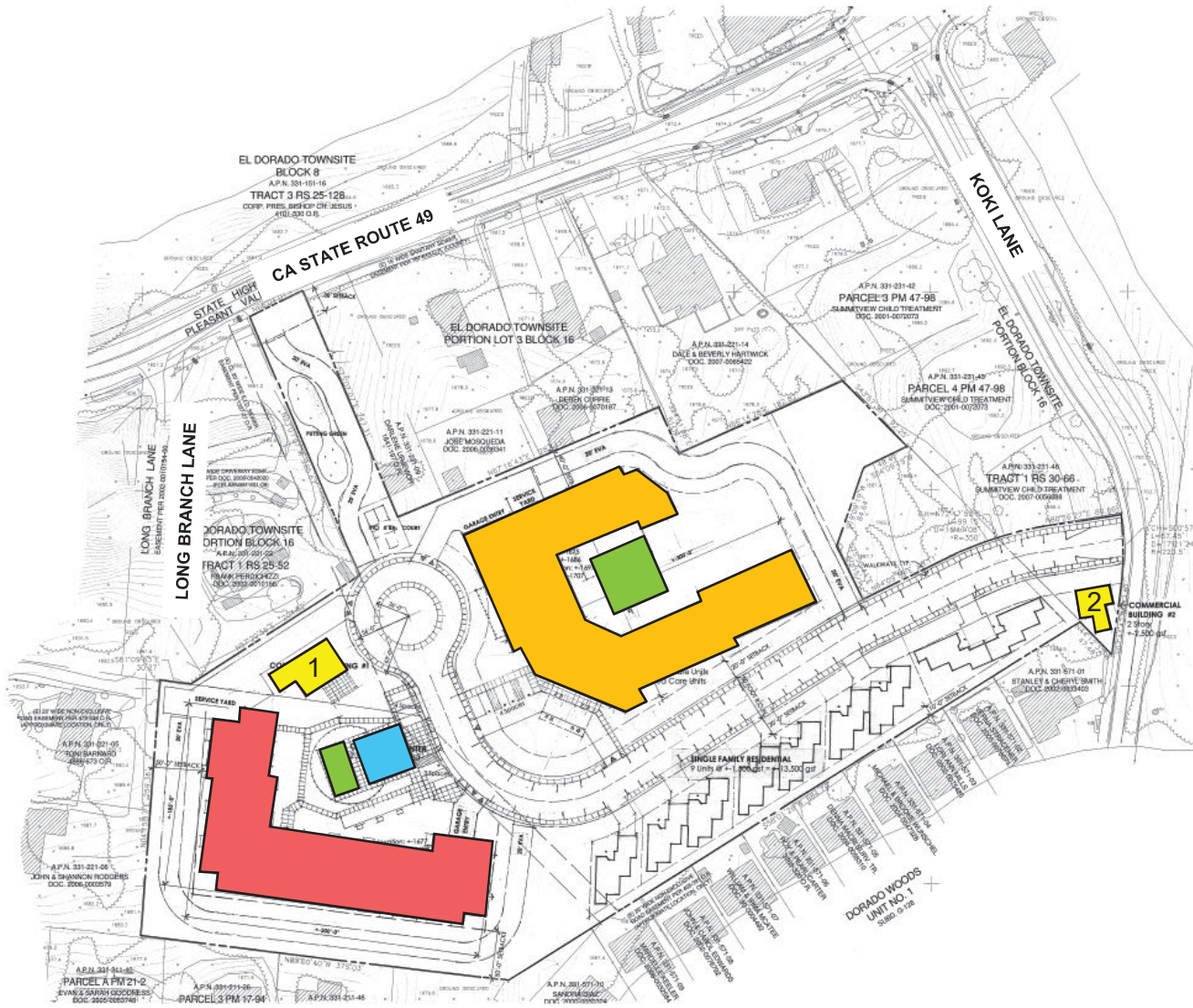


El Dorado Senior Resort
El Dorado County, California

Project Area

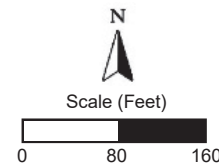
Figure 1





Legend

- Assisted Living and Memory Care Building
- Independent Apartment Building
- Community Center
- Primary Common Outdoor Areas (Courtyards)
- Commercial Buildings



El Dorado Senior Resort
El Dorado County, California
Project Site Plan

Figure 2



As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance. The maximum rate, or velocity of particle movement, is the commonly accepted descriptor of the vibration “strength”.

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases.

According to the Transportation and Construction-Induced Vibration Guidance Manual (Caltrans, June 2004), operation of construction equipment and construction techniques generate ground vibration. Traffic traveling on roadways can also be a source of such vibration. At high enough amplitudes, ground vibration has the potential to damage structures and/or cause cosmetic damage. Ground vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities. However, traffic, rarely generates vibration amplitudes high enough to cause structural or cosmetic damage.

Regulatory Setting: Criteria for Acceptable Noise and Vibration Exposure

Federal

There are no federal noise or vibration criteria which would be directly applicable to this project.

State of California

California Environmental Quality Act (CEQA)

The State of California has established regulatory criteria that are applicable to this assessment. Specifically, Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines are used to assess the potential significance of impacts pursuant to local General Plan policies, Municipal Code standards, or the applicable standards of other agencies. According to Appendix G of the CEQA guidelines, the project would result in a significant noise or vibration impact if the following occur:

- A. exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- B. exposure of persons to or generation of excessive groundborne vibration or noise levels;

- C. a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- D. a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- E. for a project located within an ALUP or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project would expose people residing or working in the project area to excessive noise levels;
- F. or a project within the vicinity of a private airstrip, the project would expose people residing or working in the project area to excessive noise levels.

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered unacceptable according to CEQA. Because every physical process creates noise, the use of audibility alone as significance criteria would be unworkable. CEQA requires a substantial increase in noise levels before noise impacts are identified, not simply an audible change.

California Department of Transportation (Caltrans)

El Dorado County does not currently have adopted standards for groundborne vibration. As a result, vibration criteria established by the California Department of Transportation (Caltrans 2013) was applied to this project. The Caltrans publication, *Transportation and Construction Vibration Guidance Manual*, provides guidelines for acceptable vibration limits for transportation and construction projects in terms of the induced peak particle velocity (PPV). Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. The Caltrans criteria applicable to human responses to vibration are shown below in Table 1.

Table 1 Human Response to Transient Vibration	
Human Response/Structure	Peak Particle Velocity (in/sec)
Barely Perceptible	0.04
Distinctly Perceptible	0.25
Strongly Perceptible	0.90
Severe	2.00
Residential Construction	1.0
Source: Caltrans Transportation and Construction Vibration Guidance Manual, September 2013	

As shown in Table 1, a vibration level of 0.25 in/sec PPV is the level at which vibration becomes distinctly to strongly perceptible. As a result, the 0.25 threshold is considered to be a conservative benchmark against which project vibration levels are evaluated in this assessment.

Local

El Dorado County General Plan

The Public Health, Safety, and Noise Element of the El Dorado County General Plan contains the County's noise-related policies. The specific policies which are generally applicable to this project are reproduced below:

- Policy 6.5.1.1** Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table 2 (GP Table 6-1) or the performance standards of Table 3 (GP Table 6-2), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.
- Policy 6.5.1.2** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 3 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design
- Policy 6.5.1.3** Where noise mitigation measures are required to achieve the standards of Tables 2 and Table 3, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project and the noise barriers are not incompatible with the surroundings.
- Policy 6.5.1.7** Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 3 for noise-sensitive uses.
- Policy 6.5.1.8** New development of noise sensitive land uses will not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table 2 unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in Table 2.
- Policy 6.5.1.9** Noise created by new transportation noise sources, excluding airport expansion but including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 2 at existing noise-sensitive land uses.
- Policy 6.5.1.11** The standards outlined in Tables 3, 4 and 5 (GP Tables 6-3, 6-4, 6-5) shall not apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7 am and 7 pm, Monday through Friday, and 8 am and 5 pm on weekends, and on federally-recognized

holidays. Further, the standards outlined in Tables 3, 4, and 5 shall not apply to public projects to alleviate traffic congestion and safety hazards.

Policy 6.5.1.12 When determining the significance of impacts and appropriate mitigation for new development projects, the following criteria shall be taken into consideration:

- a) Where existing or projected future traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of residential uses, an increase of more than 5 dBA L_{dn} caused by a new transportation noise source will be considered significant.
- b) Where existing or projected future traffic noise levels range between 60 and 65 dBA L_{dn} at the outdoor activity areas of residential uses, an increase of more than 3 dBA L_{dn} caused by a new transportation noise source will be considered significant; and
- c) Where existing or projected future traffic noise levels are greater than 65 dBA L_{dn} at the outdoor activity areas of residential uses, an increase of more than 1.5 dBA L_{dn} caused by a new transportation noise source will be considered significant.

Policy 6.5.1.13 When determining the significance of impacts and appropriate mitigation for new development projects, the following criteria shall be taken into consideration:

- a) In areas in which ambient noise levels are in accordance with the standards in Table 3, increases in ambient noise levels caused by new non-transportation noise sources that exceed 5 dBA shall be considered significant; and
- b) In areas in which ambient noise levels are not in accordance with the standards in Table 3, increases in ambient noise levels caused by new non-transportation noise sources that exceed 3 dBA shall be considered significant.

Table 2 Maximum Allowable Noise Exposure for Transportation Noise Sources			
Land Use	Outdoor Activity Areas¹ Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB²
Residential	60 ³	45	--
Transient Lodging	60 ³	45	--
Hospitals, Nursing Homes	60 ³	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls, Schools	60 ³	--	40
Office Buildings	--	--	45
Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

Notes:

¹ In Community Regions and Rural Centers, where the location of outdoor activity areas is not clearly defined, the exterior noise level standard shall be applied to the property line of the receiving land use. For residential uses with front yards facing the identified noise source, an exterior noise level criterion of 65 dB L_{dn} shall be applied at the building facade, in addition to a 60 dB L_{dn} criterion at the outdoor activity area. In Rural Regions, an exterior noise level criterion of 60 dB L_{dn} shall be applied at a 100 foot radius from the residence unless it is within Platted Lands where the underlying land use designation is consistent with Community Region densities in which case the 65 dB L_{dn} may apply. The 100-foot radius applies to properties which are five acres and larger; the balance will fall under the property line requirement.

² As determined for a typical worst-case hour during periods of use.

³ Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: El Dorado County General Plan, Public Health & Safety Element, Table 6-1

Table 3 Noise Level Performance Protection Standards for Noise-Sensitive Land Uses Affected by Non-Transportation Sources						
Noise Level Descriptor	Daytime 7 am – 7 pm		Evening 7 pm – 10 pm		Nighttime 10 pm – 7 am	
	Community	Rural	Community	Rural	Community	Rural
Hourly, L _{eq}	55	50	50	45	45	40
Maximum, L _{max}	70	60	60	55	55	50

Notes:

-Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

-The County can impose noise level standards which are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

-In Community Regions the exterior noise level standard shall be applied to the property line of the receiving property. In Rural Areas the exterior noise level standard shall be applied at a point 100' away from the residence. The above standards shall be measured only on property containing a noise-sensitive land use as defined in Objective 6.5.1.

Source: El Dorado County General Plan, Public Health & Safety Element, Table 6-2

Table 4			
Maximum Allowable Noise Exposure for Non-Transportation Noise Sources in Community Regions and Adopted Plan Areas – Construction Noise			
Land Use Designation	Time Period	Noise Level (dB)	
		L_{eq}	L_{max}
Higher-Density Residential (MFR, HDR, MDR)	7 am – 7 pm	55	75
	7 pm – 10 pm	50	65
	10 pm – 7 am	45	60
Commercial and Public Facilities (C, R&D, PF)	7 am – 7 pm	70	90
	10 pm – 7 am	65	75
Industrial (I)	Any Time	80	90
Notes:			
¹ Adopted Plan areas should refer to those land use designations that most closely correspond to the similar General Plan land use designations for similar development.			

Table 5			
Maximum Allowable Noise Exposure for Non-Transportation Noise Sources in Rural Centers – Construction Noise			
Land Use Designation	Time Period	Noise Level (dB)	
		L_{eq}	L_{max}
All Residential (MFR, HDR, MDR)	7 am – 7 pm	55	75
	7 pm – 10 pm	50	65
	10 pm – 7 am	40	55
Commercial, Recreation, and Public Facilities (C, TR, PF)	7 am – 7 pm	65	75
	10 pm – 7 am	60	70
Industrial (I)	Any Time	70	80
Open Space (OS)	7 am – 7 pm	55	75
	7 pm – 7 am	50	65

Table 6			
Maximum Allowable Noise Exposure for Non-Transportation Noise Sources in Rural Regions and Adopted Plan Areas – Construction Noise			
Land Use Designation	Time Period	Noise Level (dB)	
		L_{eq}	L_{max}
All Residential (LDR)	7 am – 7 pm	50	60
	7 pm – 10 pm	45	55
	10 pm – 7 am	40	50
Commercial, Recreation, and Public Facilities (C, TR, PF)	7 am – 7 pm	65	75
	10 pm – 7 am	60	70
Rural Land, Natural Resources, Open Space, and Agricultural Lands (RR, NR, OS, AL)	7 am – 7 pm	65	75
	7 pm – 7 am	60	70

According to Figure LU-1 (Land Use Diagram) of the El Dorado County General Plan, the project area and adjacent uses are located within a Community Region. As a result, the “Community” noise level performance standards for noise-sensitive uses affected by non-transportation noise sources identified in Table 3 would be applicable to the project.

Environmental Setting – Existing Ambient Noise and Vibration Environment

Noise Environment

The existing ambient noise environment at the project site is primarily defined by traffic on California State Route 49 (SR-49). To quantify the existing ambient noise environment at the project site, BAC conducted continuous (24-hour) noise level measurements on the project site on Thursday, July 26, 2018. The long-term noise measurement location is shown on Figure 1.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the noise level measurement survey. The meter was calibrated before use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all specifications of the American National Standards Institute requirements for Type 1 sound level meters (ANSI S1.4). The results of the measurements are shown numerically and graphically in Appendices C and D, and are summarized in Table 7. Photographs of the noise measurement site are provided in Appendix E.

Table 7 Summary of Long-Term Ambient Noise Monitoring Results El Dorado Senior Resort – El Dorado County, California July 26, 2018										
Site ¹	L _{dn} , dB	Average Measured Hourly Noise Levels (dB)								
		Daytime 7 am – 7 pm			Evening 7 pm – 10 pm			Nighttime 10 pm – 7 am		
		L _{eq}	L ₅₀	L _{max}	L _{eq}	L ₅₀	L _{max}	L _{eq}	L ₅₀	L _{max}
1	50	45	43	63	45	43	62	42	38	59

Notes:
¹ Long-term ambient noise monitoring site is identified on Figure 1.
 Source: Bollard Acoustical Consultants, Inc. (2018)

The Table 7 data indicate that existing ambient noise levels at the project site comply with the El Dorado County 60 dB L_{dn} exterior traffic noise level standard for residential land uses. The Table 7 data also indicates that measured average maximum (L_{max}) noise levels exceeded the County’s evening and nighttime noise level standards for noise-sensitive uses affected by non-transportation noise sources in Community Regions. A detailed analysis of future traffic noise levels was conducted and that analysis is presented in the following section.

In addition to a long-term noise level measurement survey, short-term (4-hour) noise level measurements were also conducted at the project site. The short-term noise measurement location, identified on Figure 1 as Site A, was located approximately 130 feet from the centerline of Koki Lane. Results from the short-term noise survey indicate that measured ambient noise levels ranged from 45 to 47 dB L_{eq} and 57 to 72 dB L_{max} . Based on measurement results from the short-term noise level survey, and taking into consideration existing and worst-case future traffic volumes on the segment of Koki Lane adjacent to the project site, it is expected that future Koki Lane traffic noise exposure will comply with the El Dorado County exterior traffic noise level limits at the project site by a wide margin. As a result, the following analysis focuses on future traffic noise levels at the project site from SR-49.

Vibration Environment

During a site visit on July 25, 2018, vibration levels were below the threshold of perception at the project site and in the immediate project vicinity. Therefore, the existing vibration environment in the immediate project vicinity is considered to be negligible.

Impacts and Mitigation Measures

Methodology

Evaluation of Exterior Traffic Noise Levels at Project Site

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to predict traffic noise levels at the project site. The model is based upon the CALVENO noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free flowing traffic conditions, and is considered to be accurate within 1.5 dB in most situations.

The FHWA Model was used with future (Cumulative Plus Project) traffic data obtained from the El Dorado Senior Resort Traffic Impact Study (2018) prepared by Kimley-Horn & Associates, Inc. to predict future traffic noise levels from SR-49 at the proposed noise-sensitive areas of the development. The FHWA Model inputs and predicted future traffic noise levels at the noise-sensitive locations are shown in Appendix F. The results are summarized in Table 8.

Based on the project site plans, the primary common outdoor areas of the proposed development have been identified as courtyards located at the assisted living building and community center. The locations of the primary common outdoor areas and buildings are shown in Figure 2. The site plans indicate that the courtyards would be shielded from view of SR-49 by proposed intervening buildings. To account for this shielding, the predicted future exterior traffic noise levels at the primary common outdoor areas of the development have been conservatively adjusted by -7 dB.

Table 8
Predicted Future Exterior SR-49 Traffic Noise Levels¹
El Dorado Senior Resort – El Dorado County, California

Building	Location	Distance from Centerline (ft)²	Offset (dB)³	L_{dn} (dB)
Assisted Living Building	Courtyard	415	-7	45
	First-floor facades	300		54
	Upper-floor facades	300	+3	57
Apartment Building	First-floor facades	380		53
	Upper-floor facades	380	+3	56
Community Center	Courtyard	480	-7	44

Notes:

¹ A complete listing of FHWA Model inputs and results are provided in Appendix F.

² Distances measured from indicated location to the centerline of SR-49.

³ A +3 dB offset was applied to the upper-floor facades due to reduced ground absorption at elevated floor levels. A -7 dB offset was conservatively applied to the primary common outdoor areas (courtyards) to account for the shielding provided by proposed intervening structures that would break line of sight of SR-49.

Source: Bollard Acoustical Consultants, Inc. (2018)

Evaluation of Interior Traffic Noise Levels at Project Site

The worst-case traffic noise exposure at the proposed development would occur within the residences proposed closest to SR-49. According to Table 8, predicted future L_{dn} values at the first-floor facades of the residences nearest to SR-49 would range from 53-54 dB L_{dn}. Due to reduced ground absorption at elevated positions, upper-level traffic noise levels from SR-49 would approach 56-57 dB L_{dn}. In addition, standard residential construction (stucco siding, STC-27 windows, door weather-stripping, exterior wall insulation, composition plywood roof), results in an exterior to interior noise reduction of at least 25 dB with windows closed and approximately 15 dB with windows open.

Evaluation of Off-Site Traffic Noise Level Increases in the Project Vicinity

Construction of this project would result in increased traffic on the local roadway network. BAC utilized the FHWA Model with the aforementioned project traffic impact study prepared by Kimley-Horn & Associates, Inc. to determine whether traffic noise impacts (by the impact significance criteria identified in General Plan Policy 6.5.1.12) would occur as a result of this project. The FHWA Model inputs are provided in Appendix G, and the results are shown in Tables 9-11.

Table 9
Existing vs. Existing Plus Project Traffic Noise Levels, dB L_{dn}
El Dorado Senior Resort – El Dorado County, California

Roadway	Segment	Existing	Existing + Project	Change	Substantial Increase?
SR-49	South of Pleasant Valley Rd	68.2	68.3	0.1	No
SR-49	Pleasant Valley Rd to Forni Rd	62.4	62.4	0.0	No
SR-49	Forni Rd to Koki Ln	65.1	65.2	0.1	No
SR-49	Koki Ln to Patterson Dr	67.1	67.1	0.0	No
SR-49	Patterson Dr to Missouri Flats Rd	67.9	68.0	0.1	No
SR-49	Missouri Flats Rd to Fowler Ln	67.0	67.0	0.0	No
SR-49	North of Pleasant Valley Rd	66.6	66.7	0.1	No
Pleasant Valley Rd	West of SR-49	61.8	61.8	0.0	No
Pleasant Valley Rd	East of SR-49	66.7	66.8	0.1	No
Forni Rd	North of SR-49	60.4	60.4	0.0	No
Koki Ln	SR-49 to Project Driveway	54.6	55.9	1.3	No
Koki Ln	South of Project Driveway	54.6	54.7	0.1	No
Patterson Dr	South of SR-49	60.7	63.3	2.6	No
Missouri Flats Rd	North of SR-49	69.5	64.3	-5.2	No
Fowler Ln	South of SR-49	57.8	57.8	0.0	No

Sources: FHWA-RD-77-108, project traffic study, and Bollard Acoustical Consultants, Inc. (2018)

Table 10
Near-Term vs. Near-Term Plus Project Traffic Noise Levels, dB L_{dn}
El Dorado Senior Resort – El Dorado County, California

Roadway	Segment	Near-Term	Near-Term + Project	Change	Substantial Increase?
SR-49	South of Pleasant Valley Rd	68.4	68.4	0.0	No
SR-49	Pleasant Valley Rd to Forni Rd	62.6	62.6	0.0	No
SR-49	Forni Rd to Koki Ln	65.4	65.5	0.1	No
SR-49	Koki Ln to Patterson Dr	67.3	67.5	0.2	No
SR-49	Patterson Dr to Missouri Flats Rd	68.0	68.2	0.2	No
SR-49	Missouri Flats Rd to Fowler Ln	67.0	67.1	0.1	No
SR-49	North of Pleasant Valley Rd	67.6	67.7	0.1	No
Pleasant Valley Rd	West of SR-49	62.2	62.2	0.0	No
Pleasant Valley Rd	East of SR-49	67.1	67.2	0.1	No
Forni Rd	North of SR-49	60.5	60.5	0.0	No
Koki Ln	SR-49 to Project Driveway	55.8	56.9	1.1	No
Koki Ln	South of Project Driveway	55.8	55.9	0.1	No
Patterson Dr	South of SR-49	61.3	63.9	2.6	No
Missouri Flats Rd	North of SR-49	69.6	64.4	-5.2	No
Fowler Ln	South of SR-49	58.3	58.3	0.0	No

Sources: FHWA-RD-77-108, project traffic study, and Bollard Acoustical Consultants, Inc. (2018)

Table 11
Cumulative vs. Cumulative Plus Project Traffic Noise Levels, dB L_{dn}
El Dorado Senior Resort – El Dorado County, California

Roadway	Segment	Cumulative	Cumulative + Project	Change	Substantial Increase?
SR-49	South of Pleasant Valley Rd	68.6	68.7	0.1	No
SR-49	Pleasant Valley Rd to Forni Rd	62.9	62.9	0.0	No
SR-49	Forni Rd to Koki Ln	65.8	65.8	0.0	No
SR-49	Koki Ln to Patterson Dr	67.5	67.7	0.2	No
SR-49	Patterson Dr to Missouri Flats Rd	68.3	68.4	0.1	No
SR-49	Missouri Flats Rd to Fowler Ln	67.1	67.2	0.1	No
SR-49	North of Pleasant Valley Rd	68.7	68.7	0.0	No
Pleasant Valley Rd	West of SR-49	62.7	62.7	0.0	No
Pleasant Valley Rd	East of SR-49	67.7	67.7	0.0	No
Forni Rd	North of SR-49	60.7	60.7	0.0	No
Koki Ln	SR-49 to Project Driveway	57.1	57.8	0.7	No
Koki Ln	South of Project Driveway	57.1	57.1	0.0	No
Patterson Dr	South of SR-49	61.9	64.6	2.7	No
Missouri Flats Rd	North of SR-49	69.8	64.6	-5.2	No
Fowler Ln	South of SR-49	58.9	58.9	0.0	No

Sources: FHWA-RD-77-108, project traffic study, and Bollard Acoustical Consultants, Inc. (2018)

The data shown in Tables 9-11 indicate that the project-related increase in traffic noise levels on the local roadway network would not be substantial.

Evaluation of Proposed Commercial Noise Levels at Existing Residences

The project proposes the construction of two commercial buildings within the development. Commercial Building #1 is proposed to be located at the western end of the development, and will contain a restaurant. Commercial Building #2 is proposed to be located at the eastern end of the development adjacent to Koki Lane. The locations of the commercial buildings are shown on Figure 2. The mechanical equipment (HVAC) has been identified as one of the primary noise sources associated with proposed commercial buildings.

According to the project applicant, the HVAC systems for maintaining comfortable temperatures within the future commercial buildings will consist of packaged rooftop air conditioning systems. Such HVAC units, which typically stand about 4-5 feet tall, would be shielded from view of nearby sensitive uses by the building parapets on top of the proposed two-story commercial buildings. Such rooftop HVAC units frequently generate a noise level of approximately 45 dB L_{eq} at a reference distance of 100 feet from the building facade, including shielding by a building parapet. In addition, additional mechanical equipment may be needed should the restaurant located within Commercial Building #1 require food cold storage.

The building facades of Commercial Buildings #1 & 2 are proposed to be located approximately 35 and 5 feet from the property lines of the nearest residential uses, respectively. After taking

into consideration the height of two-story commercial building rooftops, and the locations and sizes of the proposed buildings, it is reasonable to assume that the distances from the rooftop-mounted equipment to the nearest property lines would be greater than the measured ground level distances of 35 and 5 feet. Based on this assumption, and when projecting to distances of 50 feet (Commercial Building #1) and 30 feet (Commercial Building #2) to the nearest residential property lines, commercial HVAC equipment noise levels are calculated to range from approximately 51-55 dB Leq at the nearest residential property lines.

Evaluation of Project Construction Noise at Existing Residences

During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project site would also vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks, would be used for this work.

The range of maximum noise levels for various types of construction equipment at a distance of 50 feet is depicted in Table 12. The noise values represent maximum noise generation, or full-power operation of the equipment. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources.

Table 12 Construction Equipment Noise Emission Levels	
Equipment	Typical Sound Level (dBA) 50 Feet from Source
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller	74
Saw	76
Truck	88

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, Table 12-1. (May 2006)

The nearest existing noise-sensitive receptors (residences) are located approximately 25 feet from construction activities which would occur on the project site. As shown in Table 12, construction activities typically generate noise levels ranging from approximately 75 to 90 dB L_{max} at a reference distance of 50 feet from the construction activities. The noise levels from construction operations decrease at a rate of approximately 6 dB per doubling of distance from the source. As a result, worst-case maximum construction noise levels would range from approximately 81 to 96 dB L_{max} at the nearest residences.

Evaluation of Project Construction Vibration Levels at Existing Residences

During project construction heavy equipment would be used for grading excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of the construction. The nearest residence is located approximately 25 feet from construction activities which would occur on the project site.

The range of vibration source levels for construction equipment commonly used in similar projects are shown in Table 13. The vibration levels depicted in Table 13 are representative of measurements at a distance of 25 feet from the equipment source.

Table 13	
Vibration Levels of Construction Equipment – 25 Foot Reference Distance	
Source	Peak Particle Velocity (PPV) inches/second
Vibratory Roller	0.210
Loaded Truck	0.076
Excavator	0.051
Front Loader	0.035
Water Truck	0.001
Source: FTA and FHWA	

The vibration data shown in Table 13 indicate that heavy equipment-generated vibration levels would be at or below distinctly perceptible levels, and well below levels considered severe, at the nearest residences to the project site.

Evaluation of Vibration Levels at the Project Site

The project proposes a restaurant to be located within Commercial Building #1. It is the experience of BAC that restaurant operations do not typically have equipment that generates appreciable vibration. In addition, it is our understanding that the proposed restaurant operations do not propose equipment that will produce appreciable vibration.

During a site visit on July 25, 2018, vibration levels were below the threshold of perception at the project site and in the immediate project vicinity. Therefore, the existing vibration environment in the immediate project vicinity is considered to be negligible. Based on this observation, it is the

professional opinion of BAC that vibration levels at the project site are well below the threshold of perception (below 0.1 inches/second peak particle velocity).

Evaluation of Impacts Relative to CEQA Criteria

Criteria A: Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

On-Site Transportation Noise Exposure

As indicated in Table 8, the proposed common use areas (courtyards) near the community center and assisted living buildings would be exposed to future (Cumulative Plus Project) SR-49 traffic noise levels of 44 and 45 dB L_{dn} (respectively), including the -7 dB offset to account for the shielding provided by the proposed buildings. The predicted exterior traffic noise levels of 44 and 45 dB L_{dn} at the proposed primary common use areas of the development would satisfy the applicable El Dorado County General Plan 60 dB L_{dn} exterior noise level standard.

According to Table 8, the predicted future L_{dn} value at the first-floor facades of the proposed residences/rooms nearest to SR-49 would range from 53-54 dB L_{dn}. Due to reduced ground absorption at elevated positions, upper-level traffic noise levels from SR-49 would approach 56-57 dB L_{dn}. In addition, standard residential construction (stucco siding, STC-27 windows, door weather-stripping, exterior wall insulation, composition plywood roof), results in an exterior to interior noise reduction of at least 25 dB with windows closed and approximately 15 dB with windows open. Therefore, standard residential construction would be acceptable for all residences constructed adjacent to SR-49. Nonetheless, mechanical ventilation (air conditioning) should be provided for all residences/rooms within this development to allow the occupants to close doors and windows as desired for additional acoustical isolation.

Off-Site Non-Transportation Noise Exposure

Mechanical equipment (HVAC) noise levels from Commercial Buildings #1 & 2 are calculated to range from approximately 51-55 dB L_{eq} at the nearest residential property lines, including shielding provided by a building parapet. Because commercial HVAC equipment noise exposure could exceed the applicable El Dorado County evening and nighttime noise level standards at the property lines of the nearest existing residences, this impact is considered to be ***potentially significant***.

Mitigation for Criteria A: Commercial Mechanical Equipment Noise Levels

In order to satisfy the applicable El Dorado County General Plan evening and nighttime noise level standards at the nearest residential property lines, the following noise mitigation options could be employed by the project developer to reduce commercial HVAC noise exposure to a state of compliance:

MM-1: Ensure that all rooftop mounted HVAC equipment associated with air heating and cooling requirements of Commercial Buildings #1 & 2 be completely shielded from view of nearby existing residences by building rooftop parapets (as proposed).

AND (one of the following)

MM-2: When plans are available that identify specific HVAC equipment model information and installation locations, the project developer shall review and confirm that the equipment will not exceed 45 dB L_{eq} at 50 feet (Commercial Building #1) and 45 dB L_{eq} at 30 feet (Commercial Building #2).

OR

MM-3: Should the project developer choose to install rooftop-mounted HVAC equipment that exceeds 45 dB L_{eq} at 50 feet (Commercial Building #1) or 45 dB L_{eq} at 30 feet (Commercial Building #2), the construction of a 6-foot tall localized barrier that encompasses the equipment would be required. Should a barrier be constructed on the rooftop of Commercial Building #1, the barrier shall encompass the equipment around the north, east and west sides. Should a barrier be constructed on the rooftop of Commercial Building #2, the barrier shall encompass the equipment on the south, west and east sides.

Future off-site transportation noise sources are expected to satisfy the applicable El Dorado County exterior and interior noise level criteria at the proposed development. In addition, after implementation of the identified mitigation measures, future project-generated non-transportation noise sources are expected to satisfy the applicable El Dorado County noise level criteria at the nearest existing residences. As a result, this impact is considered to be ***less than significant***.

Criteria B: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

At the nearest existing residences to the proposed project area, construction-generated vibration levels are predicted to be less than the 0.25 in/sec PPV threshold at which vibration levels become distinctly perceptible. Because construction-generated vibration levels at nearby existing receptors would satisfy the California Department of Transportation (Caltrans) vibration criteria (Table 1),

project construction would not result in the exposure of persons to or generation of excessive groundborne vibration levels.

During a site visit on July 25, 2018, vibration levels were below the threshold of perception at the project site and in the immediate project vicinity (below 0.1 inches per second if converted to peak particle velocity). Therefore, the project would not result in the exposure of persons to or generation of excessive groundborne vibration levels at the project site. In addition, the project is not proposing the installation of equipment that would generate significant off-site vibration levels.

Because vibration levels due to and upon the proposed project will satisfy the applicable Caltrans vibration criteria, this impact is considered to be ***less than significant***.

Criteria C: A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

The impact significance criteria identified in Policy 6.5.1.12 of the El Dorado County General Plan was used to determine the significance of impacts due to the project relative to CEQA:

- Where existing or projected future traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of residential uses, an increase of more than 5 dB L_{dn} caused by a new transportation noise source will be considered significant.
- Where existing or projected future traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of residential uses, an increase of more than 3 dB L_{dn} caused by a new transportation noise source will be considered significant; and
- Where existing or projected future traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of residential uses, an increase of more than 1.5 dB L_{dn} caused by a new transportation noise source will be considered significant.

The results from the analysis of 15 roadway segments shown in Tables 9-11 indicate that the project-related increases in traffic noise levels on the local roadway network would not exceed the standards of significance as identified in Policy 6.5.1.12 of the El Dorado County General Plan. As a result, this impact is considered to be ***less than significant***.

Criteria D: A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

As shown in Table 12, exterior noise levels at a residence 50 feet from the noise sources could reach as high as 90 dB L_{max} . As noted in the Regulatory Setting

Section of this report, Policy 6.5.1.11 of the El Dorado County General Plan exempts noise sources associated with construction, provided such activities occur between the hours of 7 am and 7 pm, Monday through Friday, and 8 am and 8 pm on weekends, and on federally-recognized holidays. Provided project construction activities are limited to these hours, construction activities would be exempt and this impact would be considered ***less than significant***.

However, if construction activities are proposed outside of the hours defined by General Plan Policy 6.5.1.11, noise levels generated by construction activities would likely exceed the applicable maximum noise level standards identified in Tables 3 & 4 at the nearest residences. This impact would be considered ***significant***.

Mitigation for Criteria D: Construction Noise Control Measures

MM-3: Noise-generating construction activities shall occur within the hours identified in General Plan Policy 6.5.1.11.

Significance after Mitigation: *Less than Significant*

Criteria E: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Because the project site is not located within 2 miles of a public airport, ***no noise impact*** is identified relative to this significance criteria.

Criteria F: For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Because the project site is not located in the vicinity of a private airstrip, ***no noise impact*** is identified relative to this significance criteria.

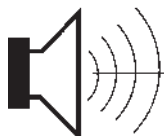
Conclusions and Recommendations

This analysis concludes the project will not result in adverse impacts at residences of the proposed development. In addition, with implementation of feasible noise mitigation measures, all potentially significant noise impacts at the nearest existing residences can be mitigated to a less than significant level. Finally, this analysis concludes that project-generated vibration will not result in adverse impacts at the nearest existing residences.

This concludes BAC's noise assessment for the proposed El Dorado Senior Resort project in El Dorado County, California. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions regarding this assessment.

Appendix A Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

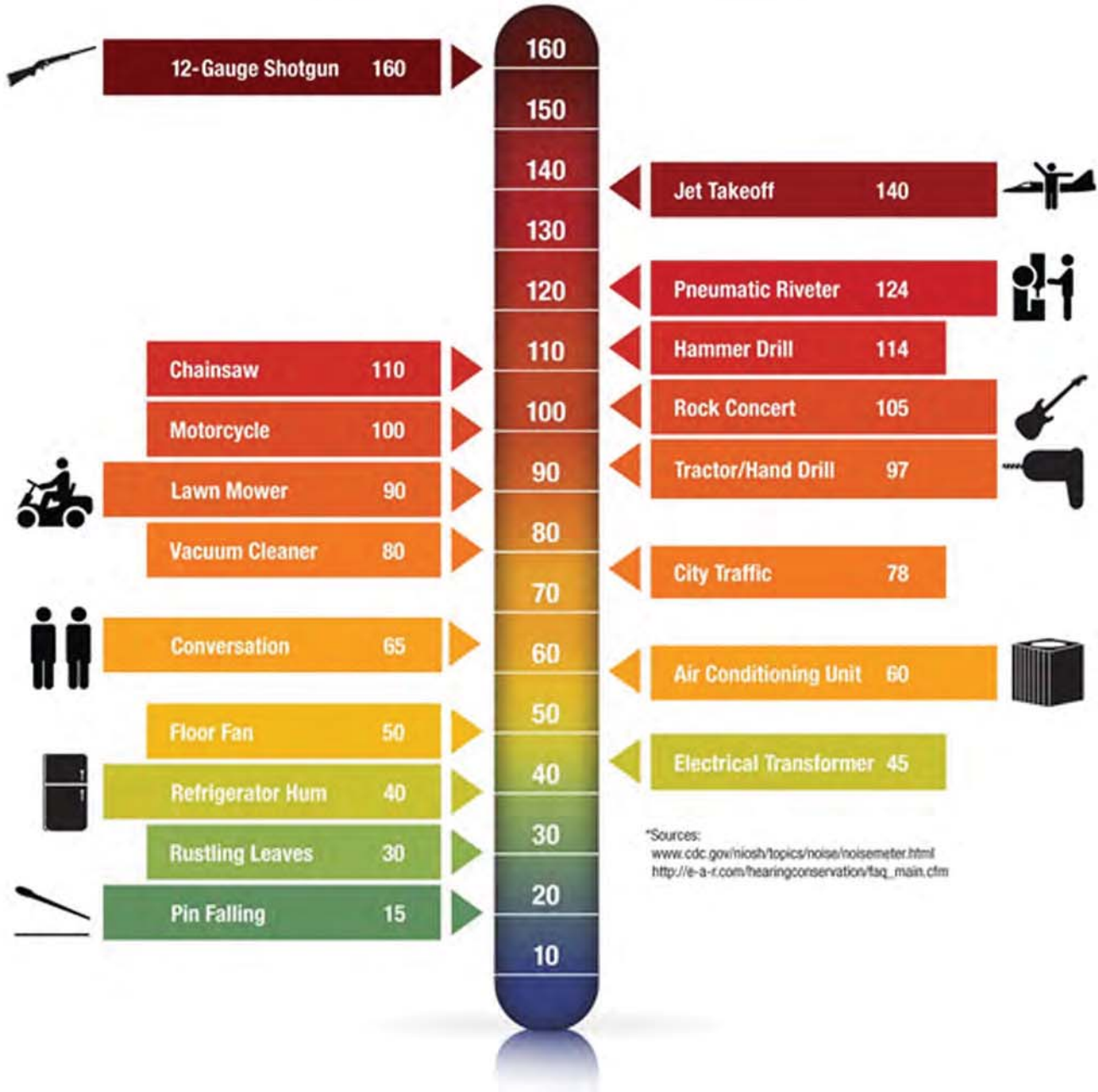


BOLLARD

Acoustical Consultants

Appendix B

Typical A-Weighted Sound Levels of Common Noise Sources Decibel Scale (dBA)*



*Sources:
www.cdc.gov/niosh/topics/noise/noisemeter.html
http://e-a-c.com/hearingconservation/faq_main.cfm

Appendix C
El Dorado Senior Resort - El Dorado County, CA
Ambient Noise Monitoring Results - Site 1
Thursday, July 26, 2018

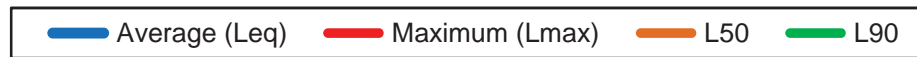
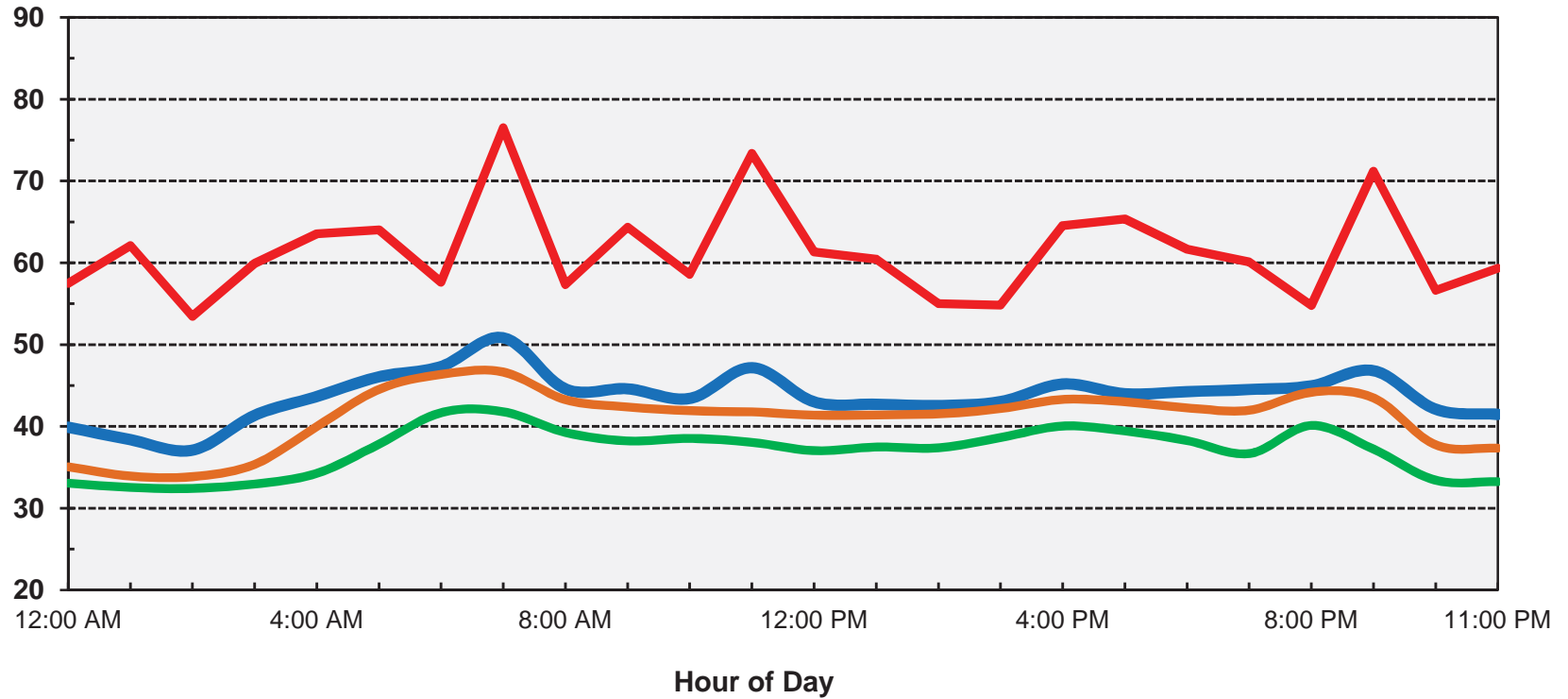
Hour	Leq	Lmax	L50	L90
0:00	40	58	35	33
1:00	38	62	34	33
2:00	37	53	34	32
3:00	41	60	35	33
4:00	44	64	40	34
5:00	46	64	45	38
6:00	47	58	46	42
7:00	51	76	47	42
8:00	45	57	43	39
9:00	45	64	42	38
10:00	43	59	42	39
11:00	47	73	42	38
12:00	43	61	41	37
13:00	43	60	41	37
14:00	43	55	42	37
15:00	43	55	42	39
16:00	45	65	43	40
17:00	44	65	43	39
18:00	44	62	42	38
19:00	45	60	42	37
20:00	45	55	44	40
21:00	47	71	43	37
22:00	42	57	38	33
23:00	41	59	37	33

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	51	43	45	47	37	43
Lmax (Maximum)	76	55	63	64	53	59
L50 (Median)	47	41	43	46	34	38
L90 (Background)	42	37	39	42	32	35

Computed Ldn, dB	50
% Daytime Energy	74%
% Nighttime Energy	26%

Appendix D
El Dorado Senior Resort - El Dorado County, CA
Ambient Noise Monitoring Results - Site 1
Thursday, July 26, 2018

Sound Level, dBA



Ldn: 50 dB



Appendix E

Photographs of Noise Measurement Site Locations El Dorado Senior Resort - El Dorado County, California



**Appendix F
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Prediction Worksheet**

Project Information:

Job Number: 2018-134
Project Name: El Dorado Senior Resort
Roadway Name: California State Route 49 (SR-49)

Traffic Data:

Year: Future (2035)
Average Daily Traffic Volume¹: 8,930
Percent Daytime Traffic: 83
Percent Nighttime Traffic: 17
Percent Medium Trucks (2 axle): 2
Percent Heavy Trucks (3+ axle): 1
Assumed Vehicle Speed (mph): 40
Intervening Ground Type (hard/soft): **Soft**

Traffic Noise Levels:

Location	Description	Distance	Offset (dB) ²	-----L _{dn} , dB-----			Total
				Autos	Medium Trucks	Heavy Trucks	
1	Assisted Living Building - Courtyard	415	-7	44	36	37	45
2	Assisted Living Building - First-floor facades	300		53	45	47	54
3	Assisted Living Building - Upper-floor facades	300	3	56	48	50	57
4	Apartment Building - First-floor facades	380		51	43	45	53
5	Apartment Building - Upper-floor facades	380	3	54	46	48	56
6	Community Center - Courtyard	480	-7	43	35	36	44

Traffic Noise Contours (No Calibration Offset):

L _{dn} Contour, dB	Distance from Centerline, (ft)
75	12
70	26
65	57
60	122

- Notes:**
- ¹ Future average daily traffic volume (Cumulative Plus Project Conditions) for SR-49 was calculated by using peak hour traffic volume data obtained from the El Dorado Senior Resort Traffic Impact Study prepared by Kimley-Horn (2018). Future peak hour traffic volumes were estimated by conservatively multiplying peak hour conditions by a factor of 10.
 - ² A +3 dB offset was applied at upper-level facades to account for reduced ground absorption at elevated locations. To account for the shielding provided by proposed intervening buildings, a -7 dB offset was conservatively applied to at the primary common outdoor areas (courtyards).



Appendix G-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2018-034 El Dorado Senior Resort
 Description: Existing
 Ldn/CNEL: Ldn
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-49	South of Pleasant Valley Rd	7,070	83		17	2	1	55	50	
2	SR-49	Pleasant Valley Rd to Forni Rd	10,110	83		17	2	1	25	50	
3	SR-49	Forni Rd to Koki Ln	7,600	83		17	2	1	40	50	
4	SR-49	Koki Ln to Patterson Dr	9,010	83		17	2	1	45	50	
5	SR-49	Patterson Dr to Missouri Flats Rd	10,750	83		17	2	1	45	50	
6	SR-49	Missouri Flats Rd to Fowler Ln	15,890	83		17	2	1	35	50	
7	SR-49	North of Pleasant Valley Rd	6,200	83		17	2	1	50	50	
8	Pleasant Valley Rd	West of SR-49	8,860	83		17	2	1	25	50	
9	Pleasant Valley Rd	East of SR-49	14,980	83		17	2	1	35	50	
10	Forni Rd	North of SR-49	3,470	83		17	2	1	35	50	
11	Koki Ln	South of SR-49	1,700	83		17	2	1	25	50	
12	Patterson Dr	South of SR-49	3,790	83		17	2	1	35	50	
13	Missouri Flats Rd	North of SR-49	15,760	83		17	2	1	45	50	
14	Fowler Ln	South of SR-49	3,570	83		17	2	1	25	50	



Appendix G-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2018-034 El Dorado Senior Resort
 Description: Existing Plus Project
 Ldn/CNEL: Ldn
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-49	South of Pleasant Valley Rd	7,130	83		17	2	1	55	50	
2	SR-49	Pleasant Valley Rd to Forni Rd	10,250	83		17	2	1	25	50	
3	SR-49	Forni Rd to Koki Ln	7,740	83		17	2	1	40	50	
4	SR-49	Koki Ln to Patterson Dr	9,010	83		17	2	1	45	50	
5	SR-49	Patterson Dr to Missouri Flats Rd	11,150	83		17	2	1	45	50	
6	SR-49	Missouri Flats Rd to Fowler Ln	16,150	83		17	2	1	35	50	
7	SR-49	North of Pleasant Valley Rd	6,340	83		17	2	1	50	50	
8	Pleasant Valley Rd	West of SR-49	8,940	83		17	2	1	25	50	
9	Pleasant Valley Rd	East of SR-49	15,100	83		17	2	1	35	50	
10	Forni Rd	North of SR-49	3,470	83		17	2	1	35	50	
11	Koki Ln	SR-49 to Project Drvwy	2,290	83		17	2	1	25	50	
12	Koki Ln	South of Project Drvwy	1,720	83		17	2	1	25	50	
13	Patterson Dr	South of SR-49	3,790	83		17	2	1	45	50	
14	Missouri Flats Rd	North of SR-49	15,900	83		17	2	1	25	50	
15	Fowler Ln	South of SR-49	3,570	83		17	2	1	25	50	



Appendix G-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2018-034 El Dorado Senior Resort

Description: Near-Term

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-49	South of Pleasant Valley Rd	7,330	83		17	2	1	55	50	
2	SR-49	Pleasant Valley Rd to Forni Rd	10,590	83		17	2	1	25	50	
3	SR-49	Forni Rd to Koki Ln	8,090	83		17	2	1	40	50	
4	SR-49	Koki Ln to Patterson Dr	9,400	83		17	2	1	45	50	
5	SR-49	Patterson Dr to Missouri Flats Rd	11,160	83		17	2	1	45	50	
6	SR-49	Missouri Flats Rd to Fowler Ln	15,960	83		17	2	1	35	50	
7	SR-49	North of Pleasant Valley Rd	7,720	83		17	2	1	50	50	
8	Pleasant Valley Rd	West of SR-49	9,660	83		17	2	1	25	50	
9	Pleasant Valley Rd	East of SR-49	16,530	83		17	2	1	35	50	
10	Forni Rd	North of SR-49	3,560	83		17	2	1	35	50	
11	Koki Ln	South of SR-49	2,240	83		17	2	1	25	50	
12	Patterson Dr	South of SR-49	4,270	83		17	2	1	35	50	
13	Missouri Flats Rd	North of SR-49	16,100	83		17	2	1	45	50	
14	Fowler Ln	South of SR-49	3,990	83		17	2	1	25	50	



Appendix G-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2018-034 El Dorado Senior Resort
 Description: Near-Term Plus Project
 Ldn/CNEL: Ldn
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-49	South of Pleasant Valley Rd	7,390	83		17	2	1	55	50	
2	SR-49	Pleasant Valley Rd to Forni Rd	10,730	83		17	2	1	25	50	
3	SR-49	Forni Rd to Koki Ln	8,260	83		17	2	1	40	50	
4	SR-49	Koki Ln to Patterson Dr	9,850	83		17	2	1	45	50	
5	SR-49	Patterson Dr to Missouri Flats Rd	11,560	83		17	2	1	45	50	
6	SR-49	Missouri Flats Rd to Fowler Ln	16,220	83		17	2	1	35	50	
7	SR-49	North of Pleasant Valley Rd	7,860	83		17	2	1	50	50	
8	Pleasant Valley Rd	West of SR-49	9,740	83		17	2	1	25	50	
9	Pleasant Valley Rd	East of SR-49	16,650	83		17	2	1	35	50	
10	Forni Rd	North of SR-49	3,560	83		17	2	1	35	50	
11	Koki Ln	SR-49 to Project Drvwy	2,860	83		17	2	1	25	50	
12	Koki Ln	South of Project Drvwy	2,260	83		17	2	1	25	50	
13	Patterson Dr	South of SR-49	4,320	83		17	2	1	45	50	
14	Missouri Flats Rd	North of SR-49	16,240	83		17	2	1	25	50	
15	Fowler Ln	South of SR-49	3,990	83		17	2	1	25	50	



Appendix G-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2018-034 El Dorado Senior Resort

Description: Cumulative

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-49	South of Pleasant Valley Rd	7,720	83		17	2	1	55	50	
2	SR-49	Pleasant Valley Rd to Forni Rd	11,410	83		17	2	1	25	50	
3	SR-49	Forni Rd to Koki Ln	8,790	83		17	2	1	40	50	
4	SR-49	Koki Ln to Patterson Dr	9,970	83		17	2	1	45	50	
5	SR-49	Patterson Dr to Missouri Flats Rd	11,750	83		17	2	1	45	50	
6	SR-49	Missouri Flats Rd to Fowler Ln	16,450	83		17	2	1	35	50	
7	SR-49	North of Pleasant Valley Rd	9,910	83		17	2	1	50	50	
8	Pleasant Valley Rd	West of SR-49	10,850	83		17	2	1	25	50	
9	Pleasant Valley Rd	East of SR-49	18,760	83		17	2	1	35	50	
10	Forni Rd	North of SR-49	3,790	83		17	2	1	35	50	
11	Koki Ln	South of SR-49	2,980	83		17	2	1	25	50	
12	Patterson Dr	South of SR-49	4,960	83		17	2	1	35	50	
13	Missouri Flats Rd	North of SR-49	16,570	83		17	2	1	45	50	
14	Fowler Ln	South of SR-49	4,580	83		17	2	1	25	50	



Appendix G-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2018-034 El Dorado Senior Resort
 Description: Cumulative Plus Project
 Ldn/CNEL: Ldn
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-49	South of Pleasant Valley Rd	7,780	83		17	2	1	55	50	
2	SR-49	Pleasant Valley Rd to Forni Rd	11,550	83		17	2	1	25	50	
3	SR-49	Forni Rd to Koki Ln	8,930	83		17	2	1	40	50	
4	SR-49	Koki Ln to Patterson Dr	10,420	83		17	2	1	45	50	
5	SR-49	Patterson Dr to Missouri Flats Rd	12,150	83		17	2	1	45	50	
6	SR-49	Missouri Flats Rd to Fowler Ln	16,710	83		17	2	1	35	50	
7	SR-49	North of Pleasant Valley Rd	10,050	83		17	2	1	50	50	
8	Pleasant Valley Rd	West of SR-49	10,930	83		17	2	1	25	50	
9	Pleasant Valley Rd	East of SR-49	18,880	83		17	2	1	35	50	
10	Forni Rd	North of SR-49	3,790	83		17	2	1	35	50	
11	Koki Ln	SR-49 to Project Drvwy	3,570	83		17	2	1	25	50	
12	Koki Ln	South of Project Drvwy	3,000	83		17	2	1	25	50	
13	Patterson Dr	South of SR-49	5,010	83		17	2	1	45	50	
14	Missouri Flats Rd	North of SR-49	16,710	83		17	2	1	25	50	
15	Fowler Ln	South of SR-49	4,580	83		17	2	1	25	50	

