Appendix 4.7-1:

Biological Assessment
Greentree Development Project

Biological Assessment

Greentree Development Project

Solano County, California

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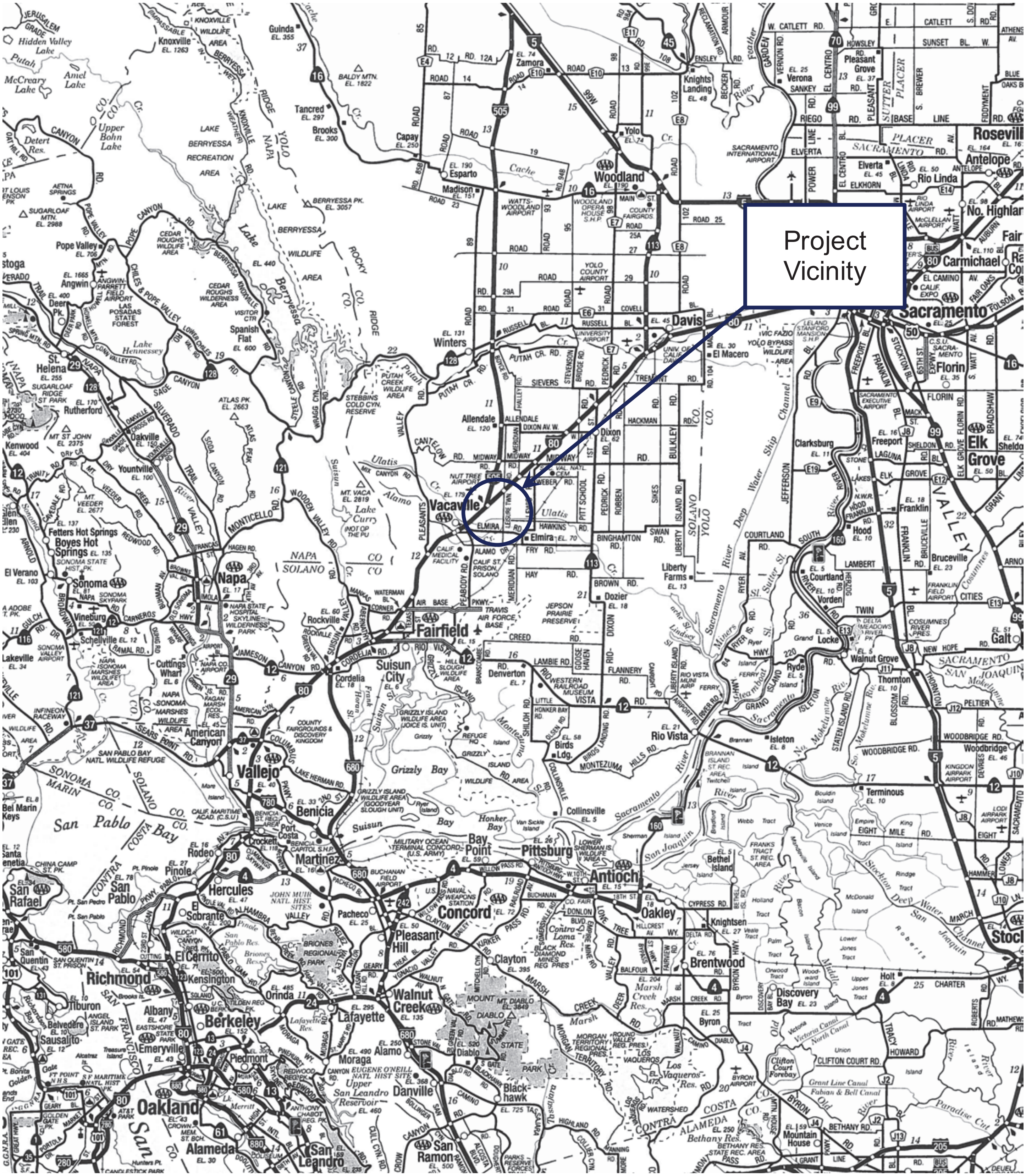
The study area consists primarily of disked grassland and scattered trees, many of which are in decline due to the cessation of irrigation since the Green Tree Golf Course was closed in 2016. There is a network of golf course ponds and ditches in the study area, as well as a few buildings, paved and gravel areas, fences to stop errant golf balls, and a network of golf course paths. Old Ulatis Creek spans the south boundary of the study area and Horse Creek is located just north of the study area.

This biological assessment (BA) describes the existing biological environment, how the project would affect that environment, and recommends appropriate mitigation measures for those effects. The “Study Area” addressed in this BA includes the 185.4+/- acre Tentative Map site as well as 4+/- acres of adjacent land along the edges of the Tentative Map that will be impacted by the proposed project.

II. PROJECT OVERVIEW

The proposed project is a combination of a more traditional, single-family, senior residential neighborhood with park and recreation amenities, and a higher density residential neighborhood that includes a range of housing product types, a neighborhood-oriented commercial district, and robust park and recreation amenities (see Project Maps in Appendix A). Gilley Way will be vacated and a



Source: California State Automobile Association

Moore Biological Consultants

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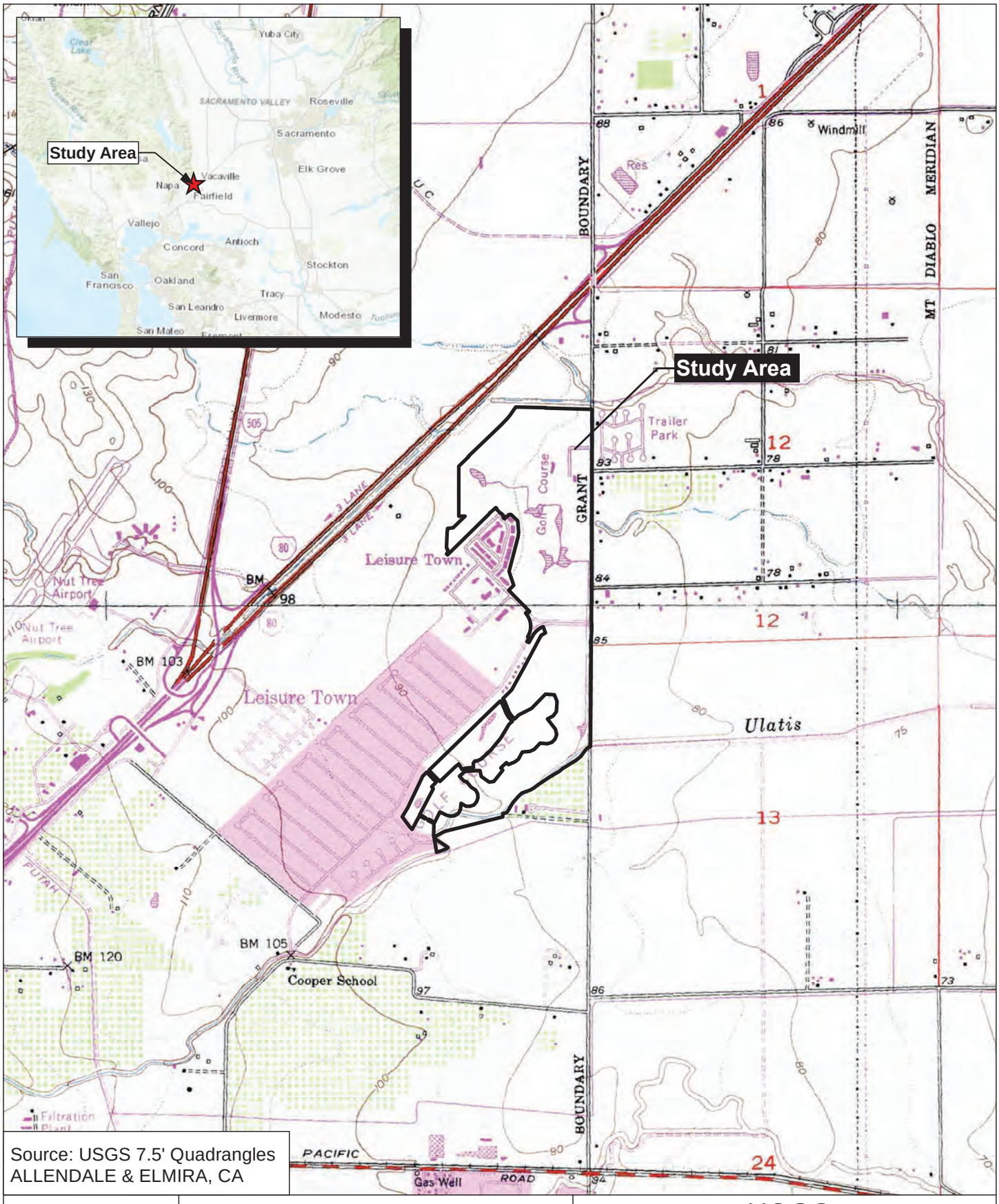
FIGURE 1

PROJECT VICINITY



Source: USGS 7.5' Quadrangles
ALLENDALE & ELMIRA, CA

Figure 2

Moore Biological Consultants

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Map Date: 05/19/2021

USGS

Greentree Development Project

City of Vacaville, Solano County, CA

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new road to the south will provide connection between Leisure Town Road and Orange Drive.

A total of 199 residential lots are proposed for the portion of the study area south of Sequoia Drive, along with a network of roads, a park, water quality treatment areas, and areas of open space. Lands to the north of Sequoia Drive will be developed in a mixture of residential and commercial lots, a park, a network of roads, a park, and water quality treatment areas. A parcel for a water well and a parcel for sewer facilities will be dedicated to the City on the portion of the study area to the north of Sequoia Drive. To the south of Sequoia Drive, an additional parcel will be dedicated to the City for a second well.

Water will be provided by the City of Vacaville and sewer will tie into the existing City of Vacaville sanitary system. Storm water will be treated on-site in a series of bio-swales and detention basins and then released into Ulatis Creek, Old Ulatis Creek, and Horse Creek through existing storm drain outfalls. Pacific Gas and Electricity will provide electricity and gas to the development.

Development of the project will involve mass grading the study area, with the exception of a band of open space along the Old Ulatis Creek corridor along the south edge of the study area. The majority of the trees and shrubs in the study area will also be removed, with the exception of the urban woodland vegetation along the Old Ulatis Creek corridor.

The existing network of golf course ponds and ditches in the study area are used as part of Vacaville's municipal stormwater system to convey storm water from the adjacent subdivisions, and will be filled. A series of new detention basins will be constructed that will both serve the proposed project and continue to convey storm water through the study area from the subdivisions to the west of the study area.

III. METHODS

Database Review

The United States Fish and Wildlife Service (USFWS) IPaC Trust Report of Federally Threatened and Endangered species that may occur in or be affected by projects in the project vicinity was reviewed (Appendix B). A search of CDFW's California Natural Diversity Database (CNDDB, 2021) was also conducted. The CNDDB search included the USGS 7.5-minute Allendale and Elmira topographic quadrangles, which encompasses approximately 120 square miles surrounding the study area. This information was used to identify wildlife and plant species that have been previously documented in the project vicinity or have the potential to occur based on suitable habitat and geographical distribution. The USFWS on-line maps of designated critical habitat were also reviewed.

Field Surveys

Initial reconnaissance-level field surveys were conducted on September 25, October 13, 14, and 29, 2020. The Fall 2020 surveys were accomplished by driving and walking throughout the study area documenting habitat conditions, land uses, habitat types, and plant and wildlife species. The initial surveys included an assessment of the study area for potentially jurisdictional Waters of the U.S. and wetlands, as well as potentially suitable habitat for special-status species (e.g., blue elderberry shrubs, vernal pools). Trees in and near the study area were assessed for the potential for use by nesting raptors, especially Swainson's hawk. The study area and surrounding areas were also searched for burrowing owls and burrows that may be utilized by burrowing owls.

Follow-up surveys were conducted on December 22 and 31, 2020, January 15, February 10, March 12, 25, and 30, April 7, 19, and 27, and May 13, 2021 by

Moore Biological Consultants Diane Moore, M.S. and Colleen Laskowski, M.S. The follow-up surveys included additional reconnaissance-level field surveys to further document habitats and plant and wildlife species in the study area. Focused surveys for nesting Swainson's hawks (*Buteo swainsoni)*, burrowing owl (*Athene cunicularia*), other nesting birds, special-status plants, valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and vernal pool branchiopods (i.e., fairy shrimp and tadpole shrimp) were also conducted during the appropriates times of year during Fall 2020 through Spring 2021. A preliminary delineation of potentially jurisdictional Waters of the U.S. and wetlands in the study area was also undertaken.

AQUATIC RESOURCES DELINEATION: Aquatic resources in the study area were delineated in accordance with the U.S. Army Corps of Engineers (ACOE) Wetland Delineation Manual (ACOE, 1987) and Arid West Region Regional Supplement (ACOE, 2008). The boundaries of the aquatic habitats were mapped using a Trimble GeoXH Global Positioning System (GPS) unit. Representative 3-parameter wetland and upland data points were taken on each side of the delineated boundaries of many of the mapped aquatic features. The GPS data were combined with a 2018 Google Earth color aerial photograph in ArcGIS to create an aquatic resources delineation map.

SWAINSON'S HAWK SURVEYS: Standard protocol surveys for nesting Swainson's hawks were conducted as described in the CDFG's *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (1994) and the Swainson's Hawk Technical Advisory Committee (SHTAC) survey guidelines (SHTAC, 2000). The surveys included a search for Swainson's hawks flying, perching, or foraging in or near the study area. Trees in and adjacent to the study area were inspected for raptor stick nests.

Pursuant to the recommendations of the SHTAC Guidelines, surveys were conducted during each of the four survey periods: January through March 20 (Period I), March 20 to April 5 (Period II), April 5 to April 20 (Period III), and April

21 to June 10 (Period 4). Prior to Swainson's hawks returning from their wintering grounds in early-March, trees in the study area were searched for raptor stick nests. During the second survey period, observations focused on the early-season signs of the establishment of nesting territories and involved searching the skies for Swainson's hawks soaring and circling over fixed locations, listening for territorial vocalizations, listening for and watching territorial interactions (i.e., multiple hawks in mid-air territorial establishment conflict), and searching treetops for perching Swainson's hawks.

During the third survey period, the surveys involved locating and confirming the nest location of the one pair of Swainson's hawks that selected the study area for nesting during 2021. Other areas of the study area were periodically searched for evidence of other Swainson's hawks, with negative findings. Thus, behavioral observations were limited to a pair of Swainson's hawks nesting in the study area near Sequoia Drive. During the fourth survey period, the surveys primarily involved additional behavioral observations of the female brooding, with some observations of the male.

Concurrent with the Swainson's hawk surveys, the trees in and near the study area were searched for other bird species that nest in trees. Care was taken to search for other species of raptors, such as white-tailed kites, that may be nesting in trees in and adjacent to the study area.

BURROWING OWL SURVEYS: Following the identification of a few burrowing owls in the north part of the study area during Fall 2020, a standard-protocol "burrow survey" for burrowing owls was conducted in the study area during October 2020, as described in the California Department of Fish and Wildlife's (CDFW) *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012). The study area was inspected for burrowing owls and/or burrows with evidence of burrowing owl occupancy such as pellets, feathers, and white-wash around the entrances to the burrows. Comprehensive visual inspection of potential burrowing owl habitat was

accomplished driving and walking meandering transects throughout the study area, and scanning surrounding areas with binoculars.

A series of ten (10) surveys for burrowing owl were conducted in the ruderal grassland areas north of the former golf course during December 2020 through May 13, 2021, prior to and during the 2021 burrowing owl nesting season. Most of the surveys were conducted during the very early-morning, generally starting prior to sunrise, with the biologists often arriving in the dark and waiting for enough light to commence a visual survey, as that is the best time of the day for burrowing owl surveys.

The objective of the early-season nesting season surveys during December 2020 and January 2021 was to identify potential breeding pairs, the location of their natal burrow, and the location(s) of any satellite burrows (i.e., burrows used for occasional cover). During February through May 13, 2021, the surveys focused on behavioral observations of the two pairs of burrowing owls that selected the study area for nesting during 2021. Other areas of the study area were periodically searched for burrowing owls and/or burrows with evidence of burrowing owl occupancy during this same time period, with negative findings. Thus, behavioral observations were limited to the two pairs of burrowing owls in the ruderal grassland areas north of the former golf course.

During behavioral observations, the owls were primarily viewed from afar, watching for signs of nesting such as males guarding the burrow, males flying from the burrow upon alert, perching nearby and chirping, and adults carrying food items in to the burrow. The burrow entrances were also periodically inspected for evidence of nesting, such as fresh pellets, whitewash, and numerous feathers around the burrow entrances. The burrow entrances were also searched for dung, animal parts, garbage “decorating” the burrow entrances, and nest materials removed from the burrows.

BLUE ELDERBERRY SHRUB INVENTORY AND SURVEY: An inventory of blue elderberry shrubs in the study area was undertaken. The approximate location of the center of each of the elderberry shrub was mapped using a Trimble GeoXH GPS unit and the diameter of the driplines of the shrubs were classified in three size classes: less than 15 feet, 16 to 25 feet, and 40 to 50 feet. The driplines of the two large shrubs in closest proximity to the limits of disturbance were staked and surveyed to ensure accurate mapping of the driplines with respect to potential future grading.

On May 13, 2021, each blue elderberry shrub in the study area was inspected for adult valley elderberry longhorn beetles. This survey was scheduled during the valley elderberry longhorn beetle emergence period, when adults in occupied blue elderberry shrubs may be observed on the leaves, stems, and flowers. The stems of the blue elderberry shrubs were also comprehensively inspected for fresh boreholes indicative of recently emerged valley elderberry longhorn beetles.

SPECIAL-STATUS PLANT SURVEYS: Under subcontract to Moore Biological, Salix Consulting, Inc. assessed the study area for potentially suitable habitat for special-status plants and conducted surveys for potentially occurring special-status plants. Botanist Jeff Glazner conducted the habitat assessment and botanical surveys on March 30 and 31, and April 16, 2021.

VERNAL POOL BRANCHIOPOD SURVEYS: Under subcontract to Moore Biological, Helm Consulting, Inc. conducted wet-season and dry-season protocol-level surveys for vernal pool branchiopods (i.e., fairy shrimp and tadpole shrimp) in the seasonal wetlands and other aquatic habitats in the study area. The wet-season surveys were conducted every two weeks from December 22, 2020 through March 19, 2021. The dry-season surveys were conducted on May 14, 2021.

IV. RESULTS AND DISCUSSION

Setting

The 189.4+/- acre study area is an abandoned golf course located in Vacaville, in Solano County, California (Figure 1). The study area is within unnumbered Sections in Township 6 North, Range 1 West of the USGS 7.5-minute Allendale and Elmira topographic quadrangles (Figure 2). The study area is essentially level and is at an elevation of approximately 85 to 90 feet above mean sea level.

The study area consists primarily of disked grassland and scattered trees, many of which are in decline due to the cessation of irrigation since the Green Tree Golf Course was closed in 2016 (Figure 3). There is a network of golf course ponds and ditches in the study area, as well as a few buildings, paved and gravel areas, fences to stop errant golf balls, and a network of golf course paths. The remnant channel of Old Ulatis Creek runs along the east part of the south edge of the study area. There is a second short section of the remnant channel in the southwest corner of the study area.

Surrounding land uses in this portion of Solano County are primarily residential and agricultural. Leisure Town Road borders the east edge of the study area and Orange Drive borders the northwest edge of the study area. Gilley Way runs generally east to west through the north part of the study area and Sequoia Drive runs east to west through the central part of the study area. Horse Creek is adjacent to the north edge of the study area and there is a grassland field and storage facility further north, across Horse Creek. A residential community associated with the previous golf course is situated in the south part of the study area. The remaining edges of the study area are bordered by residential subdivisions, commercial properties, agricultural parcels, larger residential parcels, a church, Ulatis Creek and an associated detention basin, and open grassland.

Figure 3

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Feet

Map Date: 05/19/2021
Aerial Source: Google Earth (09/2018)

AERIAL

Greentree Development Project

City of Vacaville, Solano County, CA

Soils

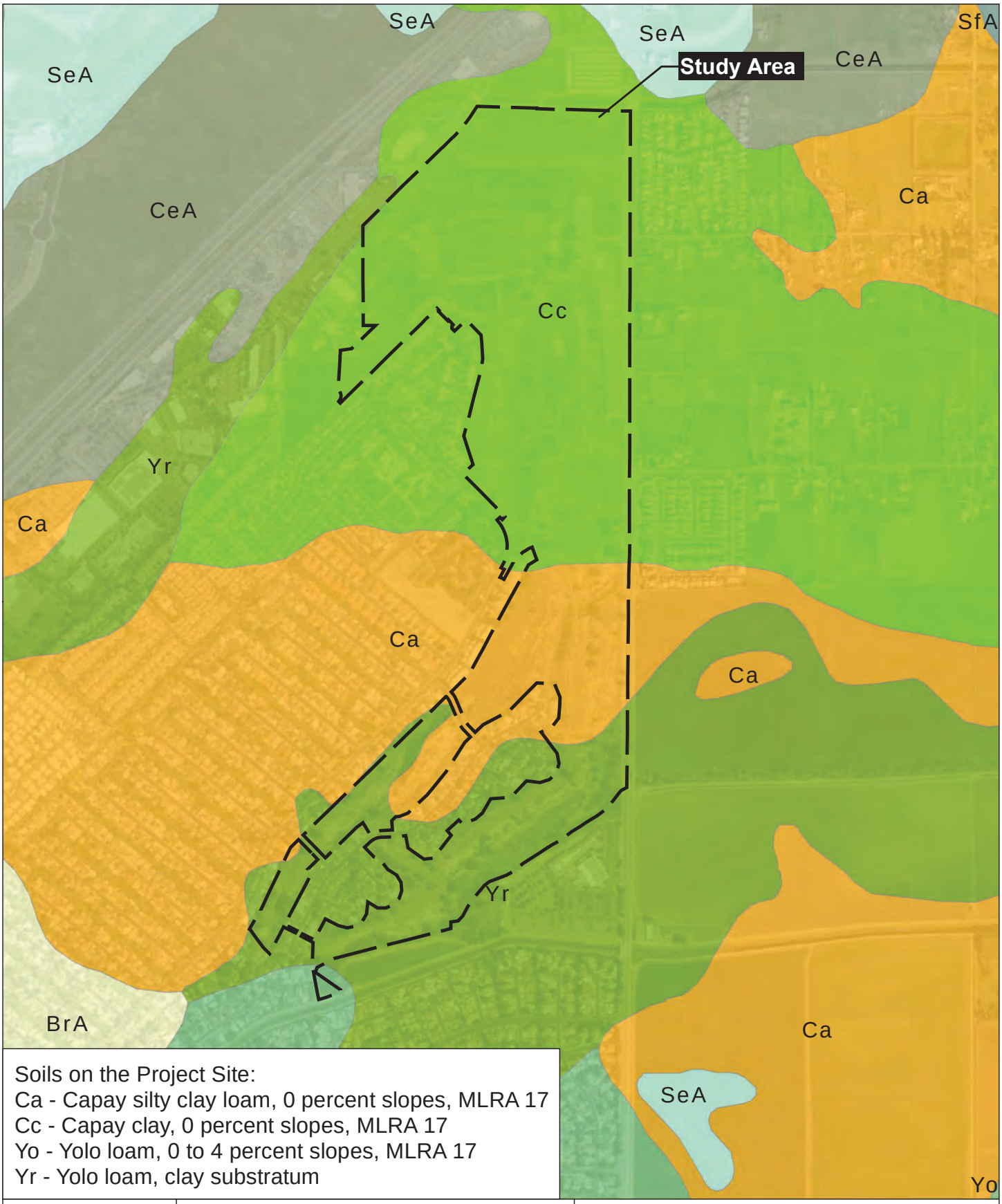
There are four different types of soil in the study area: Capay silty clay loam, 0 percent slopes, MLRA 17 (Map Unit Ca), Capay clay, 0 percent slopes, MLRA 17 (Map Unit Cc), Yolo loam, 0 to 4 percent slopes, MLRA 17 (Map Unit Yo), and Yolo loam, clay substratum (Map Unit Yr) (Figure 4). All of the soil types in the study area are considered well drained or moderately well drained.

Vegetation and Habitat Types

The study area in comprised of a mosaic of grassland areas, patches of trees, previously developed areas, and aquatic habitats. With the exception of two remnant sections of the Old Ulatis Creek channel along part of the south edge of the study area, all of the habitats in the study area have been disturbed by historical agricultural uses, golf course construction and operation, surrounding development, and periodic disking and/or mowing for weed abatement.

Ruderal Grassland: The upland grasslands in the study area are highly disturbed and weedy, comprised of primarily non-native species, and best described as "ruderal grassland" vegetation. The study area contains 153.34+/- acres of ruderal grassland vegetation (Figure 5 and photographs in Appendix C). Wild oats (*Avena* sp.), hare barley (*Hordeum murinum subsp. leporinum*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*) are dominant grass species. Other grassland species such as black mustard (*Brassica nigra*), bristly ox-tongue (*Helminthotheca echioides*), prickly lettuce (*Lactuca serriola*), yellow starthistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), broad-leaf filaree (*Erodium botrys*), rose clover (*Trifolium hirtum*), bindweed (*Convolvulus arvensis*), and vetch (*Vicia villosa*) are intermixed with the grasses. A list of plant species observed in the study area is included in Appendix D.

Urban Woodland: The study area contains 11.96 +/- acres of clusters of primarily non-native and landscape trees and shrubs that are best described as



Soils on the Project Site:
Ca - Capay silty clay loam, 0 percent slopes, MLRA 17
Cc - Capay clay, 0 percent slopes, MLRA 17
Yo - Yolo loam, 0 to 4 percent slopes, MLRA 17
Yr - Yolo loam, clay substratum

Figure 4

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0 500 1,000

N W E S

SOILS

Greentree Development Project

City of Vacaville, Solano County, CA

Data Source: Natural Resources Conservation Service
Map Date: 05/19/2021

Aerial Photo: ESRI; Maxar (2020)

Figure 5

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Map Date: 05/19/2021
Aerial Source: Google Earth (09/2018)

Habitat Types

Greentree Development Project

City of Vacaville, Solano County, CA

"urban woodland" vegetation (Figure 5 and photographs in Appendix C). The largest patch of urban woodland is located on the south edge of the study area, along the historical alignment of Ulatis Creek (i.e., "Old Ulatis Creek"). The urban woodland vegetation includes red and blue gum trees (*Eucalyptus* sp.), ornamental pines (*Pinus* sp.), white poplar (*Populus alba*), Fremont cottonwood (*Populus fremontii*), white mulberry (*Morus alba*), ash (*Fraxinus sp.*), valley oak (*Quercus lobata),* a variety of willows (*Salix* spp.), and other species of trees and shrubs. There are also sixteen (16) blue elderberry shrubs in the understory of the urban woodland vegetation along the south edge of the study area (Figure 6 and photographs in Appendix C).

Urban: The study area contains 17.21 +/- acres of previously developed areas that are best described as "urban" (Figure 5 and photographs in Appendix C). Urban habitats include buildings, paved and gravel areas, and areas of rock.

Seasonal Wetland: The study area contains 0.11 +/- acres of highly disturbed seasonal wetlands (Figure 5 and photographs in Appendix C). The seasonal wetlands are vegetated hydrophytic species such as Mediterranean barley (*Hordeum marinum*), spinyfruit buttercup (*Ranunculus muricatus*), Baltic rush (*Juncus balticus*), stalked popcorn flower (*Plagiobothrys stipitatus*) and dense flower willowherb (*Epilobium densiflorum*).

Constructed Seasonal Ponds: The study area contains 4.51 +/- acres of constructed ponds that are dry much of the year (Figure 5 and photographs in Appendix C). Dominant vegetation within these ponds includes Mediterranean barley, curly dock (*Rumex crispus*), swamp prickle grass (*Crypsis schoenoides*), stalked popcorn flower, annual rabbit's-foot grass (*Polypogon monspeliensis*) and perennial ryegrass (*Festuca perennis*). Only a few trees or shrubs surround these ponds.

Constructed Perennial Pond: The study area contains 2.96 +/- acres of constructed ponds that hold at least some water throughout the year during most

Figure 6

Moore Biological Consultants

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Blue Elderberry Shrubs
Study Area Boundary

Map Date: 05/19/2021
Aerial Source: Google Earth (09/2018)

Blue Elderberry Shrubs

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years (Figure 5 and photographs in Appendix C). Dominant vegetation within these ponds includes tules (*Schoenoplectus acutus*), cattails (*Typha latifolia*), and umbrella sedge (*Cyperus eragrostis*). Some of these ponds in the study area contain no surrounding trees or shrubs, while a few are surrounded by a more developed riparian corridor, containing willows (*Salix sp.),* cottonwoods (*Populus sp.*), and other ornamental tree species.

Remnant Channel: The study area contains 0.38 +/- acres of remnant channel (Figure 5 and photographs in Appendix C). The beds of the remnant channels contain a mixture of upland and wetland vegetation such as curly dock, soft chess, perennial ryegrass, and Mediterranean barley.

Ditch: The study area contains 1.24 +/- acres of constructed ditches, most of which are dry much of the year (Figure 5 and photographs in Appendix C). The ditches contain a mixture of upland and wetland vegetation such as curly dock, perennial ryegrass, cut leaf geranium (*Geranium dissectum*), Mediterranean barley, and fireweed (*Epilobium brachycarpum*).

Wildlife

A variety of bird species were observed in the study area, most of which are common species occurring in agricultural and urban areas. Mallard (*Anas platyrhynchos*), great egret (*Casmerodias alba*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk, California gull (*Larus californicus*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), western kingbird (*Tyrannus verticalis*), California scrubjay (*Aphelocoma californica*), black phoebe (*Sayornis nigricans*), Brewer's blackbird (*Euphagus cyanocephalus*), Brewer's blackbird (*Euphagus cyanocephalus*), and red-winged blackbird (*Agelaius phoeniceus*) are representative of the avian species observed in the study area. A list of wildlife species observed in the study area is included in Appendix D.

There are numerous trees in and near the study area that are suitable for nesting raptors and other protected migratory birds, including Swainson's hawk. Several stick nests were observed within some of the trees within and near the study area. Swainson's hawk and white-tailed kite were confirmed to be nesting in the study area in 2021 (Figure 7). Burrowing owls were also confirmed to be nesting in the study area in 2021. Given the presence of large trees and raptor foraging habitat (i.e., open fields) in and near the study area, it is possible one or more additional pairs of raptors nest in trees in or near the study area each year. It is likely that a variety of birds nest within trees, shrubs, wild rose thickets, emergent wetland vegetation, and grassland habitats in the study area. Other species such as geese, ducks, and killdeer (*Charadrius vociferous*) may nest on the ground in parts of the study area.

A few mammals common to agricultural and urban areas have potential to occur in the study area. Coyote (*Canis latrans*), black-tailed hare (*Lepus californicus*), California ground squirrels (*Spermophilus beecheyi*), and western gray squirrel (*Sciurus griseus*) were observed in the study area. Sign of raccoon (*Procyon lotor*) and Bottae's pocket gopher (*Thomomys bottae*) were also observed. Although none were observed, the study area also provides habitat for other common mammals such as desert cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*). A few species of common bats may roost in some of the trees in the study area. The study area also provides habitat for a number of species of small rodents including mice (*Mus musculus, Reithrodontomys megalotis,* and *Peromyscus maniculatus*) and voles (*Microtus californicus*).

Based on habitat types present, a variety of amphibians and reptiles may use habitats in the study area. Western fence lizard (*Sceloporus occidentalis*) was the only reptile observed in the study area; Pacific chorus frog (*Pseudacris regilla*) was the only amphibian that was observed. Western pond turtle (*Emys marmorata*) was observed in Horse Creek, just north of the study area, but is not expected to occur in the study area. The study area is within the range of other

Figure 7

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Map Date: 05/19/2021
Aerial Source: Google Earth (09/2018)

Special-Status Bird Nests (2021)

Greentree Development Project

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common amphibians and reptiles such as western skink (*Eumeces skiltonianus*), western toad (*Bufo boreas*), common king snake (*Lampropeltis getulus*), common garter snake (*Thamnophis sirtalis*), gopher snake (*Pituophis melanoleucus*), and bullfrog (*Rana catesbeiana*); these and other common amphibian and reptile species may also occur in the study area.

Aquatic Resources

A total of 9.20 acres of aquatic habitats were delineated within the study area (Figure 5 and Appendix E). This total includes 0.11 acres of seasonal wetlands, 7.47 acres of constructed ponds, 1.24 acres of constructed ditches, and 0.38 acres of channels. The remainder of the study area is vegetated in ruderal upland grassland vegetation, with soils that appear well draining. The aquatic resources delineation will be submitted to ACOE for verification.

SEASONAL WETLANDS: There are six seasonal wetlands encompassing 0.11 acres in the study area (Figure 5 and Appendix E). The seasonal wetlands are slightly low areas in formerly leveled fields in the north part of the study area, north of the historical golf course. These wetlands are very small, shallow, and highly disturbed. Most of the seasonal wetlands appear to pond water only to depths of approximately 2 inches during most years.

The seasonal wetlands are situated in leveled fields and are surrounded by upland grassland. The seasonal wetlands are spatially and hydrologically isolated from perennial and intermittent streams. The seasonal wetlands in the study area do not meet the technical and regulatory criteria of Waters of the U.S. or wetlands under the jurisdiction of the ACOE. The seasonal wetlands may still be regulated by RWQCB as Waters of the State.

CONSTRUCTED PONDS AND DITCHES: There are a total of thirteen (13) constructed ponds in the study area encompassing 7.47 acres (Figure 5 and Appendix E). The ponds and ditches are associated with the former golf course, and originally

built to accommodate the City of Vacaville's storm drainage system from the adjoining Leisure Town development to the west. The constructed ponds that hold at least some water throughout the year during most years are best described as "Perennial Ponds" and 2.96 acres of the ponds in the study area fall in this classification. There are also 10 ditches in the study area encompassing 1.24 acres (Figure 5 and Appendix E).

The majority of the constructed ponds and ditches have been incorporated into the City of Vacaville's storm drain system, conveying storm water and nuisance landscape irrigation water from the developed areas west of the study area through the study area and in to Ulatis Creek and Old Ulatis Creek. The ponds are maintained to ensure the detention and conveyance functions of the City of Vacaville's storm drain system. The Solano County Mosquito Abatement District periodically treats the ponds with chemical agents and periodically stocks the ponds with mosquitofish (*Gambusia affinis*).

The characteristics of the ponds vary, with some of the ponds being completely dry during the Spring 2021 surveys and a few still containing water. The constructed ponds that hold at least some water throughout the year during most years are best described as "Perennial Ponds" and 2.96 acres of the ponds in the study area fall in this classification (Figure 5 and Appendix E). These ponds contain storm drain runoff from the developed areas west of the study area during the winter and stay wet through most or all of the summer and fall during most years due to nuisance landscape irrigation water from the adjacent developed areas.

The constructed ponds that are dry through the summer and fall during most years are best described as "Seasonal Ponds" and 4.51 acres of the ponds in the study area fall in this classification (Figure 5 and Appendix E). The majority of the ditches are also dry much of the year and all were dry during the Spring 2021 surveys.

Aerial photographs from 1957 and 1958 provide confirmation the study area was leveled agricultural fields prior to construction of the golf course in the 1960's. The ponds and ditches in the study area were constructed in uplands concurrent with construction of the golf course. The ponds and ditches in the study area do not meet the technical and regulatory criteria of Waters of the U.S. under the jurisdiction of the ACOE.

REMNANT CHANNEL: The study area contains 0.38 +/- acres of Old Ulatis Creek that is best described as "Remnant Channel" (Figure 5 and Appendix E). Ulatis Creek historically flowed along the south edge of the study area, but the creek was re-aligned and channelized to the south of the study area many decades ago. The most downstream 1,600+/- feet of the historical creek (i.e., "Old Ulatis Creek") channel is still present, with the study area boundary being the approximate centerline of the channel. Approximately 1,000 feet of historic channel to the west has been filled and no evidence of the creek remains. There is a second section of the Old Ulatis Creek channel in the southwest corner of the study area. This second section of remnant channel receives water from the developed areas west of the study area after passing through one of the perennial ponds and conveying this water to Ulatis Creek, where it is discharged through an existing storm drain outfall.

The segments of channel in the study area are described as "Remnant Channel" because they no longer function as flowing streams draining watersheds and are vegetated with a large number non-native and ornamental trees and shrubs. The 250+/- foot section of channel in the southwest corner of the study area primarily receives nuisance water from a pipe at the north tip of the channel, plus a limited amount of water from direct precipitation in a very small (i.e., 1+/- acre watershed). When water is present, it flows north to south, in the opposite direction of its historical flow.

The longer section of channel in the southeast part of the study area also receives little water from direct precipitation because it a narrow channel situated

in level ground. When water is present in the channel, it is derived from the network of ponds and ditches in the study area, including substantial volumes of water from the developed areas west of the study area. As the pond in the southeast corner of the study area fills, water flows discharge to the remnant channel through the existing storm drain outfall and backs up the remnant channel, flowing east to west in the opposition direction of its historical flow. As the water level in the pond recedes, the water drains, flowing west to east. This eastern section of remnant channel temporarily detains storm water, functioning in a similar manner as the network of ponds and ditches in the study area,

To the east of the study area, Old Ulatis Creek is a tributary to Ulatis Creek. The remnant channel in the southwest tip of the study area is also a tributary to Ulatis Creek. Ordinary high water marks are apparent along the banks of both features; the banks of the channels also support trees and shrubs. The sections of remnant channel in the study area may be jurisdictional Waters of the U.S. or wetlands because they have water regimes that may be described as "intermittent" and are tributary to Ulatis Creek.

OFF-SITE CREEKS: Horse Creek and Ulatis Creek, which are just north and south of the study area, respectively, are believed to be Waters of the U.S. due to direct year-round hydrological connection to the Sacramento-San Joaquin Delta. Horse Creek and Ulatis Creek have been re-aligned and channelized with steep banks (see photographs in Appendix C).

Construction of the proposed project will involve the fill of the existing network of golf course ponds and ditches in the study area. The seasonal wetlands in the north part of the study area will be also be filled. None of these aquatic resources meet the technical and regulatory criteria of Waters of the U.S. or wetlands under the jurisdiction of the ACOE. The proposed project will not involve any work in the segments of remnant channels in the study area. The project will also not involve any work in Horse Creek or Ulatis Creek.

The potential for direct impacts to jurisdictional Waters of the U.S. or wetlands or Waters of the State would be a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-1:

- The Aquatic Resources Delineation shall be submitted to the ACOE for verification to firmly establish the boundaries and current jurisdictional status of the aquatic features in the study area. The verified Aquatic Resources Delineation shall he used to quantify the project impacts to aquatic resources. If ACOE verifies the golf course ponds, ditches, and seasonal wetlands are non-jurisdictional, no further interface with ACOE is needed.

- A permit from ACOE shall be secured prior to the placement of any fill material (e.g., culverts, fill dirt, rock) within jurisdictional Waters of the U.S. or wetlands. As a condition of the ACOE permit, 401 Water Quality Certification shall also be secured from RWQCB.

- Waste Discharge Requirements (WDRs) shall be secured from RWQCB prior to the placement of any material regulated by the Regional Board in Waters of the State.

- Prior to the commencement of construction, an Environmentally Sensitive Area ("ESA") shall be established along the north edge of the remnant channels in the study area and a qualified biologist will oversee the ESA fencing. The ESAs will be delineated by silt fencing and orange safety fencing and will prevent disturbance to potentially jurisdictional Waters of the U.S. by construction crews and equipment. The ESA fencing shall be installed as close to the limits of grading as possible and outside the driplines of the trees and shrubs along the banks of the channels.

- The applicant shall comply with all conditions of any ACOE permit(s) or WDRs including the provision of compensatory mitigation for impacts to regulated aquatic resources. The compensatory mitigation shall be at a minimum ratio of 1:1 and would be best accomplished through the purchase of credits from an agency approved mitigation bank.

The implementation of Recommended Mitigation Measure BIO-1 would reduce the potential project impacts to jurisdictional Waters of the U.S. or wetlands or Waters of the State to a less-than significant level.

Special-Status Species

The likelihood of occurrence of listed, candidate, and other special-status plant and wildlife species in the study area is generally low. Table 1 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species in the study area. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

SPECIAL-STATUS PLANTS

Twenty-one (21) species of special-status plants were identified in the CNDDB (2021) search: alkali milk-vetch (*Astragalus tener var. tener*), heartscale (*Atriplex cordulata*), brittlescale (*Atriplex depressa*), pappose tarplant (*Centromadia parryi ssp. parryi*), hispid bird's-beak (*Chloropyron molle spp. hispidum*), recurved larkspur (*Delphinium recurvatum*), dwarf downingia (*Downingia pusilla*), San Joaquin spearscale (*Extriplex joaquinana*), adobe-lily (*Frittilaria pluriflora*), Carquinez goldenbush (*Isocoma arguta*), Contra Costa goldfields (*Lasthenia conjugens*), Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*), legenere

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
PLANTS						
Alkali milk-vetch	*Astragalus tener var. tener*	None	None	1B	Alkali playas and vernal pools; elevations 3 - 197 feet; blooms March - June.	Very unlikely: there are no playas or vernal pools in the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for alkali milk vetch. The nearest occurrence of alkali milk vetch in the CNDDB (2021) search area is approximately 3.5 miles south of the study area.
Heartscale	*Atriplex cordulata var. cordulata*	None	None	1B	Chenopod scrub, meadows and seeps, valley and foothill grasslands with sandy soils; elevations 0 - 1,800 feet; blooms April - October.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for heartscale. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 3 miles southwest of the study area.
Brittlescale	*Atriplex depressa*	None	None	1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pool habitats within alkaline clay soils; elevations 3 - 1,050 feet; blooms April - October.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for this species; there are no playas or vernal pools in the study area. The nearest occurrence of brittlescale in the CNDDB (2021) search area is approximately 6 miles southwest of the study area.
Pappose tarplant	*Centromadia parryi* spp. *parryi*	None	None	1B	Coastal prairie and salt marsh, meadows and seeps, vernally mesic areas in valley and foothill grassland; often alkaline soils; elevations 0 - 1,380 feet; blooms May - November.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for this species; there are no vernal pools in the study area. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 5 miles southwest of the study area.
Hispid salty bird's-beak	*Chloropyron molle spp. hispidum*	None	None	1B	Meadows and seeps, playas, valley and foothill grassland, always in alkaline soils; elevations 3 - 510 feet; blooms June - September.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for this species; there are no meadows or playas in the study area. The nearest occurrence of hispid salty bird's-beak in the CNDDB (2021) search area is approximately 8.5 miles southeast of the study area.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
Recurved larkspur	*Delphinium recurvatum*	None	None	1B	Valley and foothill grassland, chenopod scrub, cismontane woodland; in alkaline soils; elevations 10 - 2,600 feet; blooms March - June.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for recurved larkspur. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 2.5 miles west of the study area.
Dwarf downingia	*Downingia pusilla*	None	None	2	Vernal pools; elevations 3 - 1,460 feet; blooms March - May.	Very unlikely: there are no vernal pools in the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for this species. The nearest occurrence of dwarf downingia in the CNDDB (2021) search area is approximately 1 mile northwest of the study area.
San Joaquin spearscale	*Extriplex joaquinana*	None	None	1B	Chenopod scrub, alkali meadow, valley and foothill grassland; elevations 3 - 2,740 feet; blooms April - October.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of San Joaquin spearscale in the CNDDB (2021) search area is approximately 3 miles southwest of the project site.
Adobe-lily	*Frittilaria pluriflora*	None	None	1B	Chaparral, cismontane woodland, valley and foothill grassland; elevations 195 - 2,315 feet; blooms February - April.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for adobe-lily and the study area is below the elevation range of this species (CNPS, 2021). The nearest occurrence of adobe lily in the CNDDB (2021) search area is approximately 2 miles west of the study area.
Carquinez goldenbush	*Isocoma arguta*	None	None	1B	Valley and foothill grassland, in alkaline soils; elevations 3 - 64 feet; blooms August - December.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for Carquinez goldenbush. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 6.5 miles southeast of the study area.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
Contra Costa goldfields	*Lasthenia conjugens*	E	None	1B	Valley and foothill grassland within vernal pools and swales; elevations 0 - 1,500 feet; blooms March - June.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for Contra Costa goldfields. There are also no vernal pools in the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for this species. The nearest occurrence of Contra Costa goldfields in the CNDDB (2021) is approximately 3 miles southwest of the study area. The study area is not in designated critical habitat of this species (USFWS 2005a).
Coulter's goldfields	*Lasthenia glabrata ssp. coulteri*	None	None	1B	Vernal pools in valley and foothill grassland habitats; usually found on alkaline soils, elevations 3 - 4,000 feet; blooms February - June.	Very unlikely: there are no vernal pools in the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for this species. The nearest occurrence of Coulter's goldfields in the CNDDB (2021) search area is approximately 6 miles southeast of the study area.
Legenere	*Legenere limosa*	None	None	1B	Vernal pools within the Central Valley; elevations 3 - 2,890 feet; blooms April - June.	Very unlikely: there are no vernal pools in the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for legenere. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 2 miles southeast of the study area.
Baker's navarretia	*Navarretia leucocephala ssp. bakeri*	None	None	1B	Vernal pools and swales within a variety of vegetation communities; elevations 10 - 5,710 feet; blooms April - July.	Very unlikely: there are no vernal pools or swales within the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for this species. The nearest occurrence of Baker's navarretia in the CNDDB (2021) search area is approximately 1 mile north of the study area.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	T	E	1B	Vernal pools; elevations 33 - 3,480 feet; blooms April July.	Very unlikely: there are no vernal pools in the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for San Joaquin Valley Orcutt grass. The nearest occurrence of recorded in the CNDDB (2021) search area is approximately 7.5 miles southeast of the study area. The study area is not in designated critical habitat for San Joaquin Valley Orcutt grass (USFWS 2005a).
Bearded popcornflower	*Plagiobothrys hystriculus*	None	None	1B	Vernal pools, valley and foothill grassland; elevations 0 - 899 feet; blooms April - May.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for bearded popcornflower. There are also no vernal pools in the study area and the marginal seasonal wetlands in the study area do not provide suitable habitat for this species. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 2 miles northwest of the study area.
California alkali grass	*Puccinellia simplex*	None	None	1B	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pool habitats; in alkaline, vernally mesic sinks, flats, and lake margins.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for this species; there are no vernal pools in the study area and the marginal seasonal wetlands do not provide suitable habitat for this species. The nearest occurrence of California alkali grass in the CNDDB (2021) search area is approximately 8.5 miles southeast of the study area.
Keck's checkerbloom	*Sidalcea keckii*	E	None	1B	Cismontane woodland, valley and foothill grassland, usually serpentine or clay soils; elevations 246 - 2,132 feet; blooms April - June.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for Keck's checkerbloom. The study area is also below the elevation range of this species (CNPS, 2021). The nearest occurrence of this species in the CNDDB (2021) search area is approximately 3.5 miles northwest of the study area.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
Suisun Marsh aster	*Symphyotrichum lentum*	None	None	1B	Freshwater and brackish marshes and swamps, usually along the edges of delta islands; elevations 0-10 feet; blooms May - November.	Very unlikely: the study area does not contain suitable habitat for Suisun marsh aster, which is almost entirely restricted to tidal or brackish marshes. The study area is also above the elevation range of this species (CNPS, 2021). The nearest occurrence of this species in the CNDDB (2021) search area is approximately 6 miles southwest of the study area.
Two-fork clover	*Trifolium amoenum*	E	None	1B	Valley and foothill grassland and coastal bluff scrub, sometimes on serpentine soils; elevations 15 - 1,360 feet; blooms April - June.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for two-fork clover. The nearest occurrence of two-fork clover in the CNDDB (2021) search area is approximately 2 miles southeast of the study area.
Saline clover	*Trifolium hydrophilum*	None	None	1B	Marshes and swamps, mesic areas in valley and foothill grassland, vernal pools; elevations 0 - 960 feet; blooms April - June.	Very unlikely: the grasslands in the study area are highly disturbed and do not provide suitable habitat for this species; there are no vernal pools, marshes, or swamps in the study area. The nearest occurrence of saline clover in the CNDDB (2021) search area is approximately 5 miles southwest of the study area.
WILDLIFE						
Birds						
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Nests in large trees, usually within riparian corridors. Forages in agricultural fields and annual grassland.	Present: there are several large trees in the study area that may be used by nesting Swainson's hawks and the grasslands in the study area provide suitable foraging habitat for this species. A pair of Swainson's hawks are currently nesting in a eucalyptus tree just northwest of the intersection of Sequoia Drive and Leisure Town Road. There are several records of nesting Swainson's hawks in the CNDDB (2021) within 1 to 2 miles of the study area; the nearest occurrence is a nest along Old Ulatis Creek approximately 500 feet east of the study area that was active from 2000 to 2004.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
Tricolored blackbird	*Agelaius tricolor*	None	T	N/A	Open water and protected nesting substrate, usually cattails and riparian scrub.	Unlikely: the few relatively small patches of willows and emergent vegetation in the study area could support nesting tricolored blackbirds and the grasslands in the study area provide potentially suitable foraging habitat. However, this species prefers to nest in expansive patches of emergent wetland vegetation and/or blackberry brambles in close proximity to open water. The nearest occurrence of tricolored blackbirds in the CNDDB (2021) search area is approximately 3.5 miles south of the study area.
California clapper rail	*Rallus longirostris obsoletus*	E	E	N/A	Salt water and brackish marshes traversed by tidal sloughs in the San Francisco Bay; associated with pickleweed.	Very unlikely: there is no suitable marsh habitat in the study area to support California clapper rail. There are no occurrences of this species in the CNDDB (2021) search area.
White-tailed kite	*Elanus leucurus*	None	FP	N/A	Herbaceous lowlands with variable tree growth and dense population of voles.	Present: there are several large trees in the study area that may be used by nesting white-tailed kite and the grasslands provide suitable foraging habitat. A pair of white-tailed kites attempted to nest in a large ornamental conifer just north of the intersection of White Sands Drive and Bighorn Court. The nearest occurrence of white-tailed kite in the CNDDB (2021) search area is approximately 1 mile northeast of the study area.
Grasshopper sparrow	*Ammodramus savannum*	None	SC	N/A	Dense grasslands, lowland plains, and lower mountain slopes; prefers native grasses with scattered shrubs.	Very unlikely: the study area provides poor quality habitat for grasshopper sparrow. The nearest occurrence of the species in the CNDDB (2021) search area is approximately 5 miles southeast of the study area.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Present: a total of 9 adult and juvenile burrowing owls were observed in the study area during Fall 2021. Two pairs are currently nesting in the north part of the study area, within the ruderal grassland area north of the former golf course. The former golf course provided poor quality habitat for burrowing owl when it was irrigated and landscaped. Due to intensive disking for weed abatement, this area currently provides poor quality habitat for burrowing owls. There are several records of burrowing owls mapped in the CNDDB (2021) search area, including two pair documented nesting in the north part of the study area in 2005.
Mammals						
American badger	*Taxidea taxus*	None	SC	N/A	Drier open stages of most shrub, forest, and herbaceous habitats, with friable soils	Very unlikely: the grasslands in the study area provides low quality habitat for this species; no American badger dens were observed during field surveys. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 1.5 miles west of the study area.
Reptiles & Amphibians						
Giant garter snake	*Thamnophis gigas*	T	T	N/A	Freshwater marsh and low gradient streams; adapted to drainage canals and irrigation ditches, primarily for dispersal or migration.	Very unlikely: there is no suitable habitat in the study area for giant garter snake and this species is not known to occur in the area. There are no occurrences of this species recorded in the CNDDB (2021) search area.
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/ woodland habitats with summer refugia (i.e., burrows).	Very unlikely: there is no potentially suitable breeding habitat in or near the study area for California tiger salamander and this species is not known to occur in the area. The closest occurrence of this species in the CNDDB (2021) search area is approximately 7.5 miles southeast of the study area. The study area is not in designated critical habitat for this species (USFWS, 2005b).

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
California red-legged frog	*Rana draytonii*	T	SC	N/A	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Very unlikely: the study area does not contain suitable habitat for this species, which is also not known to occur in the area. There are no occurrences of California red-legged recorded in the CNDDB (2021) search area. The study area is not in designated critical habitat for this species (USFWS, 2006).
Foothill yellow-legged frog	*Rana boylii*	None	SC	N/A	Perennial water bodies (i.e., streams and ponds) with abundant riparian vegetation; not found on Central Valley floor.	Very unlikely: there is no suitable aquatic habitat for foothill yellow-legged frog in the project site. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 2.5 miles southwest of the study area.
Western pond turtle	*Emys marmorata*	None	SC	N/A	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	Unlikely: Horse Creek and Ulatis Creek, just north and south of the study area, respectively, provide potentially suitable habitat for western pond turtle. Old Ulatis Creek is shaded and dry much of the year and does not provide suitable habitat for this species. Most of the former golf course ponds are dry much of the year and do not provide suitable habitat for western pond turtle; the more perennial ponds lack suitable basking habitat for this species. Western pond turtle was observed in Horse Creek during the 2020-2021 surveys, as well as numerous red-eared sliders. The nearest occurrence of this species in the CNDDB (2021) search area is a 2016 record mapped in Horse Creek just north of the study area.
Fish						
Delta smelt	*Hypomesus transpacificus*	T	T	N/A	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	None: there is no suitable aquatic habitat in the study area to support delta smelt. There are no occurrences of delta smelt recorded in the CNDDB (2021) within the search area. The study area is not within designated critical habitat for delta smelt (USFWS, 1994).

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
Invertebrates						
Conservancy fairy shrimp	*Branchinecta conservatio*	E	None	N/A	Vernal pools	Very unlikely: the seasonal wetlands in the study area are very small, shallow, highly disturbed, and do not appear to pond water for long enough to support Conservancy fairy shrimp. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 6.5 miles southeast of the study area. The study area is not in Conservancy fairy shrimp designated critical habitat (USFWS 2005a).
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools	Very unlikely: the seasonal wetlands in the study area are very small, shallow, highly disturbed, and do not appear to pond water for long enough to support vernal pool fairy shrimp. The nearest occurrence of vernal pool fairy shrimp in the CNDDB (2021) search area is approximately 0.5 miles northwest of the study area. The study area is not in designated critical habitat of this species (USFWS 2005a).
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley	Very unlikely: the seasonal wetlands in the study area are very small, shallow, highly disturbed, and do not appear to pond water for long enough to support this species. The nearest occurrence of vernal pool tadpole shrimp in the CNDDB (2021) search area is approximately 1.5 miles southwest of the study area. The study area is not in designated critical habitat for this species (USFWS 2005a).
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs in the Central Valley and surrounding foothills	Unlikely: there are blue elderberry shrubs along the south edge of the study area. No valley elderberry longhorn beetles or shrubs with evidence of beetle occupancy were observed during May 2021 surveys. There are no occurrences of valley elderberry longhorn beetle recorded in the CNDDB (2021) search area. The study area is not in designated critical habitat for this species (USFWS 1980a).

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Potential for Occurrence in the Study Area
Delta green ground beetle	*Elaphrus viridis*	T	None	N/A	Margins of vernal pools in grasslands.	Very unlikely: the seasonal wetlands in the study area are very small, shallow, highly disturbed and do not provide suitable habitat for delta green ground beetle. The nearest occurrence of delta green ground beetle in the CNDDB (2021) search area is approximately 6.5 miles southeast of the study area. The study area is not within designated critical habitat for this species (USFWS 1980b).
Western bumble bee	*Bombus occidentalis*	None	CE	N/A	Meadows and grasslands with abundant floral resources, usually high elevation	Very unlikely: the study area does not provide suitable habitat for western bumble bee. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 3 miles southwest of the study area.

1 T= Threatened; E = Endangered.

2 T = Threatened; E = Endangered; CE = Candidate for Endangered; FP = Fully Protected Species; SC = State of California Species of Special Concern.

3 CNPS (California Native Plant Society) List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes plants that are rare, threatened or endangered in California but are more common elsewhere.

(*Legenere limosa*), Baker's navarretia (*Navarretia leucocephala ssp. bakeri*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), bearded popcornflower (*Plagiobothrys hystriculus*), California alkali grass (*Puccinellia simplex*), Keck's checkerbloom (*Sidalcea keckii*), Suisun marsh aster (*Symphyotrichum lentus*), two-fork clover (*Trifolium amoenum),* and saline clover (*Trifolium hydrophilum*) (Table 1 and Appendix B).

Special-status plants generally occur in relatively undisturbed areas in vegetation communities such as vernal pools, marshes and swamps, chenopod scrub, seasonal wetlands, riparian scrub, and areas with unusual soils. In contrast, the ruderal grasslands in the study area have been disturbed by historical agricultural uses, golf course construction and operation, surrounding development, and periodic disking and/or mowing for weed abatement.

Focused special-status plant surveys were conducted on March 30 and 31, and April 16, 2021 (Appendix F). Based on the results of database searches, the disturbed condition of the habitat within the study area, and the results of the field surveys, pappose tarplant, dwarf downingia, Carquinez goldenbush, legenere, bearded popcornflower, were the only species identified as having at least some potential, although unlikely, to occur within the study area.

No high quality or even moderately suitable habitat for special-status plants was observed in the study area. The habitat suitability for pappose tarplant, dwarf downingia, Carquinez goldenbush, legenere, bearded popcornflower, is marginal at best and no special-status plants were observed during the March and April 2021 surveys. Due to intensive disturbance and associated lack of habitat, it is unlikely any special-status plants occur in the study area.

Mass grading the study area will involve the removal of vegetation throughout most of the study area. The ruderal grassland, ponds, ditches, and seasonal wetlands could potentially support special-status plants. However, all of the

habitats in the study area are highly disturbed and special-status plants were not detected.

The potential impact of the proposed project to special-status plants is ***less-than-significant*** and no mitigation measures are needed or recommended.

SPECIAL-STATUS WILDLIFE

The potential for intensive use of the study area by special-status wildlife species is also low. Fourteen (14) special-status wildlife species were recorded in the greater project vicinity in the CNDDB (2021) query: Swainson's hawk, tricolored blackbird (*Agelaius tricolor*), white-tailed kite (*Elanus leucurus*), burrowing owl, grasshopper sparrow (*Ammodramus savannum*), American badger (*Taxidea taxus*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), western pond turtle (*Emys marmorata*), Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), Delta green ground beetle (*Elaphrus viridis*), and western bumble bee (*Bombus occidentalis*). Giant garter snake (*Thamnophis gigas*), California red-legged frog (*Rana draytonii*), delta smelt (*Hypomesus transpacificus*), and valley elderberry longhorn beetle are not recorded in the CNDDB within the search area, but are on the USFWS IPaC Trust Report (Appendix B).

While the study area may have provided habitat for several special-status wildlife species at some time in the past, agriculture and development in and adjacent to the study area have modified the natural habitats and associated potential to support special-status wildlife species. Of the wildlife species in Table 1, Swainson's hawk, burrowing owl, and white-tailed kite were observed in the study area. Although considered unlikely to occur, the blue elderberry shrubs in the study area provide suitable habitat for valley elderberry longhorn beetle and the perennial creeks just north and south of the study area provide suitable habitat for western pond turtle. Finally, the seasonal wetlands in the study area

provide potentially suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp, although the occurrence of either species is very unlikely.

SWAINSON'S HAWK: The Swainson's hawk is a migratory hawk listed by the State of California as a Threatened species. Swainson's hawks are protected by State and federal law from take year-round, and their nests are protected by federal law during the nesting season (March 1 through September 15). Swainson's hawks are found in the Central Valley primarily during their breeding season; a population is known to winter in the San Joaquin Valley.

Swainson's hawks prefer nesting sites that provide sweeping views of nearby foraging grounds consisting of grasslands, irrigated pasture, hay, or grain crops. Most Swainson's hawks are migratory, wintering in Mexico and breeding in California and elsewhere in the western United States. This raptor generally arrives in the Central Valley in mid-March, and begins courtship and nest construction immediately upon arrival at the breeding sites. The young fledge in early July, and most Swainson's hawks leave their breeding territories by late August.

Swainson's hawks return to the same nest territory each year, often using a nest from the prior year, or constructing a new nest in the same tree. In the event the tree is no longer present when the Swainson's hawks arrive in the spring, most pairs select a nearby tree for nesting.

The study area is within the nesting range of Swainson's hawks and there are several records of nesting Swainson's hawks in the CNDDB (2021) within 1 to 2 miles of the study area; the nearest occurrence is a nest along Old Ulatis Creek approximately 500 feet east of the study area that was active from 2000 to 2004.

CDFW's 1994 *Staff Report regarding Mitigation for Impacts to Swainson's Hawks (Buteo Swainsoni) in the Central Valley of California* (CDFG, 1994) describes Swainson's hawk foraging habitat as annual grassland, annual cropland including

fallow fields, pasture, and alfalfa; vineyards, orchards and cotton are specifically identified as unsuitable. Irrigated cropland, particularly alfalfa, is some of the highest quality Swainson's hawk foraging habitat. In contrast, disked ruderal grassland, such as that in the study area, provides lower quality Swainson's hawk foraging habitat. There are several large trees in the study area that are potentially suitable for nesting Swainson's hawks.

A pair of Swainson's hawks was observed to be nesting in a eucalyptus tree just northwest of the intersection of Sequoia Drive and Leisure Town Road. As of the May 13, 2021 survey, the female was sitting low in the nest and is believed to be incubating eggs. No other active Swainson's hawk nests were located in the study area during the 2021 surveys. No other Swainson's hawks were observed circling over or perching in trees in the study area, or exhibiting signs of nesting in the study area during the Spring 2021 surveys.

The urban areas in the study area are not suitable for foraging Swainson's hawks. Similar to orchards, the urban woodlands in the study area do not provide suitable foraging habitat for Swainson's hawks because Swainson's hawks generally forage in relatively open areas where prey can be seen from high in the air. The 2.96+/- acres of perennial ponds in the study area are also unsuitable for foraging Swainson's hawks as these areas are either full of water or choked with cattails during most years during much of the time Swainson's hawks are present in the study area. In contrast, the seasonal aquatic habitats are dry during most years during much of the time Swainson's hawks are present in the study area. When dry, these habitats are primarily vegetated with grasses and support small mammals.

There is a total of 158.92 +/- acres of Swainson's hawk foraging habitat in the study area (Figure 8). Swainson's hawk foraging habitat includes the 153.34 +/- acres of ruderal grassland vegetation depicted in Figure 5 and also includes 0.11 +/- acres of seasonal wetland, 4.25 +/- acres of seasonal pond, and 1.22 +/-

Figure 8

Moore Biological Consultants

N W E S

0 500 1,000
Feet

Map Date: 05/19/2021
Aerial Source: Google Earth (09/2018)

Swainson's Hawk Foraging Habitat

Greentree Development Project

City of Vacaville, Solano County, CA

acres of ditch habitat types in the study area. Urban woodland overhangs the remaining 0.26 +/- acres of seasonal pond and 0.02 +/- acres of ditch habitat.

The project will result in the conversion of 158.92 +/- acres of Swainson's hawk foraging habitat to developed uses and the removal of a known Swainson's hawk nest tree. CDFW's Staff Report (CDFG, 1994) recommends the provision of compensatory mitigation for the permanent loss of Swainson's hawk foraging habitat. The Staff Report recommends compensatory habitat mitigation ratios of 0.5:1 in cases where the nearest active nest (i.e., a nest used any year during the prior 5 years) is between 5 and 10 miles from the study area, 0.75:1 in cases where the nearest active nest is between 1 and 5 miles from the study area, and 1:1 in cases where the nearest active nest is within one mile of the study area.

The conversion of 158.92 +/- acres of Swainson's hawk foraging habitat to developed uses is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-2:

- Prior to grading, the applicant shall mitigate for the loss of Swainson's hawk foraging habitat by preserving similar or better habitat at an off-site location at a 1:1 ratio, consistent with CDFW's 1994 Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California. The provision of compensatory mitigation may be accomplished through purchase of credits from an agency-approved mitigation bank such as the Burke Ranch Conservation Bank or the Elsie Gridley Mitigation Bank. Alternately, the mitigation could be fulfilled through the enhancement, management, and preservation of other off-site mitigation lands that are protected in-perpetuity by a conservation easement. The applicant shall prepare and submit a plan of the proposed off-site mitigation to the City for approval. If the project is constructed in phases, the compensatory mitigation for impacted Swainson's hawk foraging habitat within each phase shall be provided prior to grading that phase.

Construction equipment could also result in direct impacts (i.e., take) of Swainson's hawks through removal of trees containing active nests or indirect impacts through construction disturbance resulting in the abandonment of eggs or young. The potential for take of nesting Swainson's hawks from construction disturbance is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-3:

- The applicant shall remove trees during the fall and winter, if feasible, to minimize the potential for take of nesting Swainson's hawks.

- A qualified biologist shall present an "Environmental Awareness Program" (EAP) which shall be implemented to educate the contractors and construction personnel of the sensitive habitats and species in the study area. The EAP shall include a presentation on the life history and legal status of potentially occurring special-status species, potential consequences of impacting special-status species, and distribution of informational packages to each worker. Swainson's hawk, white-tailed kite, burrowing owl, valley elderberry longhorn beetle, and western pond turtle will be the focal species of the EAP. The biologist shall present the program and allow time for questions and answers. The applicant shall provide translators, as needed, for workers that only speak other languages. Each worker shall sign a form acknowledging they attended the EAP.

- A pre-construction survey for nesting Swainson's hawks within 0.25 miles of the study area shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. The surveys shall incorporate methodologies from CDFW's 1994 *Staff Report regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFW, 1994) and the Swainson's Hawk Technical Advisory Committee (SHTAC) survey

guidelines (SHTAC, 2000). A report describing the results of the survey shall be provided to the City. If no active nests are located, no further action to mitigate for this potential impact is required.

- If during the nesting season there is a lapse in project-related work of fifteen (15) days or longer, another focused survey shall be performed and the results sent to CDFW prior to resuming work.

- If active nests are found, a biologist experienced with raptor behavior shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals and may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to the Swainson's hawks are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active.

The implementation of Recommended Mitigation Measures BIO-2 and BIO-3 would reduce the potential project impacts to Swainson's hawk to a less-than significant level through the provision of compensatory Swainson's hawk foraging habitat at a ratio of 1:1 and implementing appropriate take avoidance measures.

BURROWING OWL: The Migratory Bird Treaty Act and Fish and Game Code of California provide protections for burrowing owls year-round, as well as their nests during the nesting season (February 1 through August 31). Burrowing owls are a year-long resident in a variety of grasslands as well as scrub lands that have a low density of trees and shrubs with low growing vegetation; burrowing owls that nest in the Central Valley may winter elsewhere. CDFW's 2012 *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) describes preferred burrowing owl habitat as short sparse vegetation with few shrubs, level to gentle

topography, and well drained soils. The primary habitat requirement of the burrowing owl is small mammal burrows for nesting. The owl usually nests in abandoned ground squirrel burrows, although they have been known to dig their own burrows in softer soils. In urban areas, burrowing owls often utilize artificial burrows including pipes, culverts, and piles of concrete pieces. Burrowing owls have high nest site affinity and can use the same burrow for nesting for more than one year, but often use a nearby burrow in the same vicinity during subsequent years. This semi-colonial owl breeds from March through August, and is most active while hunting during dawn and dusk.

There are several records of burrowing owls mapped in the CNDDB (2021) search area, including two pairs documented nesting in the north part of the study area in 2005. The 2005 CNDDB record notes identifies traffic associated with the golf course as a threat to the burrowing owls.

Despite high levels of disturbance, the ruderal grasslands in the study area provide suitable foraging habitat for burrowing owl and ground squirrel burrows in the study area are suitable for nesting. When the golf course was irrigated several years ago, this portion of the study area provided poor quality habitat for burrowing owl. Due to intensive disking for weed abatement since closure of the golf course, the grasslands in the former golf course area contain few burrows and the grassland continue to provide poor quality habitat for burrowing owl. No burrowing owls or burrows with evidence of burrowing owl occupancy were observed in the majority of the study area comprising the former golf course.

The 15+/- acres of ruderal grassland in the study area to the north of the former golf course also provides suitable habitat for burrowing owls. Two pairs of burrowing owls used this area for nesting during 2021. One pair of burrowing owls utilized a burrow just south of Gilley Way and the second pair of burrowing owls utilized a burrow about 5 feet from the edge of Orange Drive (Figure 7 and photographs in Appendix C).

During the surveys completed in the fall of 2020 (after the nesting season), as many as 9 adult and juvenile burrowing owls were observed in the ruderal grassland in the study area to the north of the former golf course. This maximum number was documented on October 14, 2020. During the fall, a few of the owls were notably smaller, and are believed to have been young from the 2020 nesting season. Two of the larger owls presumed to be adults were banded.

The burrowing owls in the study area are living lives typical of urban owls, eking out an existence, rather the living the more natural and comfortable lives of burrowing owls in natural settings. The burrowing owls in the study area have limited areas within which to forage, which may compromise both their longevity and their reproductive success. Traffic, dogs, mandated weed abatement, and other human actives pose substantial threats to the birds in such an area adjoining urban development and along busy urban roadways. During several surveys, we observed burrowing owls perched in Gilley Way, or flying north and south across Gilley Way through traffic. A deceased owl was discovered in the entrance to a burrow south of Gilley Way in December 2020, presumably hit by a vehicle. The pair of burrowing owls along the edge of Orange Drive live dangerously close to traffic, and were observed reacting to the noise generated by vehicles being off-loaded at the auto dealership across the street, and by landscape maintenance across the street involving weed-eaters.

There is a total of 158.92 +/- acres of potential foraging habitat for burrowing owl in the study area. The same habitats in the study area as depicted in Figure 8 also provide potential foraging habitat for burrowing owl.

The project will result in the conversion of 158.92 +/- acres of potential foraging habitat for burrowing owl to developed uses. Construction equipment could also result in direct impacts (i.e., take) of burrowing owls through destruction of occupied burrows or indirect impacts through abandonment of eggs or young. CDFW's Staff Report (CDFG, 2012) describes mitigation methods for potential impacts to burrowing owl. Key recommended avoidance and minimization

measures include avoiding disturbance to occupied burrows, implementation of an Environmental Awareness Program (EAP), conducting pre-construction surveys, and implementation of setbacks from occupied burrows. The use of fumigants or poisons in areas with burrowing owls is discouraged.

CDFW's Staff Report (CDFG, 2012) also recommends the provision of compensatory mitigation for the permanent loss of burrowing owl habitat with equivalent or greater habitat area for breeding, foraging, wintering, and dispersal. The Staff Report further describes that the replacement habitat should have burrows or burrow surrogates, fossorial mammal dens, well-drained soils, and abundant and available prey within close proximity to the burrow.

Finally, the Staff Report (CDFG, 2012) recommends burrow exclusion and closure (i.e., "passive relocation") during the non-breeding season (i.e., September 1 through January 31), as the preferred method for removal of burrowing owls from occupied habitats when avoidance of burrows is infeasible, such as permanent conversion of habitat to non-habitat. Passive relocation uses one-way doors to exclude the owls, followed by verification the burrows are empty through scoping prior to burrow destruction. Burrowing owls excluded from their burrows usually relocate to grasslands in relatively close proximity to the site. With the exception of scientific research projects, CDFW is unable to authorize the translocation (i.e., "active relocation") of burrowing owls (CDFG, 2012).

The conversion of 158.92 +/- acres of potential burrowing owl habitat to developed uses is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-4:

- Prior to grading, the applicant shall mitigate for the loss of 158.92 +/- acres of potential burrowing owl habitat and two active nests by preserving similar or better habitat at an off-site location at a 1:1 ratio. The applicant shall prepare and submit a plan of the proposed off-site

mitigation to the City for approval. The provision of compensatory mitigation may be accomplished through purchase of credits from an agency-approved mitigation bank such as Burke Ranch Conservation Bank. Alternately, the mitigation could be fulfilled through the enhancement, management, and preservation of other off-site mitigation lands that are protected in-perpetuity by a conservation easement. The mitigation for loss of burrowing owl habitat may be accomplished concurrent with the Swainson's hawk off-site mitigation conditional on the mitigation area being compatible with burrowing owl conservation and actively managed to encourage establishment of a year-round burrowing owl population. If the project is constructed in phases, the compensatory mitigation for impacted burrowing owl habitat within each phase shall be provided prior to grading that phase.

The destruction of burrows that are occupied by burrowing owl or indirect impacts through abandonment of eggs or young is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-5:

- A qualified biologist shall present an "Environmental Awareness Program" (EAP) as described in Recommended Mitigation Measure BIO-3.

- Within 14 days prior to the commencement of construction of any phase of the project, a qualified biologist shall conduct an initial preconstruction survey for burrowing owls within the limits of the construction limits and adjacent lands within 250 feet, as access and visibility allow. The surveys shall incorporate methodologies from CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012). A follow-up survey shall be conducted within 24 hours of the commencement of construction. A preconstruction survey report describing the results of the survey shall be provided to the City. If no

burrowing owls or active burrows are located, no further action for this potential impact is required.

- If during the nesting season there is a lapse in construction of fourteen (14) days or longer, a qualified biologist shall conduct another preconstruction survey for burrowing owls and follow-up survey within 24 hours of the commencement of construction focused survey shall be performed and the results sent to CDFW prior to resuming work.

- If burrowing owls or active burrows are documented in the study area during the non-breeding season (September 1 through January 31), an Environmentally Sensitive Area ("ESA") with a radius of 160 feet shall be established around the occupied burrow(s). The applicant shall prepare a passive relocation plan incorporating the methodologies of CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) for submittal to the City and CDFW. The applicant shall implement passive relocation following approval by the City. The ESA shall remain in place until the City concurs the burrow is no longer active.

- If burrowing owls or active burrows are documented within 250 feet of the study area during the breeding season (February 1 through August 31), an ESA with a radius of 250 feet shall be established around the occupied burrow(s). The ESA shall remain in place throughout the breeding season, or until the City concurs the burrow is no longer active. Passive relocation may then proceed as described above.

The implementation of Recommended Mitigation Measures BIO-4 and BIO-5 would reduce the potential project impacts to burrowing owl to a less-than significant level through the provision of compensatory burrowing owl habitat at a ratio of 1:1 and implementing appropriate take avoidance measures.

WHITE-TAILED KITE: White-tailed kite is a State of California Species of Concern, but is not a listed species at the state or federal level. The Migratory Bird Treaty Act and Fish and Game Code protect white-tailed kite year-round, as well as their nests during nesting season; nesting for this species peaks from May to August. White-tailed kites can be found in a variety of habitats across California including grasslands, open woodlands, riparian areas, marshes and cultivated fields. Populations of white-tailed kites are concentrated in the Central Valley, but their range spans west of the Sierra Nevada's to the California coastline.

White-tailed kite may nest in large trees in the general project vicinity and may forage in habitats nearby. Nesting usually commences in the early-spring, concurrent with other resident Central Valley raptors, and most young fledge by early-July. The nearest occurrence of white-tailed kite in the CNDDB (2021) search area is approximately 1 mile northeast of the study area.

Despite high levels of disturbance and urban location, the ruderal grasslands in the study area provide suitable foraging habitat for white-tailed kite and there are several large trees in the study area that are potentially suitable for nesting. A pair of white-tailed kites attempted to nest in a large ornamental conifer just north of the intersection of White Sands Drive and Bighorn Court in 2021 (Figure 7). The nest is barely visible and the hen is not visible from afar unless she stands up in the nest. During the April 7, 2021 survey, a pair of crows was observed dive-bombing the nest while the hen white-tailed kite sat low in the nest, reacting each time the crows got close. The male white-tailed kite repeatedly chased off the crows, only to watch them return a few minutes later. Crows are known to prey on white-tailed kites. A single white-tailed kite has been seen in the same area since the April 7, 2021 survey and the hen was observed in the nest at least once. The fate of this nesting attempt is unknown.

There is a total of 158.92 +/- acres of potential foraging habitat for white-tailed kite in the study area. The same habitats in the study area that are foraging habitat for Swainson's hawk as depicted in Figure 8 also provide potential

foraging habitat for white-tailed kite. Similarly, most of the large trees in the study area that are suitable for nesting Swainson's hawk are also suitable for nesting white-tailed kite.

The project will result in the conversion of 158.92 +/- acres of potential foraging habitat for white-tailed kite to developed uses.

The conversion of 158.92 +/- acres of potential white-tailed kite foraging habitat to developed uses is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-6:

- Prior to construction, the applicant shall mitigate for the loss of 158.92 +/- acres of potential white-tailed kite habitat through the mitigation for loss Swainson's hawk habitat as described in Recommended Mitigation Measure BIO-2.

The potential for construction disturbance to nesting white-tailed kites is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-7:

- A qualified biologist shall present an "Environmental Awareness Program" (EAP) as described in Recommended Mitigation Measure BIO-3.

- The applicant shall remove trees during the fall and winter, if feasible, to minimize the potential for take of nesting white-tailed kite.

- A pre-construction survey for nesting white-tailed kite within 500 feet of the study area shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. A

report describing the results of the survey shall be provided to the City. If no active nests are located, no further action is required.

- If during the nesting season there is a lapse in project-related work of fifteen (15) days or longer, another focused survey shall be performed and the results sent to CDFW prior to resuming work.

- If active nests are found, a biologist experienced with raptor behavior shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals and may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to the white-tailed kite are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active.

The implementation of Recommended Mitigation Measures BIO-6 and BIO-7 would reduce the potential project impacts to white-tailed kite to a less-than significant level.

WESTERN POND TURTLE: The western pond turtle is a state species of concern, but is not a listed species at the state or federal level. Western pond turtles are associated with permanent or nearly permanent bodies of water with adequate basking sites such as logs, rocks or open mud banks. Western pond turtles construct nests in sandy banks along slow-moving streams and ponds in the spring and the young usually hatch in 2 to 3 months. The nearest occurrence of this species in the CNDDB (2021) search area is a 2016 record mapped in Horse Creek just north of the study area.

Horse Creek and Ulatis Creek, which are just north and south of the study area, respectively, are perennial streams that provide suitable habitat for western pond turtle. Old Ulatis Creek is shaded and dry much of the year and does not provide suitable habitat for this species. Most of the former golf course ponds are dry much of the year and do not provide suitable habitat for western pond turtle; the more perennial ponds lack suitable basking habitat for this species.

The uplands adjacent to Horse Creek and Ulatis Creek in the study area are highly disturbed and provide poor quality nesting habitat for western pond turtles. It is unlikely western pond turtles ascend the steep banks of the creeks to utilize ruderal grasslands or other habitats in the study area for nesting. Although considered unlikely to occur in the study area, grading and other construction activities could result in direct impacts to western pond turtle.

The potential for direct impacts to western pond turtle is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-8:

- Pre-construction surveys for western pond turtle and their nests shall be conducted by a qualified biologist within 48 hours prior to onset of staging and construction activities and again if there is a lapse in activity longer than 2 weeks. This will involve a search for nests in grasslands within 300 feet of Horse Creek and Ulatis Creek. If nest sites are located, the applicant will notify the City and a 50-foot buffer area around the nest shall be staked and work will be delayed until hatching is complete and the young have left the nest site.

- Prior to the commencement of construction, an Environmentally Sensitive Area ("ESA") shall be established along the north edge of the study area adjacent to Horse Creek. An ESA shall also be established in the southwest corner of the study area near Ulatis Creek. A qualified biologist will oversee the ESA fencing. The ESAs will be

delineated by silt fencing keyed below ground at least 4 inches. The ESA fencing shall be installed as close to the limits of grading as possible.

- If a western pond turtle is observed within the project area, it shall be left alone to move out of the area on its own.

- If a western pond turtle nest is observed within the project area, the nest shall be fenced off and avoided if possible. If avoidance is not possible, the project applicant and the biologist shall consult with CDFW to determine appropriate avoidance and minimization measures and then implement those measures.

The implementation of Recommended Mitigation Measure BIO-8 would reduce the potential project impacts to western pond turtle to a less-than significant level.

VALLEY ELDERBERRY LONGHORN BEETLE: The valley elderberry longhorn beetle (VELB) is listed as a federally threatened species and its host plant is the blue elderberry shrub. Eggs are laid on the leaves or stems of the shrubs and upon hatching, the larvae bore in to the stem where they remain for 2+/- years feeding on the interior portions of the stems. Following several larval instars, the larvae chew an exit hole in the stem, pupate, and emerge after approximately a month as an adult. The adults live only 4 to 5 days, mate, lay eggs, and die. There are no occurrences of valley elderberry longhorn beetle recorded in the CNDDB (2021) search area and no evidence of the beetle was found in the recent surveys in the study area.

The USFWS (2017) *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* direct that activities that may damage or kill an elderberry shrub, such as trenching or paving, should be avoided by a ground disturbance set back of 20 feet from the drip line of the shrub. A number of measures are also recommended to avoid and minimize project impacts to valley elderberry

longhorn beetle and/or its habitat including fencing, worker training, and timing of construction, among others. In cases where complete avoidance is not feasible, the Framework recommends compensatory mitigation for the loss of actual or potential valley elderberry longhorn beetle habitat.

There are sixteen (16) blue elderberry shrubs in the understory of the urban woodland vegetation along the south edge of the study area (Figure 6 and photographs in Appendix C). The driplines of all of the blue elderberry shrubs are situated more than 20 feet from the proposed limits of disturbance in an area that will remain as Open Space. No valley elderberry longhorn beetles or evidence of past occupancy by the species were observed in the stems of the shrubs.

Grading in close proximity to the blue elderberry shrubs could result in changes in drainage patterns or generation of dust, indirectly impacting valley elderberry longhorn beetles by a reduction in habitat suitability. The project is not expected to result in direct impacts to valley elderberry longhorn beetle because there is no evidence of this species being present in the study area and because the blue elderberry shrubs will be fully avoided and will remain in an undeveloped strip of Open Space along the south edge of the study area. Although valley elderberry longhorn beetles are very unlikely to be present, the removal or damage to an occupied blue elderberry shrub could result in the take of valley elderberry longhorn beetle.

The potential for direct impacts to valley elderberry longhorn beetle is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-9:

- The project shall not involve the removal or damage to an occupied blue elderberry shrub could result in the take of valley elderberry longhorn beetle.

- Prior to the commencement of construction within 100 feet of blue elderberry shrubs, an Environmentally Sensitive Area ("ESA") shall be established around the blue elderberry shrubs and a qualified biologist will oversee the ESA fencing. The ESAs will be delineated by orange safety fencing and will prevent disturbance to the blue elderberry shrubs by construction crews and equipment. The ESA fencing shall delineate the minimal "buffer zone" and shall be installed as close to the limits of grading as possible and at least 20 feet from the driplines of each of the shrubs.

- Signs shall be installed every 50 feet along the edge of the ESA stating: *"This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Federal Endangered Species Act. Violators are subject to prosecution, fines, and imprisonment."* Signs shall be easily read from a distance of 20 feet and shall remain in place for the duration of construction.

- Mass-grading along the south edge of the study area shall be scheduled between August 1 through February 28 when any valley elderberry longhorn beetle that may be present would be within the stems of the shrubs.

- Following completion of construction along the south edge of the study area, buffer zones of at least 20 feet around the blue elderberry shrubs shall be protected from adverse effects of the adjacent development project. The applicant shall prepare a plan outlining protective measures such as fencing and signage, as well as maintenance activities such as use of herbicides, fertilizers, or other chemicals, or weed abatement within the buffer zones. The plan shall be subject to City approval and shall be included in the final project plans.

The implementation of Recommended Mitigation Measure BIO-9 would reduce the potential project impacts to valley elderberry longhorn beetle to a less-than significant level.

VERNAL POOL BRANCHIOPODS: Conservancy fairy shrimp and vernal pool tadpole shrimp are listed as federally endangered species and vernal pool fairy shrimp is a federally threatened species. All of these species occur in vernal pools and depressional seasonal wetland habitats throughout much of the Central Valley. In most years, following cold winter rains which fill vernal pools, shrimp hatch, grow for a period ranging from a couple of weeks to a couple of months, then lay eggs and die. The eggs drift to the mud at the bottom of the pools, and remain in the dirt throughout the summer when the pools dry out. They hatch the following winter if there is sufficient ponding and other environmental conditions are met.

Although the seasonal wetlands in the study area are highly disturbed, they provide potentially suitable habitat for vernal pool fairy shrimp, Conservancy fairy shrimp, and vernal pool tadpole shrimp. Some of the golf course ponds and constructed ditches also provide marginal, yet potentially suitable habitat for these species. The nearest occurrence of vernal pool fairy shrimp and vernal pool tadpole shrimp in the CNDDB (2021) search area are approximately 0.5 miles northwest of the study area and approximately 1.5 miles southwest of the study area, respectively. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 6.5 miles southeast of the study area.

Wet sampling for federally listed large branchiopods was conducted in the topographically low areas (i.e., “basins”) in the study area during the 2020/2021 wet-season (Appendix G). Forty (40) of the basins were evaluated for their potential to support federally listed large branchiopods. The 40 areas that were evaluated include the ponds and ditches in the study area, as well as the seasonal wetlands, many of which are essentially level and are saturated during some winters, but do not pond water. Six shallow topographically low non-wetland areas were also evaluated. After the first three sampling rounds, it was

determined that twenty-two (22) of these basins were not considered suitable habitat for federally-listed large branchiopods because they are semi-to-permanently inundated areas that support populations of perennial aquatic predators (e.g., fish and crayfish).

Only two basins of the 18 habitats that had potential to support large branchiopods (Pond 1 and Ditch 2 as depicted on the Aquatic Resources Map in Appendix D) ponded for any duration during the 2020/2021 wet-season. No federally listed large branchiopods were detected within the samples collected from these basins.

Soils collected from 18 basins during dry-season sampling were processed and analyzed (Appendix G). No evidence of federally listed large branchiopods (i.e., cysts belonging to the genus *Branchinecta* or *Lepidurus* or carapaces of *Lepidurus*) was observed in the soils collected.

The existing network of golf course ponds and ditches in the study area and the seasonal wetlands will be filled. These ponds, ditches and seasonal wetlands could potentially support vernal pool fairy shrimp, Conservancy fairy shrimp, or vernal pool tadpole shrimp. However, these aquatic habitats provide poor quality habitat for federally listed large branchiopods and there is no evidence of these species being present in the study area.

The potential for direct impacts to vernal pool fairy shrimp, Conservancy fairy shrimp, or vernal pool tadpole shrimp resulting from the fill of the seasonal wetlands is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-10:

- Prior to the commencement of construction within 250 feet of the seasonal wetlands, the applicant shall submit the large branchiopod dry-season and wet-season sampling reports to USFWS with a request

for concurrence on negative findings. If USFWS provides concurrence on negative findings, no further action is needed.

- If USFWS does not readily concur on the negative findings, the applicant shall consult further with USFWS to determine if additional surveys are needed, such as a second year of wet-season surveys during a more normal rainfall year. If USFWS provides concurrence on negative findings following further surveys or consultation, no further action is needed. If USFWS does not provide concurrence on negative findings following the completion of wet-season surveys during a more normal rainfall year or USFWS does not provide on-site evidence of presence within 6 months of the completion of wet-season surveys during a more normal rainfall year, no further action is needed.

- In the unlikely event vernal pool fairy shrimp, Conservancy fairy shrimp, or vernal pool tadpole shrimp are documented in the study area, or the applicant elects to assume species presence, the applicant shall consult with USFWS to obtain authorization for take. The applicant shall provide compensatory mitigation for impacted occupied habitat at a minimum ratio of 3:1 (i.e., 2:1 preservation and 1:1 preservation).

The implementation of Recommended Mitigation Measure BIO-10 would reduce the potential project impacts to vernal pool fairy shrimp, Conservancy fairy shrimp, and vernal pool tadpole shrimp to a less-than significant level.

OTHER NESTING BIRDS: The study area provides suitable nesting habitat for numerous birds protected by the Migratory Bird Treaty Act (MBTA) and Fish and Game Code of California (FGCC). The study area provides suitable foraging and nesting habitat for common birds such as mourning dove, northern mockingbird, scrubjay, and other songbirds. The trees, shrubs, and other vegetation in the study area also provide potential foraging and nesting habitat

for a few special-status birds such as tricolored blackbird, northern harrier (*Circus cyaneus*), and loggerhead shrike (*Lanius ludovicianus*). A few species of birds such as geese, ducks, and killdeer may also nest on the ground in the study area.

With the exception of approximately 10 acres of open space along the south edge of the study area, the project will result in the conversion of the study area to developed uses and associated loss of potential foraging and nesting habitat of birds protected by the MBTA and GGCC.

The conversion of approximately 180 of potential foraging and nesting habitat of protected birds to developed uses is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-11:

- Prior to grading, the applicant shall implement the Swainson's hawk mitigation described in Recommended Mitigation Measure BIO-2.

The potential for construction disturbance to nesting birds protected by the MBTA and GGCC is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-12:

- A qualified biologist shall present an "Environmental Awareness Program" (EAP) as described in Recommended Mitigation Measure BIO-3.

- The applicant shall remove vegetation during the fall and winter, if feasible, to minimize the potential for take of birds.

- A pre-construction survey for nesting birds within 100 feet of the study area shall be conducted within 15 days prior to the commencement of

construction between March 1 and August 31. A report describing the results of the survey shall be provided to the City. If no active nests are located, no further action is required.

- If during the nesting season there is a lapse in project-related work for each respective phase of construction of fifteen (15) days or longer, another focused survey shall be performed and the results sent to CDFW prior to resuming work.

- If active nests are found, a biologist experienced with protected birds shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals and may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to protected birds or their nest are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active.

The implementation of Recommended Mitigation Measures BIO-11 and BIO-12 would reduce the potential project impacts to birds protected by the MBTA and GGCC to a less-than significant level.

ROOSTING BATS: Despite a lack of records in the CNDDB (2021) search area, trees within the study area provide potentially suitable roosting habitat for pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), both of which are CDFW Species of Special Concern. Common bats such as silver-haired bat (*Lasionycteris noctivagans*) and hoary bat (*Lasiurus cinereus*) may also use trees in the study area for roosting.

Approximately 10 acres of land along the south edge of the study area including the remnant channels of Old Ulatis Creek that provide the highest quality habitat for roosting bast will be preserved in open space. The remainder of the study area will be converted to developed uses resulting in the removal of trees providing potential roosting habitat for bats.

The removal of trees that could result in the destruction of an occupied bat roost is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-13:

- A qualified biologist who is experienced with the identification of local bat species shall conduct pre-construction roosting bat surveys within 14 days prior to any tree removal during the breeding season (April through August). If no active roosts of special-status bats are found, no further mitigation is required.

- If special-status bats or roosts are detected during the surveys, the qualified biologist shall prepare a take avoidance plan for submittal to the City and CDFW. The plan shall prescribe measures to minimize the potential for take of bats such as undertaking tree removal during certain times of the year, undertaking tree removal when daytime temperatures are high enough to allow individuals to leave on their own, implementing a two-step tree removal process of limbs followed by trunks, and monitoring during construction. The applicant shall implement the take avoidance plan following approval by CDFW.

AMERICAN BADGER: The American badger is considered a "Species of Special Concern" by CDFW. In California the badger is an uncommon, permanent resident being found in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. American badgers build burrows with a single entrance and frequently reuse old burrows. Due to intensive disking, the grasslands in the study area provides low quality habitat for this species, which is

also unlikely to occur in such an urban setting. No American badger dens were observed in the study area. The nearest occurrence of this species in the CNDDB (2021) search area is approximately 1.5 miles west of the study area.

The project will result in the conversion of the majority of the study area to developed uses. Construction equipment could result in direct impacts (i.e., take) of American badgers through destruction of occupied dens or indirect impacts through abandonment of young.

The destruction of dens that are occupied by American badgers is a ***potentially significant impact*** of the proposed project.

Recommended Mitigation Measure BIO-14:

- A qualified biologist shall conduct pre-construction surveys for American badgers and their dens within 14 days of the commencement of construction. If no American badgers or their dens are found, no further mitigation is required.

- If American badgers or their dens are detected during the pre-construction surveys, the qualified biologist shall prepare a take avoidance plan for submittal to the City and CDFW. The plan shall prescribe measures to minimize the potential for take of American badgers, such as establishing temporary Environmentally Sensitive Areas ("ESAs") around occupied dens or relocating badgers. The applicant shall implement the take avoidance plan following approval by CDFW.

OTHER SPECIAL-STATUS SPECIES: The study area does not provide highly suitable habitat for any special-status plant or wildlife species. A few special-status birds may fly over the area on occasion, but would not be expected to nest in or adjacent to the study area. For example, the study area does not contain emergent wetland vegetation required by nesting Clapper rail or grasshopper

sparrow. The small patches of willows and emergent vegetation in the study area could support nesting tricolored blackbirds. However, this species prefers to nest in expansive patches of emergent wetland vegetation and/or blackberry brambles in close proximity to open water.

The study area does not provide suitable habitat for California red-legged frog, foothill yellow-legged frog, California tiger salamander, or giant garter snake. The aquatic habitats in the study area do not provide suitable aquatic habitat for Central Valley steelhead, delta smelt, or any other special-status fish.

The seasonal wetlands in the study area are very small, shallow, highly disturbed and do not provide suitable habitat for delta green ground beetle. There is no coastal scrub habitat in the study area for San Bruno elfin butterfly.

Potential impacts to other special-status species would be less-than-significant.

Designated Critical Habitat

The study area is not within designated critical habitat for California red-legged frog (USFWS, 2006), California tiger salamander (USFWS, 2005a), federally listed vernal pool shrimp or plants (USFWS, 2005b), valley elderberry longhorn beetle (USFWS, 1980), or other federally listed species (Appendix H).

Wildlife Movement Corridors and Nursery Areas

Riparian corridors are often utilized as movement corridors for species such as mule (black-tail) deer (*Odocoileus hemionus columbianus*), coyote, red fox (*Vulpes vulpes*), and bobcat (*Felis rufus*), as well as a variety of amphibians, reptiles, and fish. Other swaths of unusual or unique habitats such as ridges and valleys may also be used by wildlife as movement corridors. Tidal wetlands and expansive freshwater marshes in the greater project vicinity provide nursery sites for breeding resident and migratory birds.

The study area is primarily disturbed grassland with scattered trees and is surrounded by residential and commercial development, paved roads, and intensively cultivated agricultural lands. The body of the site would not serve as a wildlife corridor for terrestrial species. The remnant channels of Old Ulatis Creek may be used by mammals and other wildlife species for movement. Despite levels of disturbance, the ruderal grasslands in the study area could provide foraging habitat and resting areas for migratory waterfowl; resident ducks and geese may also breed in the study area. However, there are no tidal wetlands or expansive freshwater marshes in the study area that would be used as nursery sites for breeding resident and migratory birds.

VI. REFERENCES AND LITERATURE CONSULTED

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California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org

SHTAC (Swainson's Hawk Technical Advisory Committee). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. May 31.

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USFWS. 2005a. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation and Economic Exclusions from August 2003 Final Designation, Final Rule. Federal Register Vol. 70, No. 154, August 11.

USFWS. 2005a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population; Final Rule. Federal Register Vol. 70, No. 162, August 23, 2005, pp. 49390 – 49458.

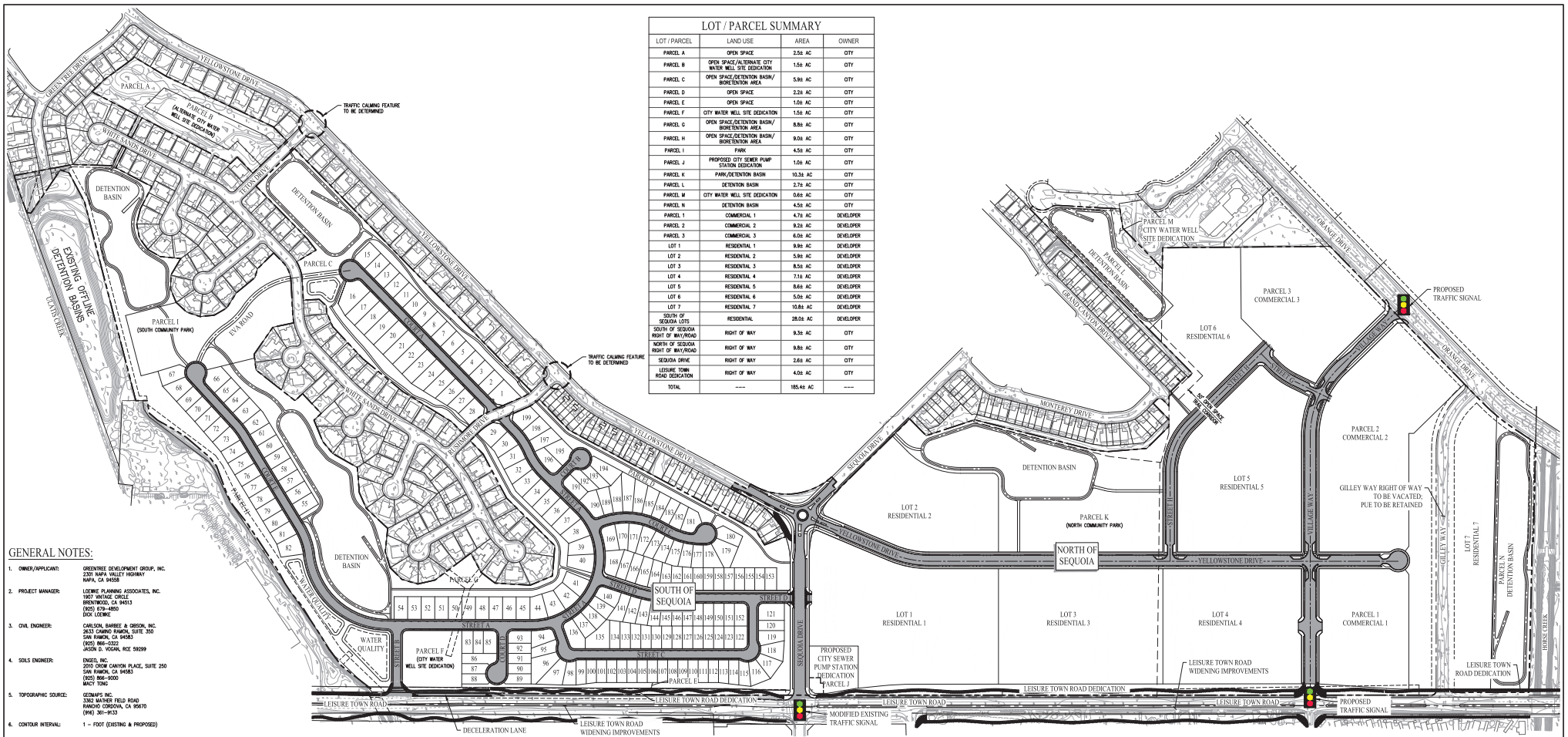
USFWS. 2006a. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for California Red-Legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities, Final Rule. Federal Register Vol. 71, No. 71, April 13.

USFWS. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28pp.

Appendix A

Project Maps: Vesting Tentative Map

(Pages TM1, TM7, TM8, TM16, TM17 & TM18)



LOT / PARCEL SUMMARY

LOT / PARCEL	LAND USE	AREA	OWNER
PARCEL A	OPEN SPACE	2.5± AC	CITY
PARCEL B	OPEN SPACE/ALTERNATE CITY WATER WELL SITE DEDICATION	1.5± AC	CITY
PARCEL C	OPEN SPACE/DETENTION BASIN/ BIORETENTION AREA	5.9± AC	CITY
PARCEL D	OPEN SPACE	2.2± AC	CITY
PARCEL E	OPEN SPACE	1.0± AC	CITY
PARCEL F	CITY WATER WELL SITE DEDICATION	1.5± AC	CITY
PARCEL G	OPEN SPACE/DETENTION BASIN/ BIORETENTION AREA	8.8± AC	CITY
PARCEL H	OPEN SPACE/DETENTION BASIN/ BIORETENTION AREA	9.0± AC	CITY
PARCEL I	PARK	4.5± AC	CITY
PARCEL J	PROPOSED CITY SEWER PUMP STATION DEDICATION	1.0± AC	CITY
PARCEL K	PARK/DETENTION BASIN	10.3± AC	CITY
PARCEL L	DETENTION BASIN	2.7± AC	CITY
PARCEL M	CITY WATER WELL SITE DEDICATION	0.6± AC	CITY
PARCEL N	DETENTION BASIN	4.5± AC	CITY
PARCEL 1	COMMERCIAL 1	4.7± AC	DEVELOPER
PARCEL 2	COMMERCIAL 2	9.2± AC	DEVELOPER
PARCEL 3	COMMERCIAL 3	6.0± AC	DEVELOPER
LOT 1	RESIDENTIAL 1	9.9± AC	DEVELOPER
LOT 2	RESIDENTIAL 2	5.9± AC	DEVELOPER
LOT 3	RESIDENTIAL 3	8.5± AC	DEVELOPER
LOT 4	RESIDENTIAL 4	7.1± AC	DEVELOPER
LOT 5	RESIDENTIAL 5	8.6± AC	DEVELOPER
LOT 6	RESIDENTIAL 6	5.0± AC	DEVELOPER
LOT 7	RESIDENTIAL 7	10.8± AC	DEVELOPER
SOUTH OF SEQUOIA LOTS	RESIDENTIAL	28.0± AC	DEVELOPER
SOUTH OF SEQUOIA RIGHT OF WAY/ROAD	RIGHT OF WAY	9.3± AC	CITY
NORTH OF SEQUOIA RIGHT OF WAY/ROAD	RIGHT OF WAY	9.8± AC	CITY
SEQUOIA DRIVE	RIGHT OF WAY	2.6± AC	CITY
LEISURE TOWN ROAD DEDICATION	RIGHT OF WAY	4.0± AC	CITY
TOTAL	---	185.4± AC	---

GENERAL NOTES:

1. OWNER/APPLICANT: GREENTREE DEVELOPMENT GROUP, INC. 2301 NAPA VALLEY HIGHWAY NAPA, CA 94558
2. PROJECT MANAGER: LOEWKE PLANNING ASSOCIATES, INC. 1907 VINTAGE CIRCLE BRENTWOOD, CA 94513 (925) 679-4850 DICK LOEWKE
3. CIVIL ENGINEER: CARLSON, BARBEE & GIBSON, INC. 2633 CAMINO RAMON, SUITE 350 SAN RAMON, CA 94583 (925) 866-0322 JASON D. VOGAN, RCE 59299
4. SOILS ENGINEER: ENGEO, INC. 2010 CROW CANYON PLACE, SUITE 250 SAN RAMON, CA 94583 (925) 866-9000 MACY TONG
5. TOPOGRAPHIC SOURCE: GEOMAPS INC. 3362 MATHER FIELD ROAD RANCHO CORDOVA, CA 95670 (916) 361-9133
6. CONTOUR INTERVAL: 1 – FOOT (EXISTING & PROPOSED)
7. BENCHMARK: CITY OF VACAVILLE BENCHMARK NO. C25B 2" BRASS DISK IN THE CENTERLINE OF GILLEY WAY AT THE MOST WESTERLY BC STAMPED "CITY OF VACAVILLE 1989 RCE 28167" ELEVATION 86.829 FEET (NAVD88)
8. FLOOD ZONE: ZONE A & ZONE X REFER TO FLOOD INSURANCE RATE MAP PANEL 0609SC0094E (MAY 4, 2009) PANEL 0609SC0095E (MAY 4, 2009) PANEL 0609SC0277E (MAY 4, 2009) PANEL 0609SC0281E (MAY 4, 2009) NO BASE FLOOD ELEVATION DETERMINED
9. SITE ADDRESS: 999 LEISURE TOWN ROAD VACAVILLE CA, 95687
10. EXISTING CONDITIONS: ALL EXISTING TREES, FENCING, UTILITIES AND STRUCTURES WITHIN THE DEVELOPED AREA ARE TO BE REMOVED UNLESS OTHERWISE NOTED.
11. STREETS: ALL STREETS WITHIN THE DEVELOPMENT SHALL BE PUBLIC AND WILL BE PUBLICLY OWNED AND MAINTAINED BY THE CITY OF VACAVILLE.
12. STREET LIGHTS: ALL STREET LIGHTS WITHIN THE DEVELOPMENT WILL BE PUBLIC AND PUBLICLY OWNED AND MAINTAINED BY THE CITY OF VACAVILLE.
13. PUBLIC UTILITIES: PROPOSED UTILITIES WILL BE PUBLIC AND PUBLICLY OWNED AND MAINTAINED BY THE CITY OF VACAVILLE.
14. UTILITY PROVIDER: SEWER: CITY OF VACAVILLE; WATER: CITY OF VACAVILLE; STORM DRAIN: CITY OF VACAVILLE; GAS & ELECTRIC: PACIFIC GAS & ELECTRIC; TELEPHONE: AT&T; CABLE TV: COMCAST
15. LANDSCAPE: ALL LANDSCAPE WITHIN PUBLICLY DEDICATED PARCELS OR RIGHT OF WAY SHALL BE OWNED AND MAINTAINED BY THE CITY OF VACAVILLE.
16. PROPOSED GRADING AS SHOWN IS PRELIMINARY. FINAL GRADING IS SUBJECT TO FINAL DESIGN.
17. ALL GRADING WILL BE IN CONFORMANCE WITH THE RECOMMENDATIONS AND CONDITIONS OF THE GEOTECHNICAL ENGINEER AND REPORT REGARDING THIS PROJECT.
18. MAXIMUM CUT OR FILL SLOPE IS 2:1.
19. BOUNDARY IS PER FIELD SURVEY.
20. MULTIPLE FINAL MAPS MAY BE FILED ON THE LANDS SHOWN ON THIS MAP. A MASTER FINAL MAP MAY BE FILED TO CREATE SELLABLE PARCELS.

SOUTH OF SEQUOIA SPECIFIC NOTES:

1. ASSESSORS PARCEL NO: 134-020-180, 134-020-280, 134-020-300, 134-020-310, 134-020-320, 134-020-330, 134-020-340, 134-020-350, 134-020-360, 134-020-380, 134-020-450, 134-020-460, 134-180-030, 134-180-040, 134-180-130, 134-180-140, 134-180-150, 134-330-100 & 134-330-180
2. LAND USE: EXISTING: PRIVATE RECREATION (PR) PROPOSED: RESIDENTIAL LOW DENSITY (RLM)
3. ZONING: EXISTING: RECREATION COMMERCIAL (CR) PROPOSED: PLANNED DEVELOPMENT (PD)
4. EXISTING LOTS/PARCELS: 3 PARCELS; PROPOSED LOTS: TOTAL NUMBER OF PROPOSED LOTS SHALL BE NO MORE THAN 199; PROPOSED PARCELS: 9 PARCELS
5. MINIMUM LOT SIZE: 45'x100' (4,500 SF)
6. EXISTING SITE AREA: 77.9± AC; PROPOSED SITE AREA: 74.2± AC
7. GROSS DENSITY: 199 DWELLING UNITS/74.2 ACRES = 2.7 DWELLING UNITS/AC

LAND USE SUMMARY - SOUTH

LAND USE	LOTS	% OF TOTAL LOTS	AREA (AC)	% OF TOTAL AREA
RESIDENTIAL LOTS (45' x 100')	117	59%	15.1	19%
RESIDENTIAL LOTS (60' x 100')	82	41%	12.9	17%
PARK	----	----	4.5	6%
OPEN SPACE / TRAIL CORRIDOR	----	----	19.8	26%
DETENTION BASIN / WATER QUALITY	----	----	11.1	14%
LEISURE TOWN ROAD DEDICATION	----	----	1.1	1%
RIGHT OF WAY / ROAD	----	----	9.3	12%
CITY WELL SITE	----	----	1.5	2%
SEQUOIA DRIVE	----	----	2.6	3%
TOTAL	199	100%	77.9	100%

EARTHWORK SUMMARY - SOUTH

DESCRIPTION	CUT (CY)	FILL (CY)
ROUGH GRADING	126,500	181,600
APPROXIMATE IMPORT	----	55,100
TOTAL	126,500	126,500

NET: 0 CY

NOTES:
1. THE ABOVE ROUGH GRADING EARTHWORK VOLUMES ARE RAW VOLUMES FOR ROUGH GRADING ONLY AND DO NOT INCLUDE ANY REMEDIAL GRADING THAT MAY BE REQUIRED BY THE GEOTECHNICAL ENGINEER OR ANY EXPANSION OR CONTRACTION OF NATIVE SOIL.
2. THE EARTHWORK SUMMARY ABOVE DOES NOT INCLUDE PAD SPOILS, UTILITY SPOILS OR LANDSCAPE SPOILS.
3. THE ABOVE ROUGH GRADING EARTHWORK VOLUMES ARE PRELIMINARY AND SUBJECT TO FINAL DESIGN.

NORTH OF SEQUOIA SPECIFIC NOTES:

1. ASSESSORS PARCEL NO: 133-120-190, 133-120-340, 134-020-240, 134-030-010, 134-030-370, 134-030-380, 134-030-400, 134-310-010 & 134-480-110
2. LAND USE: EXISTING: PRIVATE RECREATION (PR) & COMMERCIAL HIGHWAY (CH) PROPOSED: RESIDENTIAL LOW DENSITY (RLM)
3. ZONING: EXISTING: RECREATION COMMERCIAL (CR) & GENERAL COMMERCIAL (CG) PROPOSED: PLANNED DEVELOPMENT (PD)
4. EXISTING LOTS/PARCELS: 4 PARCELS; PROPOSED LOTS/PARCELS: 8 PARCELS
5. EXISTING SITE AREA: 105.6± AC; PROPOSED SITE AREA: 104.6± AC

LAND USE SUMMARY - NORTH

LAND USE	AREA (AC)	% OF TOTAL AREA
RESIDENTIAL	55.8	52%
COMMERCIAL	19.9	18%
PARK	6.0	6%
DETENTION BASIN / WATER QUALITY	11.5	11%
CITY SEWER PUMP STATION	1.0	1%
CITY WELL SITE DEDICATION	0.6	<1%
LEISURE TOWN ROAD DEDICATION	2.9	3%
RIGHT OF WAY / ROAD	9.8	9%
GILLEY WAY VACATION (INCLUDED IN RESIDENTIAL)	1.9	N/A
TOTAL	107.5	100%

EARTHWORK SUMMARY - NORTH

DESCRIPTION	CUT (CY)	FILL (CY)
ROUGH GRADING	152,600	214,400
APPROXIMATE IMPORT	----	61,800
TOTAL	152,600	152,600

NET: 0 CY

NOTES:
1. THE ABOVE ROUGH GRADING EARTHWORK VOLUMES ARE RAW VOLUMES FOR ROUGH GRADING ONLY AND DO NOT INCLUDE ANY REMEDIAL GRADING THAT MAY BE REQUIRED BY THE GEOTECHNICAL ENGINEER OR ANY EXPANSION OR CONTRACTION OF NATIVE SOIL.
2. THE EARTHWORK SUMMARY ABOVE DOES NOT INCLUDE PAD SPOILS, UTILITY SPOILS OR LANDSCAPE SPOILS.
3. THE ABOVE ROUGH GRADING EARTHWORK VOLUMES ARE PRELIMINARY AND SUBJECT TO FINAL DESIGN.

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
BBC	BACK OF BEVELED CURB
BD	BOUNDARY
CL	CENTERLINE
DL	GRADING DAYLIGHT
DU	DWELLING UNIT
DW	DRIVEWAY
EM	EASEMENT
EVA	EMERGENCY VEHICLE ACCESS
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
FC	FACE OF CURB
FL	FLOW LINE
HOA	HOMEOWNERS ASSOCIATION
LG	LIP OF GUTTER
LS	LANDSCAPE
OB	OVERBUILD
PL	PROPERTY LINE
PUE	PUBLIC UTILITY EASEMENT
R	RADIUS
RW	RIGHT OF WAY
SD	STORM DRAIN
SF	SQUARE FOOTAGE
SS	SANITARY SEWER
SW	SIDEWALK
W	WATER

LEGEND

EXISTING	PROPOSED	
		GREENTREE SPECIFIC PLAN BOUNDARY
		LOT LINE
		EASEMENT
		CENTERLINE
		CURB GUTTER AND SIDEWALK
		WATER PIPE
		SANITARY SEWER PIPE
		STORM DRAIN PIPE
		STORM DRAIN MANHOLE
		STORM DRAIN CATCH BASIN
		STORM DRAIN FIELD INLET
		SANITARY SEWER MANHOLE
		VALVE
		FIRE HYDRANT
250	250	MAJOR CONTOUR
251	251	MINOR CONTOUR
		RETAINING WALL
		UTILITY POLE
		FENCE

SHEET INDEX

COVER SHEET & GENERAL NOTES
VESTING TENTATIVE MAP
GREENTREE DEVELOPMENT

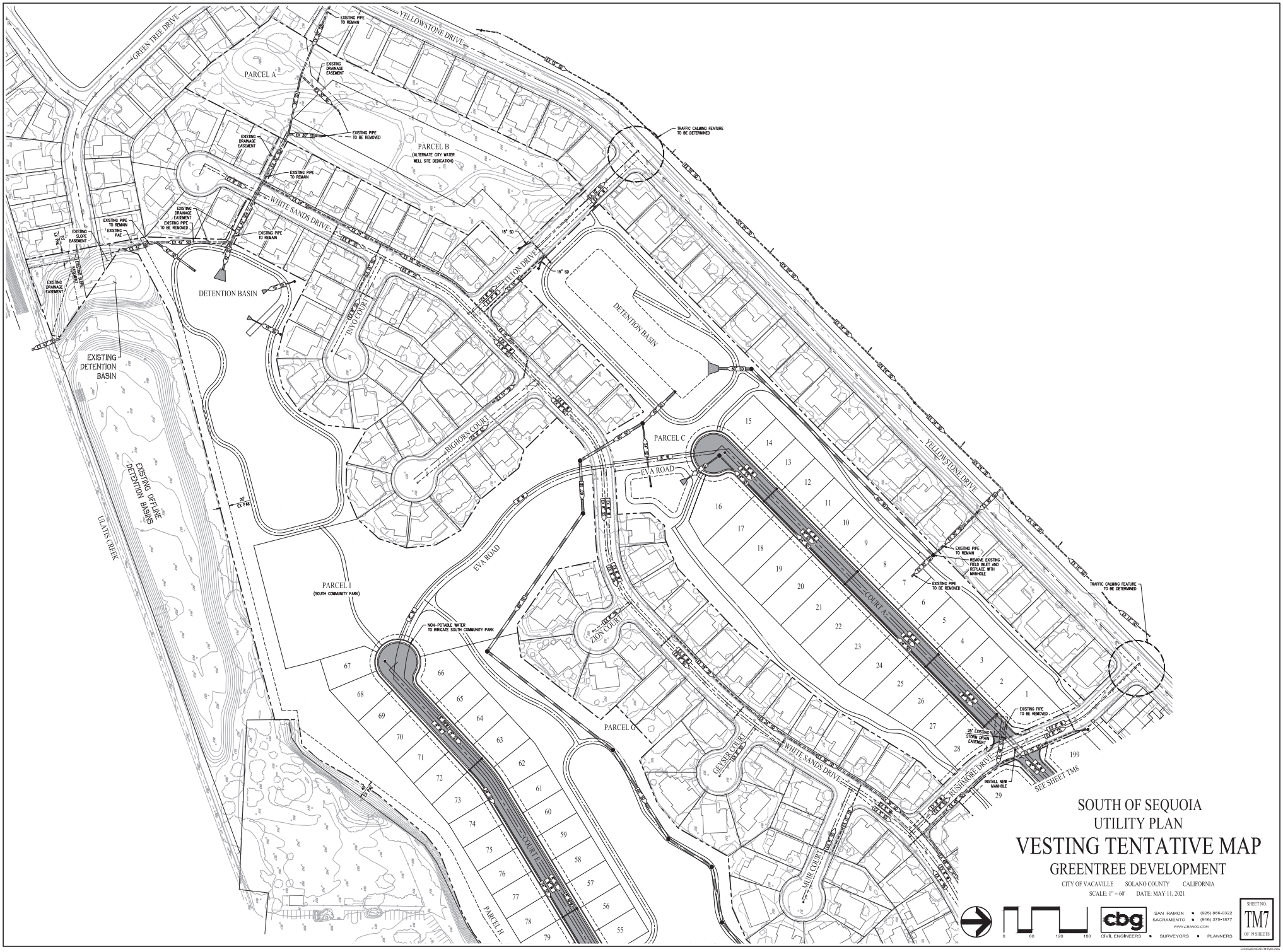
CITY OF VACAVILLE SOLANO COUNTY CALIFORNIA

SCALE: 1" = 150' DATE: MAY 11, 2021

0 150 300 450

cbg CIVIL ENGINEERS ▪ SURVEYORS ▪ PLANNERS
SAN RAMON ▪ (925) 866-0322
SACRAMENTO ▪ (916) 375-1877
WWW.CBANDG.COM

SHEET NO. TM1 OF 19 SHEETS



SOUTH OF SEQUOIA
UTILITY PLAN

VESTING TENTATIVE MAP

GREENTREE DEVELOPMENT

CITY OF VACAVILLE SOLANO COUNTY CALIFORNIA
SCALE: 1" = 60' DATE: MAY 11, 2021

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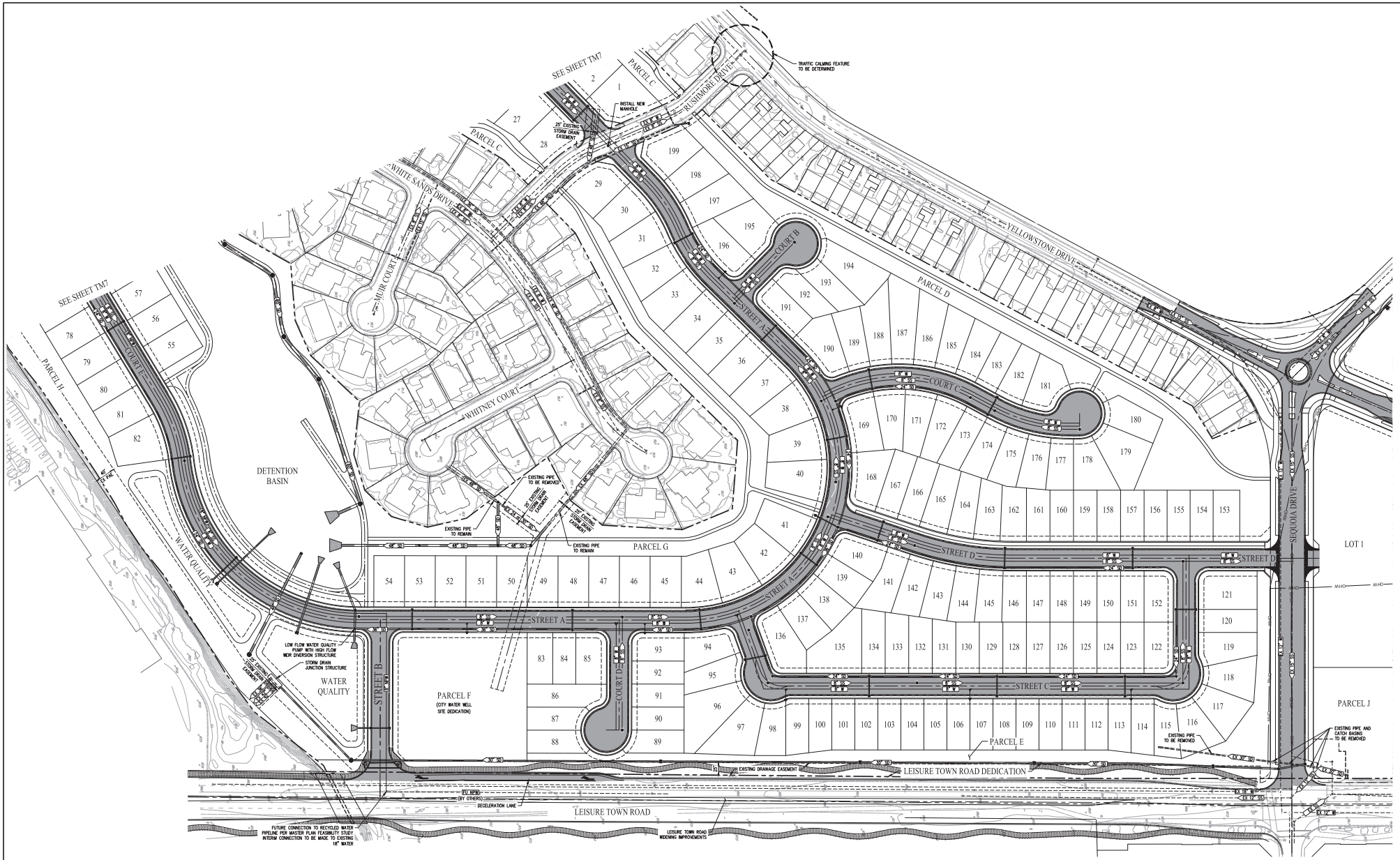
SAN RAMON (925) 866-0322
SACRAMENTO (916) 375-1877
WWW.CBANDG.COM

SHEET NO. TM7 OF 19 SHEETS



SOUTH OF SEQUOIA
UTILITY PLAN

VESTING TENTATIVE MAP

GREENTREE DEVELOPMENT

CITY OF VACAVILLE SOLANO COUNTY CALIFORNIA

SCALE: 1" = 60' DATE: MAY 11, 2021

cbg CIVIL ENGINEERS SURVEYORS PLANNERS
SAN RAMON (925) 866-0322
SACRAMENTO (916) 375-1877
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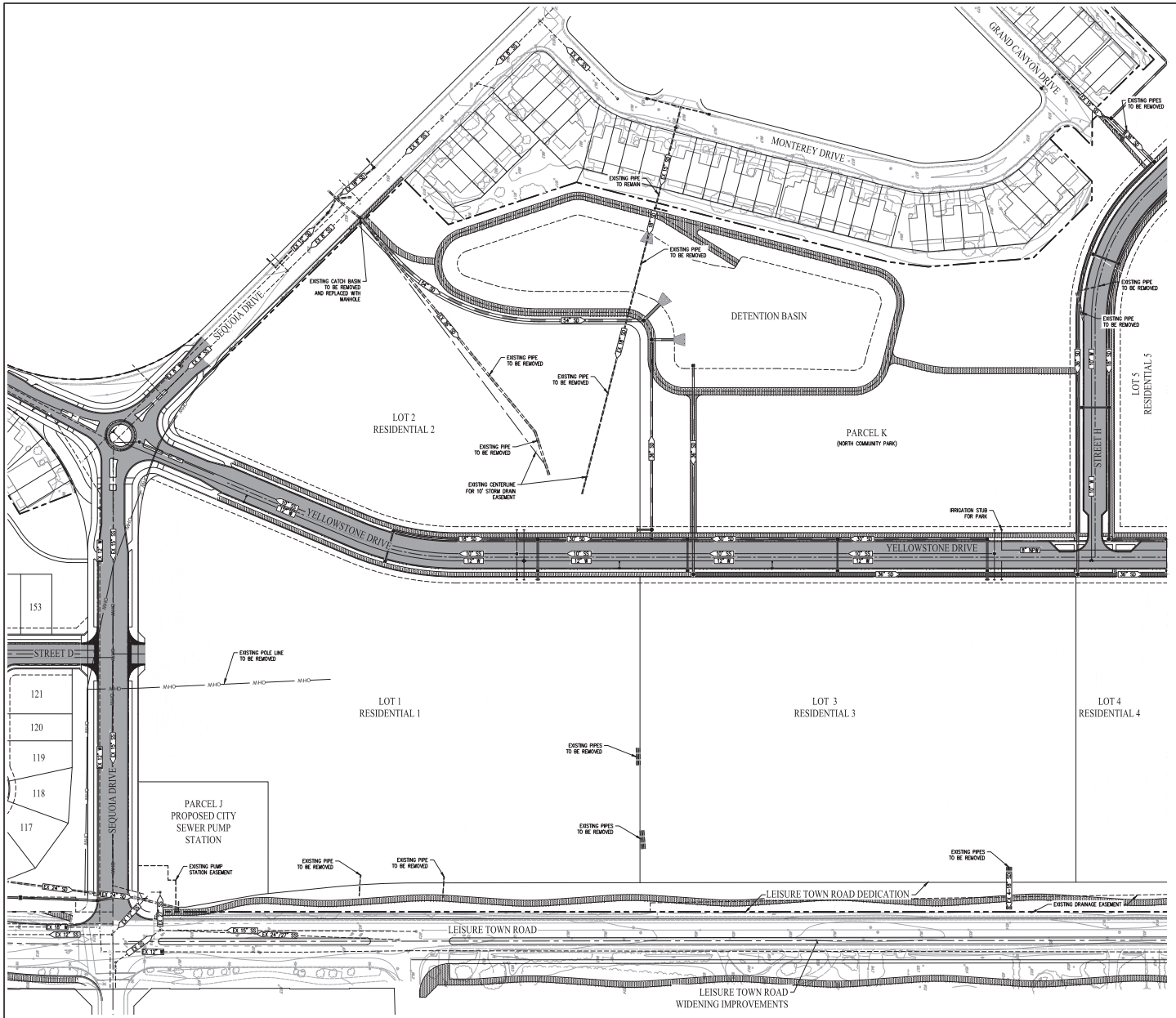
SHEET NO. TM8 OF 19 SHEETS



NORTH OF SEQUOIA
UTILITY PLAN

VESTING TENTATIVE MAP

GREENTREE DEVELOPMENT

CITY OF VACAVILLE SOLANO COUNTY CALIFORNIA

SCALE: 1" = 60' DATE: MAY 11, 2021

0 60 120 180

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SHEET NO.
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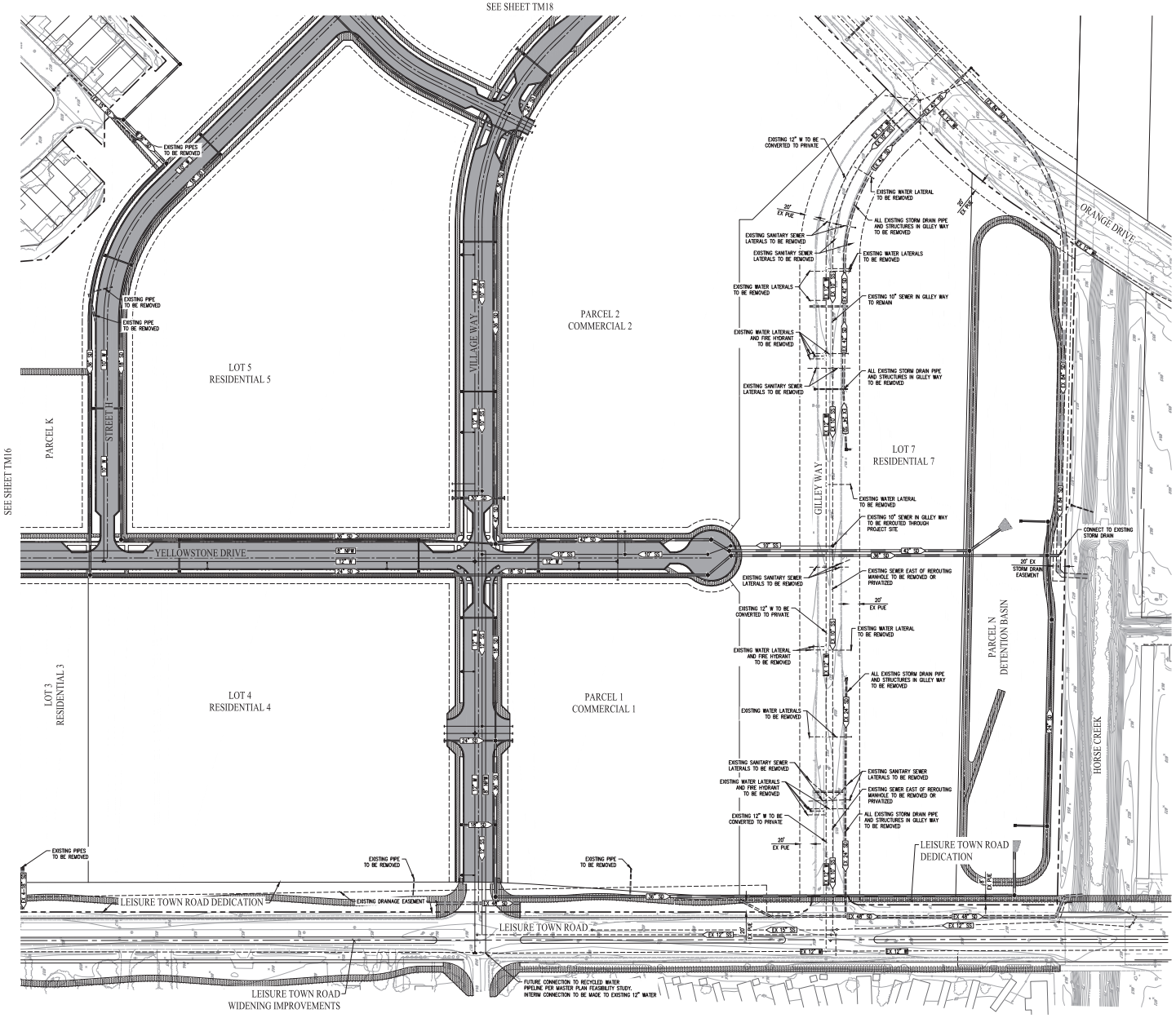
OF 19 SHEETS



NORTH OF SEQUOIA
UTILITY PLAN

VESTING TENTATIVE MAP

GREENTREE DEVELOPMENT

CITY OF VACAVILLE SOLANO COUNTY CALIFORNIA

SCALE: 1" = 60' DATE: MAY 11, 2021

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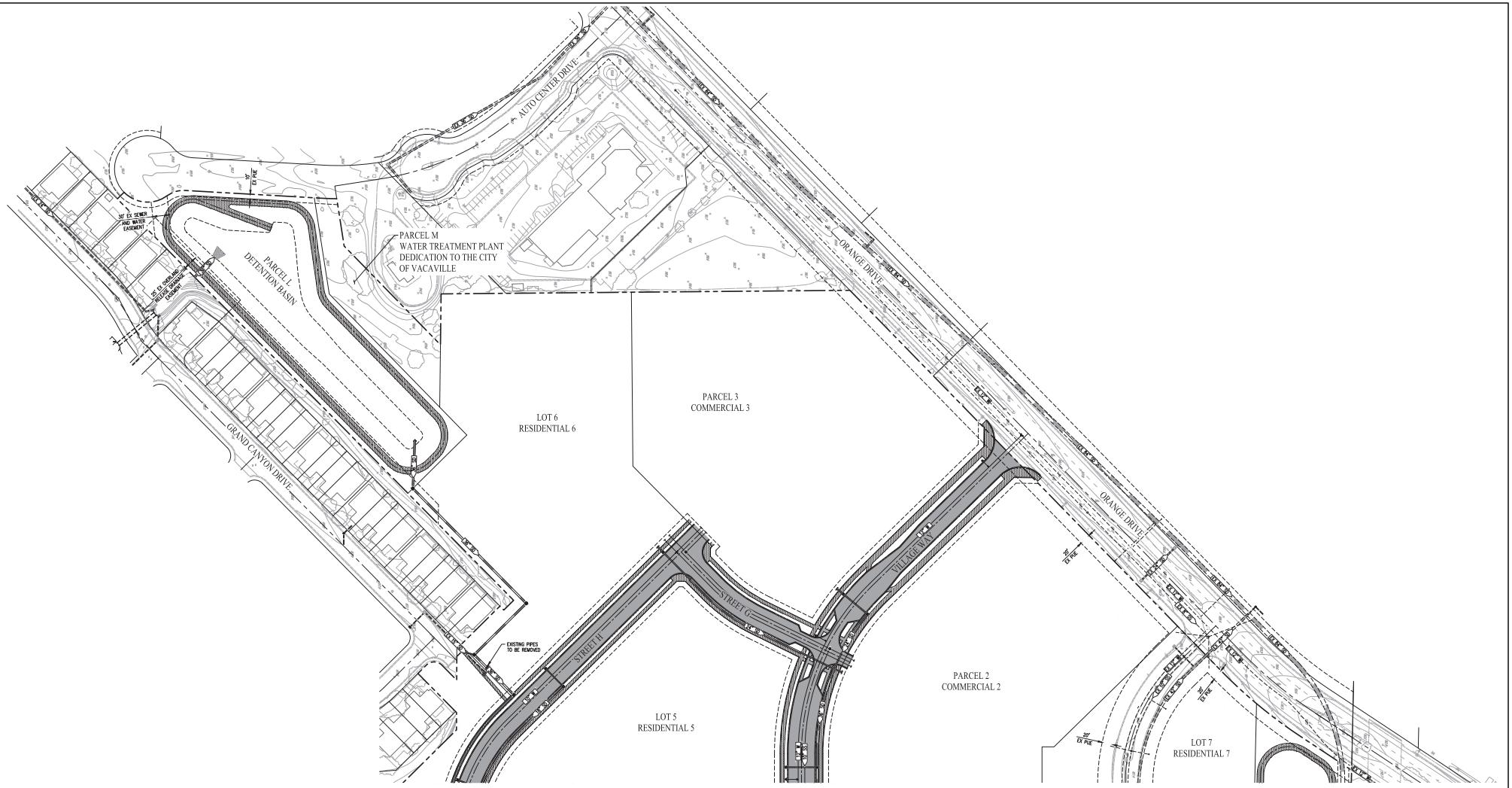

NORTH OF SEQUOIA

UTILITY PLAN

VESTING TENTATIVE MAP

GREENTREE DEVELOPMENT

CITY OF VACAVILLE SOLANO COUNTY CALIFORNIA

SCALE: 1" = 60' DATE: MAY 11, 2021

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SHEET NO. TM18 OF 19 SHEETS

Appendix B

CNDDB Summary Report and Exhibits

& USFWS IPaC Trust Resource Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

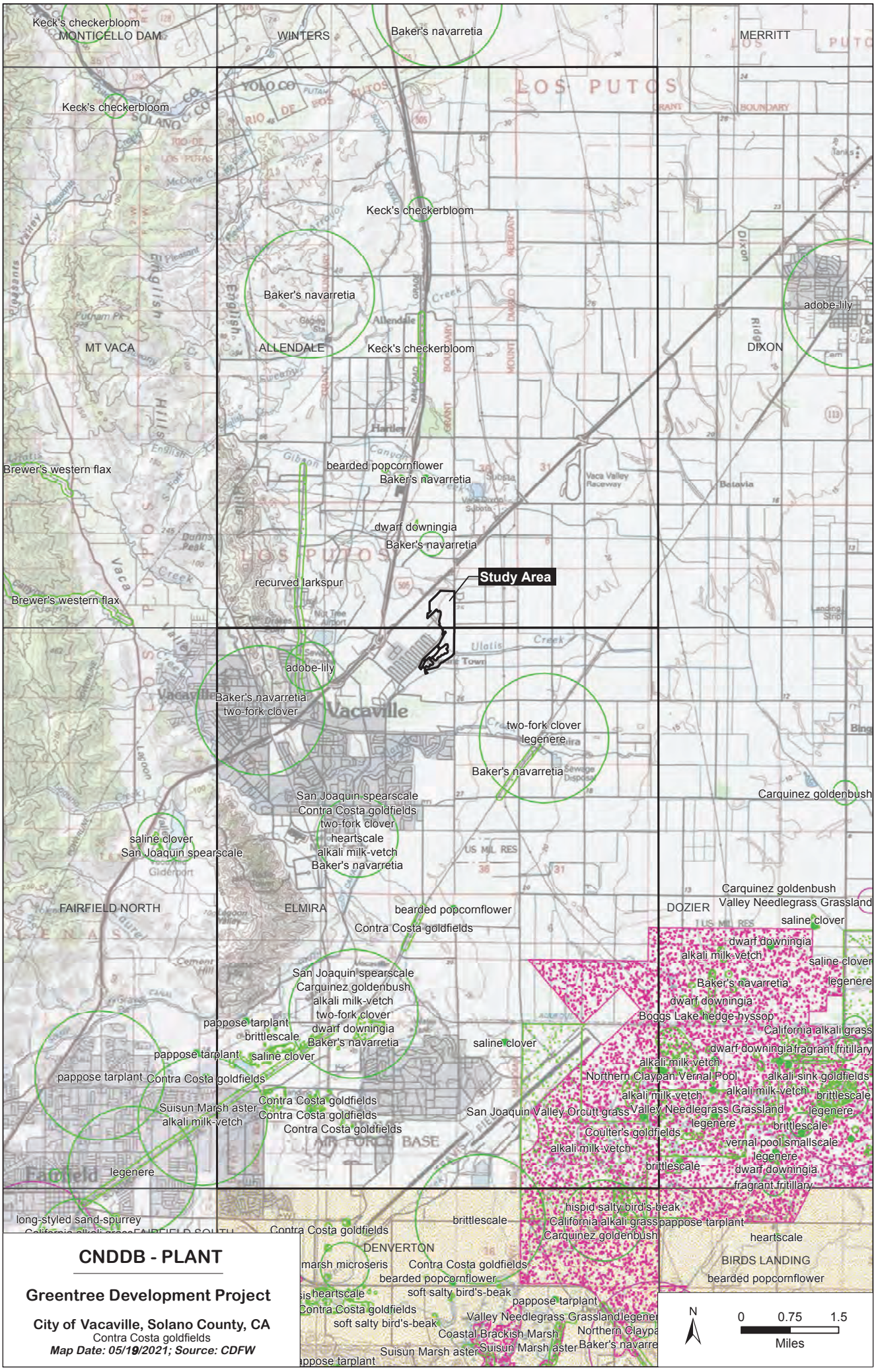
California Natural Diversity Database

Query Criteria: Quad IS (Allendale (3812148) OR Elmira (3812138))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Bombus occidentalis western bumble bee	IIHYM24250	None	Candidate Endangered	G2G3	S1	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Chloropyron molle ssp. hispidum hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T1	S1	1B.1
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elaphrus viridis Delta green ground beetle	IICOL36010	Threatened	None	G1	S1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Fritillaria pluriflora adobe-lily	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Isocoma arguta Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Orcuttia inaequalis San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Rana boylii foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Trifolium amoenum two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 40



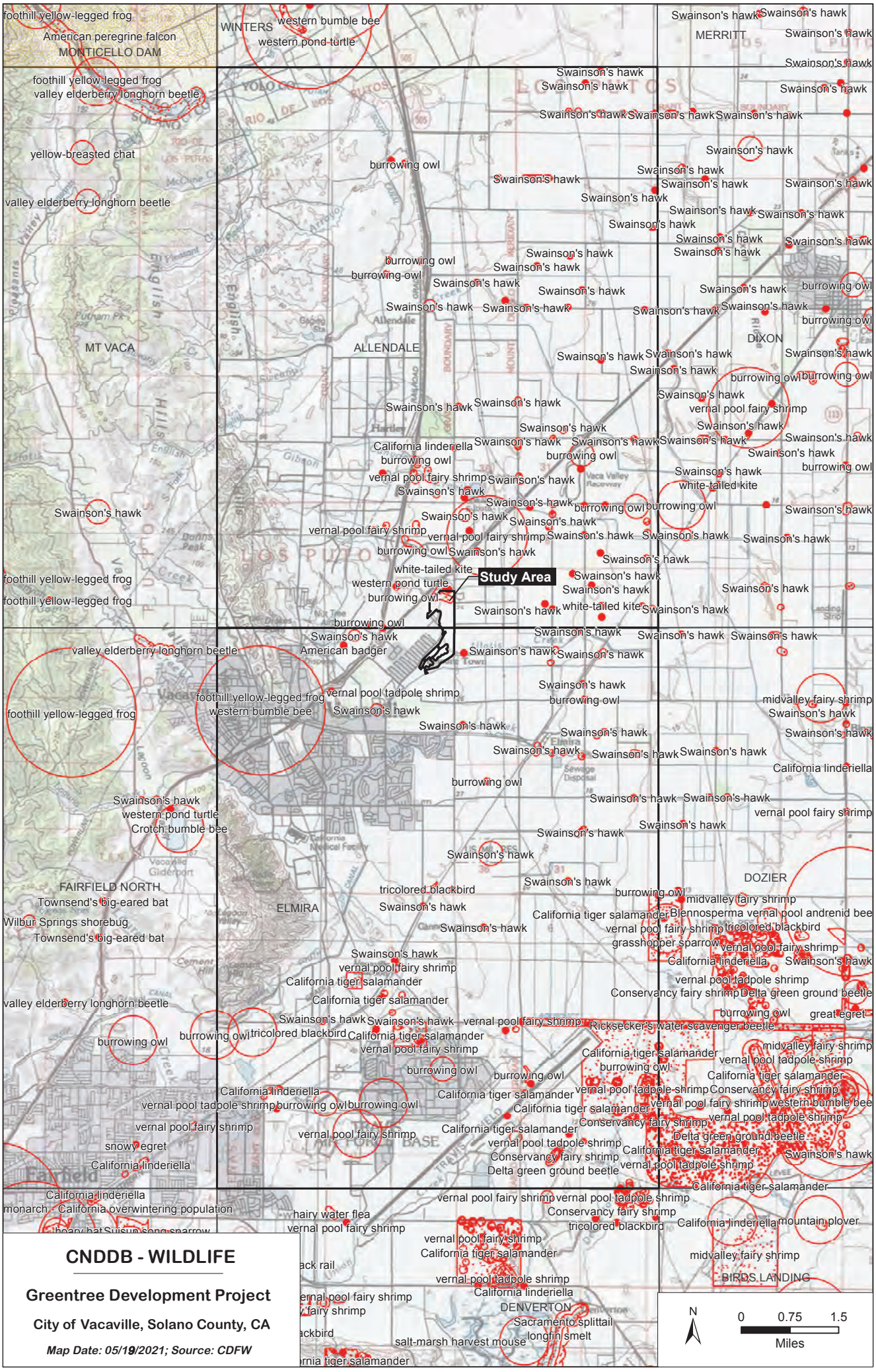
CNDDB - PLANT

Greentree Development Project

City of Vacaville, Solano County, CA

Contra Costa goldfields

Map Date: 05/19/2021; Source: CDFW



CNDDB - WILDLIFE

Greentree Development Project

City of Vacaville, Solano County, CA

Map Date: 05/19/2021; Source: CDFW

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Solano County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. 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.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS

California Clapper Rail Rallus longirostris obsoletus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4240

Reptiles

NAME	STATUS

Giant Garter Snake Thamnophis gigas — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4482

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense — Threatened
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2076

Fishes

NAME	STATUS

Delta Smelt Hypomesus transpacificus — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS

Delta Green Ground Beetle Elaphrus viridis — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2319

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/7850

Crustaceans

NAME	STATUS

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2246

Flowering Plants

NAME	STATUS

Contra Costa Goldfields Lasthenia conjugens — Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/7058

San Joaquin Orcutt Grass Orcuttia inaequalis — Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/5506

Showy Indian Clover Trifolium amoenum — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6459

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Burrowing Owl Athene cunicularia — Breeds Mar 15 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9737

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-billed Curlew Numenius americanus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week

of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1C
- PEM1Fx

FRESHWATER POND

- PUBHx
- PUBK

RIVERINE

- R4SBC
- R5UBFx
- R4SBCx
- R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.