Hercules Complex Project, Hercules, California
Biological Assessment Report

Prepared for
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EX-1 EXECUTIVE SUMMARY

This report presents the results of a reconnaissance-level habitat study for special-status wildlife, plant species, and protected habitats for the 6.25-acre property located at the intersection of Interstate Highway 80 and State Highway 4 in Hercules, California. This report is intended to provide background and site-specific information pertaining to biological resources and to identify potential constraints to future development of the site. Included is a discussion of the existing plant communities, wildlife associations, potentially-occurring special-status plant and wildlife species, natural communities, and recommended general mitigation measures for potential impacts.

The study area plant community is a mixture of upland coyote brush scrub, native grassland, willow riparian woodland, and emergent wetland, with disturbed portions of annual grassland containing non-native grassland and ruderal areas disturbed by grading and stockpiling of soil.

The project site is isolated within numerous roadways and industrial development. The willow riparian and emergent wetlands on the site contain wetlands under state and/or federal jurisdiction.

A total of 24 special-status plant species were considered to have at least some potential to occur in the project region (on the basis of inclusion on federal or state lists or California Native Plant Society lists). Ten potential grassland plants were the focus of surveys during field studies. None were observed. Because of the marginal suitability of the site due to historic ground disturbance and presence of many invasive non-native plant species over most of the site, no special status plant species would be expected to be present.

A total of 36 special-status animal species are known to occur within the vicinity of the project site (primarily found on state and federal lists of special status animal species). Of these, several protected bird species potentially nest in trees on the site. The California red-legged frog is known to inhabit the aquatic (and adjacent associated upland habitats). San Francisco dusky-footed woodrat, and Western pond turtle are additional protected species that have a moderate to high potential to be present. The remaining special status animal species are considered to have low potential to occur on site.

Future development of the site may warrant additional biological studies and, depending on the nature of the proposed development, may require permits from regulatory agencies as well as mitigation. Specific regulated biological resources present, or potentially present on site include California red-legged frog, San Francisco dusky-footed woodrat, Western pond turtle, Cooper's Hawk, and other raptors or migratory bird nesting sites.

Approximately 50 percent of the site will remain undeveloped, providing a buffer between a stream and associated wetlands, reducing potential impacts to biological resources. However, it is anticipated that coordination with federal and state agencies will be necessary to ensure protection to special status species and sensitive wetlands habitats.

1.0 Introduction

This report presents the results from several reconnaissance-level habitat surveys for special-status wildlife and plant species within the 6.25-acre property located at the intersection of Interstate Highway 80 and State Highway 4 in Hercules, California. (See location map, **Figure 1**). This report is intended to provide background and site-specific information pertaining to biological resources and to identify potential biological constraints to future development of the site. Included is a discussion of the existing plant communities, wildlife associations, potentially-occurring special-status plant and wildlife species, natural communities, and recommended avoidance and mitigation measures. The need for further studies, if necessary, will also be discussed. The report will help guide potential development of the site and will be useful for any potential CEQA or other state and federal required permits.

The present evaluation was prepared using information gathered from observations made during several site visits, from the California Natural Diversity Data Base maintained by the California Department of Fish and Game, and environmental reports from nearby projects.

1.1 Methods

The findings for this biological assessment report are based on the following: 1) a print-out of special status plant and animal species for the Hercules, Mare Island, and Richmond 7.5 minute quadrangles from the California Natural Diversity Database, 2) assessment of habitat types and surrounding land use by reviewing recent aerial photographs (GoogleMaps aerial from 9/2012), and, 3) reconnaissance-level surveys.

General habitat surveys were conducted by biologist Michael Marangio on May 3, 7, 27, June 19, and July 16, 2014, Dec 16, 2019, and January 9, 2020. Site surveys were intended primarily as reconnaissance-level site visits to identify vegetation types and to assess the potential for the presence of special-status species within the study area. Surveys were conducted on foot during daylight hours; the perimeter of the study area, and all distinct habitats were visited and described, and the site was searched for any potential drainages or wetlands. Dominant plant species for each plant community and all wildlife species observed were recorded. A wetland delineation (Jones 2020) was conducted on potential wetland areas on the project site. Information on special-status plant species was compiled through a review of the California Natural Diversity Data Base and the California Native Plant Society's *Electronic Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 2004). Information on special-status animal species was compiled through a review of the CNDDB records and CDFG's *Special Animals* (CDFW 2011).

Nomenclature for common, widespread plants and animals conforms to Hickman (1993) and Zeiner, *et al*. (1988-1990), respectively. Plant community names conform to Holland (1986) and Sawyer and Keeler-Wolf (1995); wetland community names from Cowardin, *et al.* (1979) are also used where appropriate.

1.2 Existing Environment

General

The study area is located in the City of Hercules along the east side of Interstate Highway 80 (I-80), to the south of Hwy 4, within a loop ramp to westbound Willow Avenue. The highway was constructed between 1950-1958. Review of historic aerial photographs indicate that the property has been used for soil stockpiling (Papineau 2014). The site covers a total of 6.25 acres, 2 acres of which are included in easements. The topography includes a range of slopes and flatter areas, and has a low-elevation area to the east that supports marshlands and riparian habitat including tree cover, standing water, and flowing waters of the north branch of Refugio Creek (**see Figure 1**).

The proposed project will involve developing a 6 Story Office building, a 100 Unit Hotel and associated parking as shown in **Figure 2**.

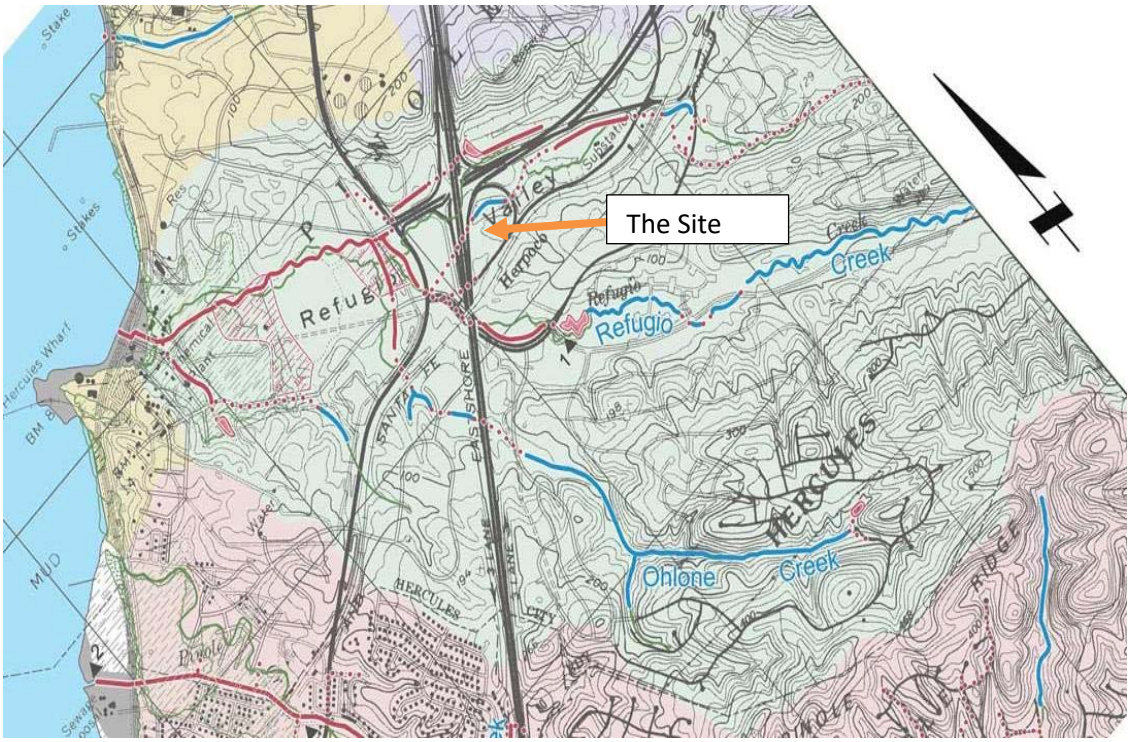

Figure 1. Project location at Intersection of Hwy 4 and I-80

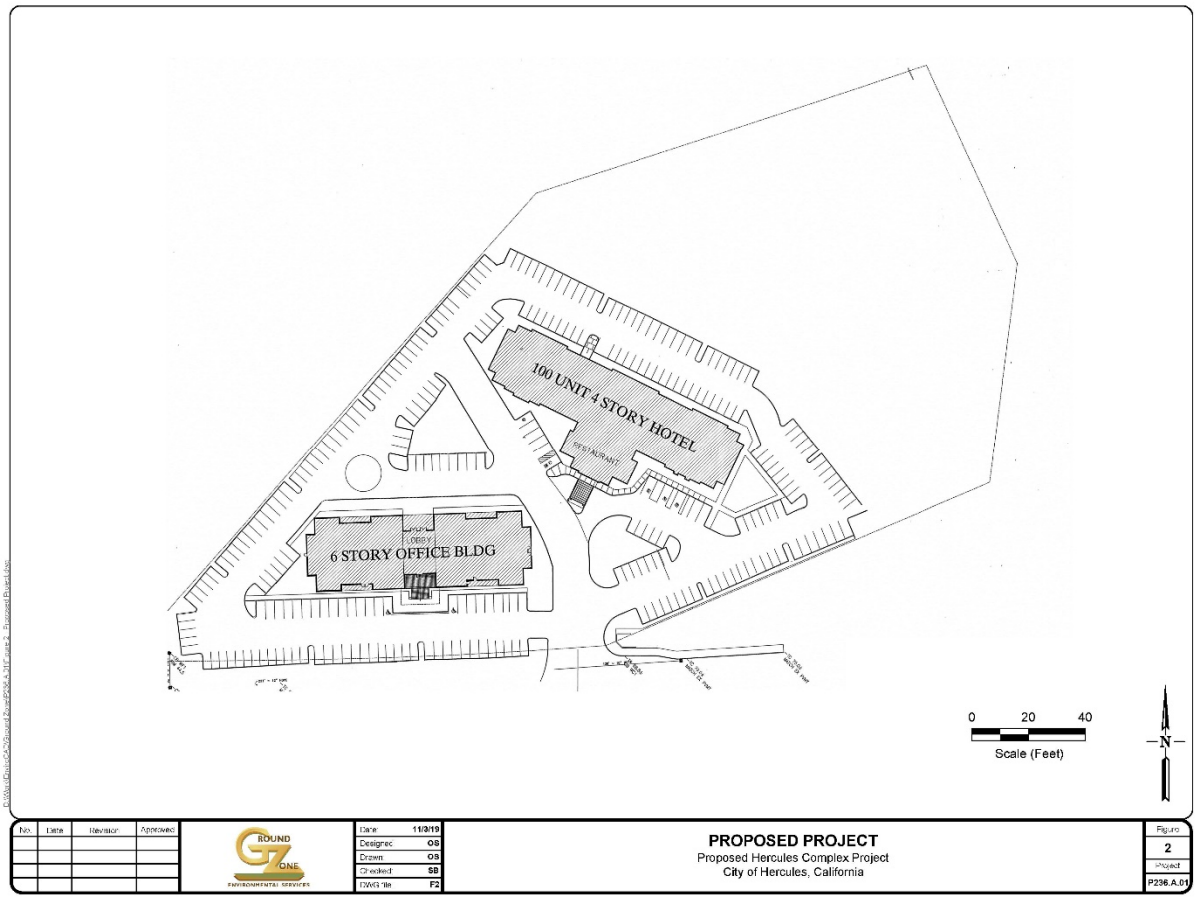

Figure 2 – Proposed Project

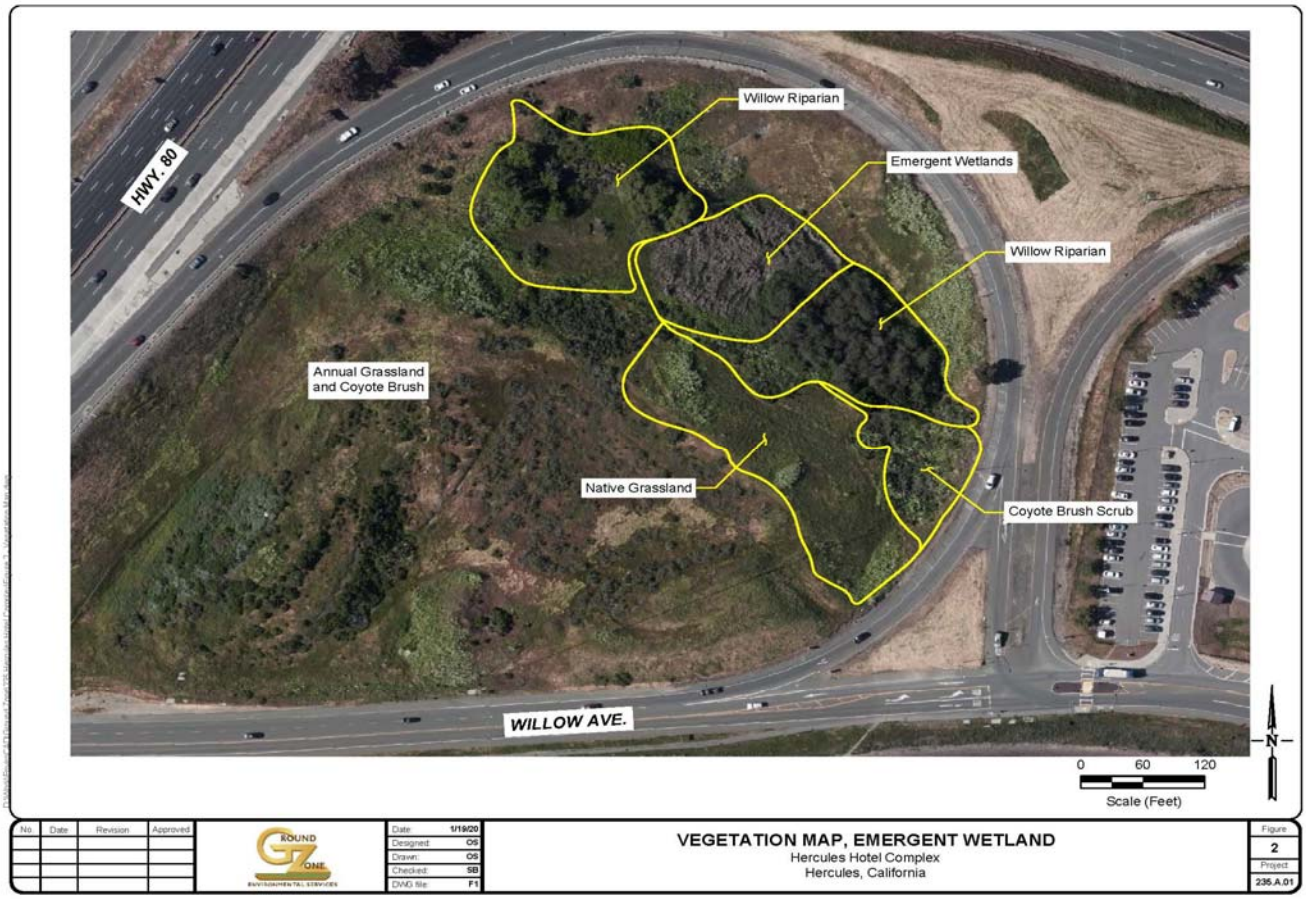

Figure 3. Project Site Vegetation Map

2.0 Biological Assessment

2.1 Plant Communities

The project site includes a mosaic of several vegetation communities, including Non-native Annual Grassland, Native Perennial Grassland, Willow Riparian Woodland, Emergent Wetland, and coyote brush scrub (See Figure 3).

Non-native Annual Grassland. As a result of disturbance and undocumented soil deposition activities on the site, much of the vegetative cover (observed December 16, 2019) contained areas of non-native annual grassland with species including ripgut brome (*Bromus diandrus*), wild-oat (*Avena fatua*), annual fescue (*Vulpia myuros*) intergrading with disturbed areas, dominated by other introduced weedy forbs such as black mustard (*Brassica nigra*), wild radish (*Raphanus sativus*), and perennial pepperweed (*Lepidium latifolium*). During observations on December 16, 2019, these grasslands were seen to have been graded and seeded with what was assumed to be erosion control grass seed mix.

Native Grassland. Portions of the site have vegetative cover almost exclusively consisting of native creeping wild-rye (*Leymus triticoides*), a rhizomatous species that spreads through expansion of the plants by its spreading roots. On the project site, in most areas where wild-rye was seen growing, there were no other plant species observed. Native creeping wild-rye usually grows under moist soil conditions, and appeared to be located preferentially on the cooler north facing slopes of the site.

Coyote brush scrub. Coyote brush scrub habitat was dominated by Coyote brush (*Baccharis pilularis*) with scattered Poison Oak (*Rhus diversiloba*). Since that time, most of the Coyote Brush habitat had been scraped clear of vegetation and planted with an erosion control seed mix (Figure 2).

Willow riparian woodland. The north fork of Refugio Creek flows through the northern portion of the site from a culvert at the southeast portion of the site, exiting through a culvert that is piped to drain beneath I-80 to the northwest. The stream channel supports a willow riparian plant community dominated by large willow trees, patches of mulefat (*Baccharis viminea*), stinging nettle (*Urtica dioica*), watercress (*Nasturtium officinale*), poison hemlock (*Conium maculatum*) and teasel (*Dipsacus fullonum*). Where deeper pools were present during observations in 2014, much of the water surface was covered in small floating plants including duckweed (*Lemna* sp.) and water fern (*Azolla* sp).

Emergent wetland. Within the eastern portion of the site, adjacent to Refugio Creek, elevations are low, forming a basin that includes open water(during years of higher rainfall) grading into emergent wetlands dominated by cat-tail (*Typha*. sp.). Much of the emergent wetlands are becoming overrun with the invasive non-native plant perennial pepperweed (*Lepidium latifolium*).

2.2 Wildlife Habitat

Habitat conditions are good for a variety of wildlife species in the annual grassland and ruderal areas. Tunnels of Botta pocket gopher (*Thomomys bottae*) were observed, with other rodents such as California vole (*Microtus californicus*), house mouse (*Mus musculus*), and harvest mouse (*Reithrodontomys megalotis*) to be expected. Amphibians and reptiles that would be expected include terrestrial garter snake (*Thamnophis elegans*), and gopher snake (*Pituophis melanoleucus)*. Several western fence lizards (*Sceloporus occidentalis*) as well as a brush rabbit (*Sylvilagus bachmani*) were observed in the drier grassland habitats in 2014. Bird species that were observed include Turkey vulture (*Cathartes aura*), Mallard (*Anas platyrhynchos*) and

Mourning Dove (*Zenaida macroura*). Red-winged Blackbirds (*Agelaius phoeniceus*) were observed to be nesting in emergent marshland habitat in 2019.

2.3 Biological Issues

Sensitive biological resources are protected under a number of federal, state, and local regulations. An overview of the current regulatory framework is as follows.

2.3.1 Federal Laws and Regulations

2.3.1.1 Special-Status Species

The Federal Endangered Species Act (FESA) of 1973 prohibits federal agencies from authorizing, permitting, or funding any action that would jeopardize the continued existence of a plant or animal species listed or a candidate for listing as Threatened or Endangered under the FESA. If a federal agency is involved with a proposed action or project that may adversely affect a listed plant or animal, that agency must enter into consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7(a)(2) of the FESA. In addition, if there is a federal nexus to the project of an individual or agency, they may also enter into consultation through the federal agency with whom there is a connection, such as for a permit. In this case, an Army Corps of Engineers (ACOE) permit may be necessary, providing a link to this federal agency.

2.3.1.2 Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or, "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests, or eggs. Disturbances that causes nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend would be in violation of the MBTA.

2.3.1.3 Clean Water Act Section 404 and 401

The U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). Waters of the United States are defined in Title 33 CFR Part 328.3(a) and include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. The extent of waters of the U.S., is generally defined as that portion which falls within the limits of "ordinary high water." Field indicators of ordinary high water include clear and natural lines on opposite sides of stream banks, scouring, sedimentary deposits, drift lines, wracks, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter and debris. Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas are defined by the U.S. Army Corps of

Engineers as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR328.3 [b]; 40CFR 230.3 [t].

Section 401 of the Clean Water Act (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification from the state, in this case from the Regional Water Quality Control Board. This agency has authority over all state wetlands, including isolated wetlands not covered under federal jurisdiction.

2.3.2 State Laws and Regulations

2.3.2.1 California Endangered Species Act

The State of California has enacted similar laws to the FESA, including the California Native Plant Protection Act (NPPA) of 1977, and the California Endangered Species Act (CESA) of 1984. The CESA expanded upon the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the California Fish and Game Code. To align with the FESA, CESA created the categories of "threatened" and "endangered" species. The State converted all animal species listed as "rare" under the FESA into the CESA as threatened species, but did not do so for rare plants. Thus, these laws provide the legal framework for protection of California-listed rare, threatened, and endangered plant and animal species. CDFG implements NPPA and CESA, and its Wildlife and Habitat Data Analysis Branch maintains the California Natural Diversity Database (CNDDB), a computerized inventory of information on the general location and status of California's rarest plants, animals, and natural communities. During the CEQA review process, CDFG is given the opportunity to comment on the potential of the Proposed Project to affect listed plants and animals.

2.3.2.2 The Natural Community Conservation Planning Act

The Natural Community Conservation Planning (NCCP) Act of 1991 represents an effort by the State of California, and numerous private and public partners, to broaden its orientation and objectives beyond those of the CESA and FESA. The primary objective of the NCCP Act is to conserve natural communities at the ecosystem scale while accommodating compatible land use. There are no NCCPs that cover the Project area.

2.3.2.3 Fully Protected Species & Species of Special Concern

The classification of "fully protected" was CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibian and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The Fish and Game Code sections (fish at

Section 5515, amphibian and reptiles at Section 5050, birds at Section 3511, and mammals at Section 4700) dealing with "fully protected" species states that these species "…may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species," although take may be authorized for necessary scientific research. This language makes the "fully protected" designation the strongest and most restrictive regarding the "take" of these species. In 2003, the code sections dealing with fully protected species were amended to allow CDFG to authorize take resulting from recovery activities for State-listed species.

Species of Special Concern (SSC) are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to CDFW because they are declining at a rate that could result in listing or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under FESA and CESA and recovery efforts that might ultimately be required. Although these species generally have no special legal status, they are given special consideration under CEQA during project review.

2.3.2.4 California Environmental Quality Act.

The California Environmental Quality Act (CEQA) applies to "projects" that are proposed to be undertaken or those requiring approval by State and local government agencies. Projects are defined actions that have the potential to have physical impact on the environment. Under Section 15380 of CEQA, a species not included on any formal list "shall nevertheless be considered rare or endangered if the species can be shown by a local agency to meet the criteria" for listing. With sufficient documentation, a species could be shown to meet the definition of rare or endangered under CEQA and be considered a "de facto" endangered species. Development of the subject site will in addition require evaluation of all environmental impacts that could potentially result from construction.

2.3.2.5 California Fish and Game *Code Sections 3503 & 3513*

According to Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (except English sparrows (*Passer domesticus*), domestic pigeon (*Columba livia*), and European starlings (*Sturnus vulgaris*)). Section 3503.5 specifically protects birds in the orders Falconiformes and Strigiformes (birds-of-prey). Section 3513 essentially overlaps with the MBTA, prohibiting the take or possession of any migratory, non-game bird. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by CDFW.

2.3.2.6 California Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 gave the California Fish and Game Commission the *power to designate native plants as "endangered" or "rare" and protects endangered and rare plants* from take.

2.3.2.7 California Native Plant Society

The California Native Plant Society (CNPS) publishes and maintains an Inventory of Rare and Endangered Vascular Plants of California in both hard copy and electronic version. The Inventory assigns plants to the following categories:

1A Plants Presumed Extinct in California

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

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

3 Plants about which information is needed-a review list

4 Plants of limited distribution-a watch list

Impacts to plants on lists 1 and 2 are typically assumed to meet the threshold of significance for CEQA. The CNPS considers it to be mandatory that these species are fully considered during the preparation of environmental documentation relating to CEQA. Therefore, this report considers plants listed as 1 and 2 as special-status species. Very few list 3 and 4 plants meet the definitions of Section 1901 Chapter 10 Native Plant Protection Act or Sections 2062 and 2067 California Endangered Species Act of the CDFG Code and are eligible for State listing. However, the CNPS strongly recommends that these species be fully considered during the preparation of environmental documentation relating to CEQA.

2.3.2.7 Porter-Cologne Water Quality Control Act

Waters of the State are defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope, but has special responsibility for isolated wetlands and headwaters. These water bodies have high resource value, are vulnerable to filling, and may not be regulated by other programs, such as Section 404 of the CWA. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact waters of the State are required to comply with the terms of the Water Quality Certification Program. If a Proposed Project does not require a federal license or permit, but does involve activities that may result in a discharge

of harmful substances to Waters of the State, the RWQCB has the option to regulate such activities under its State authority in the form of Waste Discharge Requirements or Certification of Waste Discharge Requirements.

2.3.2.8 California Fish and Game Code Section 1600

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species, are subject to jurisdiction by the CDFG under Sections 1600-1616 of the California Fish and Game Code. Any activity that will do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake; generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream," which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as, "on, or pertaining to, the banks of a stream;" therefore, riparian vegetation is defined as, "vegetation, which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself." Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFG. If any stream modifications or riparian vegetation removal was proposed for this site, it would require a Section 1602 Lake and Streambed Alteration Agreement from CDFG. If no modifications should occur, one may not be necessary.

2.3.2.9 Sensitive Vegetation Communities

Sensitive vegetation communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, of particularly high wildlife value, or receive regulatory protection (*i.e.,* §404 of the Clean Water Act and/or the CDFG §§1600, *et seq.* of the California Fish and Game Code).

However, these communities may or may not necessarily contain special-status species. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW keeps records of sensitive community occurrences in its Natural Diversity Database. Impacts to sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFW or USFWS must be considered and evaluated

under CEQA (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in City or County General Plans or ordinances.

2.4 Local Policies And Ordinances

The *City of Hercules General Plan* Open Space and Conservation Element, Policy 2a, requires proponents to design construction footprints to avoid wetlands, and to mitigate effects where avoidance is not possible.

2.5 Tree Removal Ordinance No. 33

Ordinance No. 33 regulates the removal of mature trees on private and public properties within Hercules. A mature tree includes any living tree with a trunk diameter measuring 12 inches or greater when measure at about 4.5 feet above the surface of the ground.

According to the ordinance, mature trees may be removed in conjunction with the development of a project if the City has issued all necessary land use approvals and if the City has approved a tree replacement plan. Additionally, mature trees may be removed for development project in conjunction with permits from the California Department of Toxic
Substances Control, USACE, and CDFW upon the following conditions: (1) the property owner has obtained and is in compliance with a grading permit and erosion and sediment control plan, (2) the City has approved and the property owner is implementing a tree replacement plan as part of the environmental mitigation program approved by the applicable state or federal agency, and (3) the proposed pre-development activities are consistent with the City's *General Plan* as determined by the Community Business Development Director.

Exceptions to the provisions of the tree ordinance include removal of trees that pose an immediate and substantial threat to the safety of persons or property. Exceptions must be approved by the Public Works Director prior to removal of the tree.

2.6 Critical Habitat

Critical habitat is a term defined and used in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the continued existence of a threatened or endangered species.

In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard . However, areas that are currently unoccupied by the species but which are needed for the species' recovery are protected by the prohibition against adverse modification of critical habitat.

3.0 Potential Special Status Species and other Biologically Sensitive Resources

Upon review of the California Natural Diversity Data Base information from USGS 7.5-minute quad sheets for Mare Island, Richmond, and Benicia and considering biological survey experience in Contra Costa County, a list of potential special status plant species was prepared (Table 1).

Most of the species have been documented on CNDDB map overlays generally have specialized habitat requirements that are typically only rarely present. However, each species was analyzed for whether they may be present. Of the 24 species of plants, only a few plant species could potentially be present. However, a focused search was conducted for these plants and none were observed. The disturbed nature of most of the site support the conclusion that special status plants are not present.

Of the animal species documented in the general project vicinity, those with the greatest potential for presence on or close to the site include California red-legged frog (*Rana draytonii*), Western pond turtle (*Actinemys marmorata*), Alameda whipsnake (*Masticophis lateralis euryxanthus*) (AWS), San Francisco dusky-footed woodrat (*Neotoma fuscipes*), Western burrowing owl (*Athene cunicularia hypugaea*), yellow warbler (*Setophaga petechia)*, Cooper's Hawk (*Accipiter cooperii*), Northern harrier (*Circus hudsonius*), and white-tailed kite (*Elanus leucurus*). The following section further discusses habitat requirements and evaluates in greater detail the potential for presence of these species on the subject property. In addition, the biological issues of migratory birds, protected trees, and sensitive plant species are also discussed.

3.1 Potential Species of Concern for the Project

3.1.1 California Red-legged Frog

General Background. The California red-legged frog (*Rana draytonii*) (CRLF) is federally listed as threatened and is a State of California species of special concern. It is known from isolated locations in the Sierra Nevada, North Coast, and Northern Transverse Ranges. They are distributed throughout much of the San Francisco Bay Area.

CRLF is found in a variety of habitats including marshes, streams, lakes, and other mostly permanent aquatic locales. Habitat usually consists of deep (over 2.5 ft) still or slow-moving water with riparian vegetation (willows) and/or tules (*Schoenoplectus* sp.) and cattails (*Typha* sp.) (Jennings and Hayes 1994). This frog is highly aquatic and is typically found in water or associated aquatic vegetation. However, some individuals use habitats that are removed from aquatic habitats, seeking cover in rodent burrows in grasslands. Estivation habitat includes areas up to 300 feet from a stream corridor and includes natural features, such as boulders, rocks, trees,

shrubs, and logs (Tatarian 2008). In a study of CRLF movement, Fellers and Kleeman (2007) found the greatest straight-line distance noted was 0.9 mi (1.4 km) , which was likely to actually be 1.7 mi (2.8 km) (including movements not in a direct line from the initial starting point). During winter rains, adult CRLF are known to traverse up to 3 km (1.9 miles) from aquatic sites (USFWS 2002). They can disperse across grasslands, woodlands, coniferous forests, and chaparral. During dry periods, adults may take refuge in rodent holes and under leaf litter. Breeding occurs between November and April. Tadpoles metamorphose between July and September, but may also sometimes take over a year to transform where conditions are suitable.
The decline of this species is a result of historical large scale commercial harvesting, habitat destruction, and the establishment of introduced non-native species such as the bullfrog (*Lithobates catesbeianus*), crayfish, and several species of fish.

Occurrence in the Project Vicinity. The project area is not within the area designated as critical habitat under the federal Endangered Species Act; it is about 2.5 miles northwest of the western limits of Critical Habitat Unit CCS-1 for CRLF. However, according to CNDB records, a known locality for California red-legged frog lies on the subject property. The observation of 2 adults and 9 juvenile CRLF was documented at an unculverted portion of Refugio Creek within the subject property in August of 2000. Suitable breeding habitat appears to be present within pools in the Refugio Creek stream channel and adjacent emergent wetlands habitat. The presence of the introduced invasive Bullfrog has also been noted in this portion of Refugio Creek. No frogs of any kind were observed on periodic general reconnaissance.

3.1.2 Western Pond Turtle

General Background. The Western pond turtle (*Actinemys marmorata*) is a California Species of Special Concern. It is distributed discontinuously from Puget Sound, Washington southward to Baja California, Mexico (Stebbins and McGinnis 2012). Pond turtles feed on a variety of food items including crustaceans, amphibians, fish, carrion, and plant material.

Pond turtles are often found basking along banks and on logs during the spring. When disturbed, they will drop into the water and hide under rocks, logs or other debris. Western pond turtles use permanent or nearly permanent water bodies in a variety of habitat types. They can be found in ponds, marshes, rivers, streams, and irrigation ditches within grasslands, woodlands, and open forests. The quality of the habitat appears to vary with the availability of basking sites (Jennings and Hayes 1994). Logs, rocks, mats of floating vegetation, or open mud banks are used for basking and are necessary for thermoregulation. Pond turtles also require upland habitat for overwintering and egg-laying sites. Oviposition sites require sandy soil in order to excavate a nest. Egg-laying sites typically average 92 ft from aquatic habitat (Rathbun et al, 2002). Juvenile and adult western pond turtles will move considerably depending on the condition of their aquatic environment. They are known to move within an average of 164 ft from the creeks they inhabit (Rathbun *et al.* 1992).

Western pond turtle populations have been declining throughout their range, especially in southern California and San Joaquin Valley, generally related to urbanization, agricultural development, flood control projects, exotic diseases, exploitation for the food and pet trade, extended drought, and the introduction of exotic predatory species of carnivorous fishes and bullfrogs.

Occurrence in the Project Vicinity. According to CNDDB records, Western pond turtles are known from the adjacent watershed of Rodeo Creek from a location about 1 mile east of the subject property. Considering the fact that this species is known to move considerably, they would be expected to be present on the subject site, especially at pools within Refugio Creek in deeper open ponded waters having associated sunny basking sites.

3.1.3 Alameda Whipsnake

General Background. The Alameda whipsnake (*Masticophis lateralis euryxanthus*) (AWS) is a federal- and state-listed Threatened species. AWS is a fast moving, diurnal snake measuring three to five feet long. It is restricted to Alameda, Contra Costa, Santa Clara and San Joaquin counties within the San Francisco Bay region. The Alameda whipsnake occurs primarily in coastal scrub and chaparral communities, but also forages in a variety of other communities in the inner Coast Range, including grasslands and open woodlands (Swaim 1994). This species requires open and partially open, low-growing shrub communities for many of its biological needs. This type of habitat provides cover for snakes during dispersal, limits their observation by predators, and provides a variety of microhabitats where whipsnakes can move to regulate their body temperature (Swaim 1994). Whipsnake habitat usually consists of a mix of sunny and shaded sites in order to provide a range of temperatures for the snake's activities.

Other important habitat features this species utilizes include small mammal burrows, rock outcrops, talus, and other forms of shelter that provide snakes with a variety of habitats for temperature regulation, protection from predators, egg-laying sites, and sites for winter hibernation.

According to USFWS (2006), suitable habitat for this species includes communities that support mixed chaparral, coastal scrub, and annual grassland and oak woodlands that are adjacent to scrub habitats. Grassland areas that are linked to scrubland by rock outcrops or river corridors are also considered important habitat elements. Alameda whipsnakes prey on a variety of vertebrate species, including frogs, lizards, nestling birds, and rodents (Zeiner et al. 1988), with a strong preference for lizard prey (Swaim 1994). Occupied areas usually support a prey base of at least two lizard species, especially the western fence lizard (*Sceloporus occidentalis*) (Stebbins and McGinnis 2012, Swaim 1994). The main reason for the decline in this species is the loss of large portions of prime habitat to urban development. Road construction has fragmented AWS populations making them more susceptible to extinction from automobile mortality.

Occurrence in the Project Vicinity. The project site is located about 2.6 miles northwest of the limits of the area designated as Unit 1 of Critical Habitat under the federal Endangered Species Act (USFWS 2000). An observation of AWS is known from about 3.3 mi E of the project site (Hercules 2013). This specimen appears to be one from the Pinole Watershed, the location that is furthest west for this subspecies (U.S. Fish and Wildlife Service 2002). The subject site is of low habitat value as a result of the limited area of scrub habitat present, because of the historic site disturbance and the removal of coyote brush habitat, and the isolation of the site due to fragmentation of the habitats in the area by roadways and elimination of nearby suitable habitat.

3.1.4 San Francisco Dusky-footed Woodrat

General Background. The San Francisco Woodrat (*Neotoma fuscipes annectans*) is a California Species of Special Concern. This subspecies of dusky-footed woodrat is fairly common and widespread throughout the Coast Range and the northern interior of California. It is one of 11 subspecies, and is restricted to the San Francisco Bay area. San Francisco woodrats are highly arboreal, often associated with evergreen or live oaks and other trees and shrubs as well as with riparian, chaparral, and coastal scrub plant communities. They generally prefer a moderate canopy for protection from predators. They build stick houses from branches of trees and shrubs at the base of, or in a tree or shrub. Houses may measure up to 8 feet in diameter and height. This species is nocturnal, feeding on nuts and fruits, fungi, foliage and some forbs (Linsdale and Tevis 1951).

Occurrence in the Project Vicinity. Woodrats are potentially present in wooded portions of the site, especially in riparian woodland. During reconnaissance surveys of the riparian areas conducted on May 3 and 27, 2014, no indication for their presence was noted. However, observations of their stick nests was documented at a location about 2.5 miles east in Franklin Canyon (Restoration Design Group 2006). Therefore there is a moderate potential for them to be present.

3.1.5 Western Burrowing Owl

General Background. The Western burrowing owl (*Athene cunicularia*) is a California Species of Special Concern and a Fish and Wildlife Service (2002) "Bird of Conservation Concern." It is a year-long resident typically found in grasslands. It feeds mainly upon insects, small mammals and reptiles, nesting within old burrows of ground squirrels. Breeding occurs from March through August.

Occurrence in the Project Vicinity. This species is not known to breed in the project vicinity (Glover 2009). The lack of ground squirrels on the site that could provide burrows for this species likely restricts its presence. As a result, no significant impacts would result to this species.

3.1.6 White-tailed Kite

General Background. The white-tailed kite (*Elanus leucurus*) is a fully protected species under the California Fish and Game Code and is considered a State Species of Special Concern. White-tailed kites have generally decreased throughout much of California since the late 1970's. Local populations appear to still be relatively healthy along the north and east San Francisco Bay and in the Sacramento-San Joaquin Delta (Zeiner, Laudenslayer, Mayer, and White, 1990). White-tailed kites inhabit open lowland grassland, riparian woodland, marshes, and scrub areas. They forage in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. Prey species consist mostly of voles and other small, diurnal mammals.

Occurrence in the Project Vicinity. This species is known to breed in the project vicinity (Glover 2009). Appropriate foraging and nesting habitat is present and therefore there is a moderate potential for them to breed on the site. A single adult was observed on December 16, 2019 on a hillside on the ground just outside of the project limits on the southeastern portion of the project site.

3.1.7 Yellow Warbler

General Background. Yellow warblers (*Dendroica petechia*) nests in dense riparian habitats dominated by willows, alders, or cottonwoods. Areas along Refugio Creek dominated by willows provide suitable nesting habitat for this species.

Occurrence in the Project Vicinity. Although there are no CNDDB records or other documentation indicating the presence of this species in the project site vicinity (Glover 2009), given the presence of suitable nesting and foraging habitat, this species has a moderate potential to nest on the site.

3.1.8 Cooper's Hawk

General Background. Cooper's hawk (*Accipiter cooperii*) is a species typically associated with woodlands, especially along their edges. Suitable trees are present in the willow riparian woodland associated with Refugio Creek on the project site.

Occurrence in the Project Vicinity. According to CNDDB records, they have been documented to nest east of Hercules, south of Franklin Canyon Road. Appropriate habitat is present and therefore there is a moderate potential for them to breed on the site.

3.1.9 Northern Harrier

General Background. Northern harrier (*Circus hudsonius*) inhabits extensive open grasslands, agricultural areas, and marshes. Nests are constructed on the ground, generally in areas where tall grasses provide cover. Individuals are commonly seen foraging close to the ground in open

grasslands, marshes, and agricultural fields. It is considered a possible nester in the project vicinity Glover 2009) and they may forage there.

Occurrence in the Project Vicinity. This species generally nests in extensive marsh and grassland habitats (Glover 2009). Appropriate habitat is limited on the site and therefore it would have a low potential to nest there.

3.1.10 Birds under the Migratory Bird Treaty Act and California Fish and Game Code

General Background. The Migratory Bird Treaty Act (MBTA) protects all common wild birds found in the United States except certain introduced species and certain game birds. Disturbances that causes nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend would be in violation of the MBTA.

California Department of Fish and Wildlife (CDFW) Code 3503 also makes it illegal to destroy any birds' nest or any birds' eggs that are protected under the MBTA. CDFW Code 3503.5 further protects all birds of prey, such as hawks and owls), and their eggs and nests from any form of take.

Occurrence in the Project Vicinity. The behavior of numerous red-wing blackbirds (*Agelais phoeniceus*) observed on May 27, 2004 indicated colonial nesting by this species in emergent marsh vegetation within portions of the Refugio Creek channel and adjacent marshland habitat. Additional species of perching birds and raptors would also be expected to forage and to nest on this site. These birds are covered for protection from potential impacts through several state and federal regulations. Preconstruction surveys would be necessary if construction activity is proposed during the nesting season. Associated mitigations would be required.

3.1.11 Special Status Plants

General Background. The California Native Plant Society (CNPS) publishes and maintains an Inventory of Rare and Endangered Vascular Plants of California. Impacts to plants on lists 1 and 2 are typically assumed to meet CEQA's threshold of significance. CNDDB printouts include a number of plant species potentially in the project area and considered sensitive, requiring evaluation of the impacts of development of the site on them.

Occurrence in the Project Vicinity.

During reconnaissance surveys of the site, the potential for the presence of special status species of plants was evaluated. Potential grassland plant species that would have been flowering during the field visits include *Amsinckia lunaris, Astragalus tener* var*. tener, California macrophylla, California macrophylla, Calochortus pulchellus, Calystegia purpurata. Centromadia parryi* ssp. *congdonii, Helianthella castanea, Holocarpha macradenia, and Trifolium depauperatum* var. *hydrophilum.* None were observed during intensive coverage. Although the time period for flowering had passed for several additional species, identification could still have been made on the basis of presence of seeds or dried plant parts. No evidence for the presence of these

additional species was observed. In addition, the ground disturbances evident in the irregular topography of the site, the observation of stockpiles of a mixture of soils that were most likely brought in from other sites, the obvious grading of much of the site, and the dominance of invasive weedy species over much of the site supports the conclusion that the site does not provide habitat for any special status plant species.

4.0 Sensitive Habitats

Sensitive habitats present on the subject property include emergent marsh and willow riparian.

Emergent marsh areas were dominated by cattails with some areas being invaded by perennial pepperweed (*Lepidium latifolium*), an introduced invasive weed. Much of the marsh area was wet and appeared to be part of a flood plain for Refugio Creek.

Riparian woodland contained clumps of willow trees with occasional understory of mule fat and stinging nettle. These trees were closely associated with the stream.

These wetland habitats are considered sensitive communities by the CDFW. Additionally, these communities are considered "areas that could provide habitat for sensitive species" by the *City of Hercules General Plan* Open Space and Conservation Element. These portions of the site have been determined to be jurisdictional wetlands or waters of the US under Section 404 of the Clean Water Act (CWA) (Jones 2019).

5.0 Conclusions and Recommendations

If all of the available site is developed (6.25 acres minus 2 acres under easements) there would be significant impacts to sensitive biological resources as a result of loss of sensitive habitat, potential mortality to protected animals during construction, and from disturbance of animals from construction activities. Additional impacts would result if the proposed development involved the filling of waters of the United States as defined by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Filling of protected areas could potentially require, a Section 404 permit from the USACE.

A wetland delineation evaluated the presence of protected emergent wetlands, riparian woodlands, and stream channels that may be under jurisdiction of state and federal agencies. In order to issue this permit, the USACE must consult with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act (ESA). A California Environmental Quality Act (CEQA) checklist must also be prepared, which would include an evaluation of potential impacts of the project and proposed mitigations to offset any significant impacts. The appropriate CEQA document would then be required to be prepared. State and federal agencies will require a Notice of Determination from the lead agency that the requirements of CEQA are

fulfilled prior to issuance of permits. In addition, a State of California Streambed Alteration Agreement may also be required.

Because potential special status species including California red-legged frog, Western pond turtle, San Francisco dusky-footed woodrat, and nesting birds, federal and state endangered species regulations would be necessary to follow. A detailed Biological Assessment Report (more detailed than the present report) would be required to supply the USFWS and CDFW with information on the proposed project site and the means that are proposed to avoid or mitigate any significant impacts to special status species. This report would also provide the necessary background information for the preparation of a CEQA Environmental Checklist, the appropriate CEQA document, and possibly a Streambed Alteration Agreement. The present report would provide most of the basis of a future Biological Assessment Report. Further details would be included to develop a more complete analysis of the potential sensitive resources, the significant impacts, and mitigations that would offset impacts.

To avoid impacts to wetlands and associated biological resources, the project includes avoidance for the wetlands portion of the site. As a result, wetland permits would likely not be necessary. The following analysis will assume the avoidance of wetlands on the site. Any proposed development plan would focus on building on remaining acreage

6.0 Summary of Sensitive Species Issues

The following species were evaluated for potential impacts that could result from construction of the project:

California Red-legged Frog. Refugio Creek is known to provide habitat for the California red-legged frog. According to CNDDB records, 2 adults and 9 juvenile frogs were observed on August 17, 2000. They have also been observed in the adjacent watershed of Rodeo Creek. Habitat on the project site including tree cover, emergent wetland habitats, and sufficient water for the development of frog larvae generally fulfill the habitat requirements of the California red-legged frog. Aspects that reduce the value of the existing habitat include the fact that the project site is isolated from other suitable CRLF habitat as a result of road development and the reduction of adjacent stream habitat resulting from culverting of the stream channel.

Avoiding construction activities within the wetland portion of the site would eliminate most negative impacts to CRLF. The undeveloped property between the proposed complex would act as a buffer between the wetlands and the proposed construction. Protection of the undeveloped areas should occur through a conservation easement. L A management plan for the protected wetlands habitats for the enhancement of CRLF habitat, and a means to provide funding for the continued management of the wetland area (endowment funds) would also be necessary to develop.

Potential significant impacts would include potential mortality and disturbance of CRLF that could result during construction. This would likely require mitigation that could include wildlife exclusion fencing during construction, preconstruction surveys, biological resources awareness training to all workers on the site, and monitoring initial ground disturbing activities.

This analysis assumes the presence of CRLF on the basis of documentation in the CNDDB. If an attempt to find support for the assumption that they are no longer present, it would be required to consult with the USFWS to determine if it is an acceptable option to survey for supporting evidence. In this case, a total of up to 8 site visits would be required according to the USFWS survey protocols. If surveys are conducted following the federal protocol and no observations of CRLF are made, the channel may be assumed to not contain a population of this species. However, because CRLF have been documented in the year 2000 to be close to the project site, and culverts may link the site to other habitat upstream or the property, the USFWS would likely assume their continued presence (or potential future return) within the remnant habitat on the project site, and if so would not allow the option for protocol field surveys.)

Western Pond Turtle (*Actinemys marmorata*). Western pond turtles are likely to be present within the Refugio Creek where open water and basking sites are present. According to CNDDB records, they are known from nearby Rodeo Creek. Avoidance of disturbance to the wetlands and open waters would generally avoid impacts to this species, although they also require upland areas for egg-laying sites. A buffer area of upland habitat around the wetland areas would likely offset any impacts to WPT.

Alameda Whipsnake (*Masticophis lateralis euryxanthus*). The western limits of Critical Habitat for the Alameda whipsnake lie about 2.6 miles to the east of the Project site, and a known locality is known from 3 miles to the southeast (USFWS 2002), which appears to be the western edge of its known distribution. Additionally, the habitat on and adjacent to the project site lacks habitat elements required by this species such as rock outcrops and well-developed coastal scrub and chaparral habitats and is therefore probably insufficient for supporting AWS. This species is unlikely to be present, and therefore there would be no impacts to this species as a result of the site development.

S.F. Dusky footed Woodrat (*Neotoma fuscipes*). The removal of trees could result in injury or mortality of dusky-footed woodrats, a species not observed but potentially present. Assuming no tree removal or disturbance in the riparian habitats on the site, no impacts to this species would likely result.

Burrowing Owl (Athene cunicularia). No nesting Western Burrowing owls are known from the project vicinity (Glover 2009). The project site does not support ground squirrels which are typically important for providing burrows for the owls. Therefore, no impacts to Western Burrowing Owls would result.

White-tailed Kite (*Elanus leucurus*). According to breeding bird records (Glover 2009), they are known to nest in close proximity to the project site. This species potentially utilizes the property for foraging and may nest there. Site disturbance of the riparian area would be a significant impact. Assuming no tree removal or stream disturbance, no impacts to this species would result.

Cooper's Hawk (*Accipiter cooperii)*. This species has been documented to nest east of Hercules, south of Franklin Canyon Road. Appropriate habitat is present and therefore there is a moderate potential for them to breed on the site. Assuming no tree removal or stream disturbance, minimal impacts to this species would result.

Yellow Warbler (*Dendroica petechia)* Although there are no CNDDB records or other documentation indicating the presence of this species in the project site vicinity (Glover 2009) given the presence of suitable nesting and foraging habitat, this species has a moderate potential to nest on the site. Assuming no tree removal or stream disturbance, no impacts to this species would result.

Northern Harrier (Circus cyaneus). This species generally nests in extensive marsh and grassland habitats (Glover 2009). Appropriate habitat is limited on the site and it would therefore have a low potential to nest there. No impacts to this species would result.

Migratory Birds. Several nesting birds were noted on and adjacent to the project ROW during field surveys on May 3, 7, 27, and June 19, 2014. Disturbance of nesting birds (including those described above under "Sensitive Species Issues") are protected under the Migratory Bird Treaty Act and state of California regulations. Mortality or nest disturbance would be in violation of these regulations. Development of the project site could result in the potential for nest disturbance throughout the site as a result of human activity and noise during construction. Avoidance of nesting bird impacts could be undertaken by limiting vegetation and ground disturbance to time periods outside of the nesting season. If the nesting season is unavoidable, potential mitigations could include preconstruction surveys, avoidance of construction within a radius that would disturb observed nesting, require biological resources awareness training to all workers on the site, and monitoring initial ground disturbing activities. Specifics on these mitigations would require CDFW approvals.)

Trees. Trees on the project ROW may be protected under City of Hercules Tree Protection Ordinances. Assuming no development activities within the wetlands portion of the site (the only portion of the site containing trees), this would be a moot issue. No trees would be removed; therefore, no significant biological impacts would result.

Wetlands. No wetlands under state or federal jurisdiction are planned to be filled or otherwise disturbed. As a result, no significant impacts to this habitat would result. No wetlands are to be filled or disturbed.

In summary, a number of activities are recommended in order to comply with state, federal, and local environmental regulations before any construction activities should occur. These activities are;

1. Prepare a Biological Assessment Report for preliminary review by appropriate agencies, based on the present report. This report would include a plan for the incorporation of mitigations that would offset significant impacts on any federally threatened or endangered, species or protected habitats that may occur within the area to be affected by the proposed project. According to the legal requirements within Section 7 of the ESA of 1973 (U.S. Government Code [USC] Title 16, Section 1536 [16 USC 1536]), the report should include the following objectives:

- Provide the best available information about the potential sensitive species and their habitats that may be affected by the proposed action.
- Determine whether the sensitive species are likely to be adversely affected by the proposed action.
- Determine if Critical Habitat would be adversely modified by the proposed action.
- Describe the conservation measures that would avoid or minimize project effects on these species and their habitats.
- Determine whether formal consultation with the USFWS is necessary.

If other sensitive species (e.g. under protection by the state of California) beyond the federally listed ones are included in the analysis, the preparation of the Biological Assessment would also act to support CEQA findings and other potentially required state permits that may be necessary.

The above objectives have been developed in the current report but require more details, especially in the plans for avoidance and mitigation of impacts, for example, what areas would be put into a biological reserve, what management actions are needed to maintain biological values of the reserve area.

2. Start "informal consultation" with the USFWS to initiate contact and to determine what this agency will require in terms of information and mitigation of project impacts

3. Initiate consultation with the State Department of Fish and Wildlife (CDFW) to determine procedures and mitigation requirements for species of special concern and other state listed species through the Section 1603 Lake and Streambed Alteration Agreement process, under CEQA, as well as state and federally protected wetlands and possibly the State Endangered Species Act.

4. Prepare a CEQA Checklist and appropriate CEQA environmental document.

5. Coordinate with Regional Water Quality Control Board for a Section 401 permit.

6. The following biological reports and studies, and other activities would likely be necessary, The wetlands area in the eastern portion of the site may be put into a conservation easement as a means to avoid biological impacts. Agencies may require the preparation of a management plan for the conservation easement area, along with a monitoring plan to evaluate any management needs of the area. Costs of the monitoring plan, management plan, monitoring effort, and management activities are difficult to determine without further information. An endowment fund may be required to supply the funds for future monitoring and maintenance over the years.

Table 1. Special Status Plants and Animals

Scientific Name	Common Name	Fed/State/CNPS Status	Preferred Habitat (blooming period)	Likelihood of Occurrence in the Project Area
PLANTS				
Amsinckia lunaris	bent flowered fiddleneck	-/-/1B	Coastal bluff scrub, woodland, grasslands. (March - June)	Site is disturbed. Not observed during blooming period. Unlikely to be present.
Arctostaphylos pallida	pallid manzanita	-/-/1B	Chaparral, upland forest, cismontane woodland	No chaparral habitat present Unlikely to be present.
Astragalus tener var. *tener*	alkali milkvetch	SC/--/1B	Playas, valley and foothill grassland and vernal pools; often on alkaline soils; elev. 1 - 60 m. (Mar-June)	Site is disturbed. Not observed during blooming period. Unlikely to be present.
Blepharizonia plumosa	Big Tarplant	-/-/1B	Valley and foothill grassland (July - October)	Site is disturbed. Not observed on site. Unlikely to be present.
California macrophylla	round-leaved filaree	-/-/2	Cismontane woodland, valley and foothill grassland (March - May)	Site is disturbed. Not observed during blooming period. Unlikely to be present.
Calochortus pulchellus	Mt. Diablo Fairy Lantern	-/-/1B	Chaparral, cismontane woodland, riparian woodland; elev. 30-840 m (April - June)	Site is disturbed. Not observed during blooming period. Unlikely to be present.
Calystegia purpurata ssp. *saxicola*	coastal bluff morning-glory	-/-/1B	Coastal dunes, coastal scrub (May - August)	Site is disturbed. Not observed during blooming period. Unlikely to be present.

Scientific Name	Common Name	Fed/State/CNPS Status	Preferred Habitat (blooming period)	Likelihood of Occurrence in the Project Area
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	--/--/1B	Coastal prairie, meadows and seeps, marshes and swamps (coastal salt), grassland (vernally mesic and often alkaline); (May-Nov)	Site is disturbed. Not observed during blooming period. Unlikely to be present.
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's beak	-/-/1B	Coastal dunes, marshes, and swamps (June-October)	Required habitat not present on site. Unlikely to occur.
Chloropyron molle ssp. *molle*	Soft salty bird's beak	E/R/1B	Coastal saltmarsh (July-November)	Typically in saltmarsh- habitat not on site. Unlikely to occur.
Cicuta maculata var. *bolanderi*	Berlandier's water-hemlock	-/-/2B	Coastal marshes and swamps, fresh or brackish (July- September)	Site is disturbed. Not observed during blooming period. Unlikely to be present.
Dirca occidentalis	Western leatherwood	-/-/1B	Forest, riparian scrub(	Not observed. Unlikely to be present.
Fritillaria liliacea	Fragrant fritillary	-/-/1B	Coastal prairie, coastal scrub, grasslands (serpentine). Heavy soil, open hills and fields near coast (February - April)	Disturbed grasslands not suitable. Unlikely to be present.
Helianthella castanea	Diablo Helianthella	-/-/1B	Shaded to protected grassy slopes and woodland and scrub margins and openings. (April - June)	Not observed. Unlikely to be present.
Hoita strobilina	Loma Prieta Hoita	-/-/1B	Chaparral, cismontane woodland, riparian woodland; usually serpentinite. (May - October)	Required soil conditions not present. Unlikely to be present.
Holocarpha macradenia	Santa Cruz tarplant	T/E/1B	Coastal prairie, coastal scrub, valley and foothill grasslands (June - October)	Not observed. Unlikely to be present.
Isocoma arguta	Carquinez Golden bush	-/-/1B	Valley and foothill grassland (alkaline) (August - December)	Undocumented in Contra Costa County. Habitat not suitable. Unlikely to be present.

Scientific Name	Common Name	Fed/State/CNPS Status	Preferred Habitat (blooming period)	Likelihood of Occurrence in the Project Area
Lasthenia conjugens	Contra Costa Goldfields	--/--/1B.1	Valley vernal pools and other wetlands	habitat not suitable. Unlikely to be present
Lathyrus jepsonii var. *jepsonii*	Delta Tule Pea	SC/--/1B.2	Marshes and swamps (freshwater and brackish); (May-September); elevation range 0 - 4 m.	Habitat not present. Not likely to be present.
Lilaeopsis masonii	Mason's Liliaeopsis	SC/R/1B	Marshes, rivers and swamps (brackish or freshwater), riparian scrub; (April - November; elevation range 0 - 10 m.	Suitable habitat not present. Unlikely to be present.
Polygonum marinense	Marin Knotweed	SLC/--/3	Marshes and swamps (coastal salt or brackish); (April -October); elevation range 0 - 10 m.	Suitable habitat not present. Unlikely to occur.
Symphotrichum lentus	Suisun Marsh aster	SC/--/1B	Marshes and swamps (brackish and freshwater); (May - November); elevation range 0 3 m	Suitable habitat not present. Unlikely to occur.
Trifolium depauperatum var. hydrophilum	saline clover	SC/--/1B	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools; blooms (April-June); elevation range 0 - 300 m.	Suitable habitat not present. Unlikely to occur.
INVERTEBRATES				
Danaus plexippus	Monarch butterfly	-/-/	Winter colonial roosts located in shelter of trees	Colony not known from site-suitable trees not present. Unlikely to overwinter
Helminthoglypta nickliniana bridgesi	Bridge's coast range shoulderband snail	-/SSC	Found under logs in grassland.	Limited rocks and logs. Low potential to be present

Scientific Name	Common Name	Fed/State/CNPS Status	Preferred Habitat (blooming period)	Likelihood of Occurrence in the Project Area
Microcina leei	Lee's microblind harvestman	-/-/	Dry, rocky areas, often sandstone	Rocky areas not present. Unlikely to be present
Speyeria callippe callippe	Callippe silverspot butterfly	e/-	Northern coastal scrub ihabitat, host is *Viola pedunculata*	Host plant not present. Unlikely inhabitant
AMPHIBIANS AND REPTILES				
Actinemys marmorata marmorata	Northwestern pond turtle	SC/SSC/	Inhabits a variety of aquatic habitats with nearly permanent water. Requires basking sites.	High potential to occur. Known to occur in nearby Rodeo Creek
Masticphis lateralis euryxanthus	Alameda whipsnake	T/T	Mainly chaparral and scrub habitats	Site is isolated and adjacent habitat fragmented by roads and development. Not within geographic distribution Unlikely to be present
Rana draytonii	California red-legged frog	T/SSC	In or near permanent water. Usually over 2.5 ft deep for breeding	Documented along Refugio Creek on the project site and in nearby Rodeo Creek. Likely to be present
Birds				
Accipiter cooperii	Cooper's hawk	-/SSC	Open woodland, riparian trees	Moderate potential to be present
Agelaius tricolor	Tricolor blackbird	-/SSC	Colonial nesting in lowland wetlands	No colony was observed. Unlikely to be present
Aquila chrysaetos	Golden eagle	BCC SSC FP	Nests on cliff-walled canyons and large trees in open areas.	Potential foraging but unlikely to nest on the site because of nearby human activities and traffic.

Scientific Name	Common Name	Fed/State/CNPS Status	Preferred Habitat (blooming period)	Likelihood of Occurrence in the Project Area
Ardea herodias	Great blue heron	-/-/	Colonial nester in tall trees bear marshes	No colonies known at the site. May forage in marsh but unlikely to be found nesting.
Athene cunicularia hypugaea	Western burrowing owl	-/SSC/ BSCC	Inhabits open, grasslands and scrublands with low-growing vegetation. Subterranean nester needs burrowing mammals.	No potential burrows, Weedy areas not suitable. Not known in all of western Contra Costa County. Unlikely to be present.
Circus cyaneus	Northern harrier	-/SSC BSSC 3	Salt and freshwater marsh. nests on ground in grassland. Sensitive to human activity	Habitat size limited. Potential foraging, low potential for nesting
Dendroica petechia brewsteri	Yellow warbler	SSC	Nests in riparian trees	No known observations in area; but potential habitat on site. Moderate potential to nest on site.
Egretta thula	Snowy egret	-/-	Colonial nester, associated with dense tules	No known rookery sites (Glover 2009). Unlikely to be nesting; may forage
Elanus leucurus	White-tailed kite	/SSC/FP	Nests in dense oak, willow, or other tree stands near open grassland meadows, farmlands, and emergent wetlands.	Known to nest nearby. Project area has suitable foraging and nesting habitat. Moderate potential to be present
Falco peregrinus anatum	American peregrine falcon	-/SSC FP	Near wetlands, lakes, rivers, nests on cliffs and tall buildings	Usually require isolation from human activities. Not likely to nest on site.
Geothlypis trichas sinuosa	Saltmarsh common yellowthroat (=San Francisco) common yellowthroat	/SSC/-- BSCC 3	Mainly saltwater marshes with thick continuous cover to water surface and willows for nesting.	Habitat value low. Unlikely to nest on the site.
Laterallus jamaicensis coturniculus	California black rail	--/T/FP	Saltwater, brackish, and freshwater marshes. Requ. dense pickleweed.	Project area does not have suitable habitat. Unlikely to nest on the site.

Scientific Name	Common Name	Fed/State/CNPS Status	Preferred Habitat (blooming period)	Likelihood of Occurrence in the Project Area
Melospiza melodia maxillaris	Suisun song sparrow	-/SSC	Brackish water marshes	This subspecies not present on site. Unlikely to be present
Melospiza melodia pusillula	Alameda song sparrow	-/FP/SSC BSSC	Salt marshes of northern Alameda County	Unsuitable habitat on site. This subspecies not present on site. Unlikely to be present
Melospiza melodia samuelis	San Pablo song sparrow	-/FP/SSC BSSC	Salt marshes of northern San Pablo Bay	This subspecies not present on site. Unlikely to be present
Nycticorax nycticorax	Black crowned night heron	-/SSC	Colonial nester, usually in trees	No nesting activity observed. Site may be used for foraging. Unlikely nesting site
Pandion haliaetus	Osprey	-/SSC, FP, WL	Large streams, lakes , ocean shore	Project area does not have suitable habitat. Unlikely to nest on the site.
Rallus longirostris obsoletus	California clapper rail	E/E/-FP	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickleweed;	Project area does not have suitable habitat. Unlikely to nest on the site
Xanthocephalus xanthocephalus	yellow headed blackbird	-/SSC BSSC	Nests in freshwater marshland with dense vegetation and deep water	Habitat is not suitable. Unlikely to be present
MAMMALS				
Antrozous pallidus	Pallid Bat	-/SSC	Deserts, grasslands with rocky areas	Habitat is not suitable. Unlikely to be present
Lasionycteris noctivagans	silver haired bat	-/-/	Forest habitats	Habitat is not suitable. Unlikely to be present
Lasiurus cinereus	hoary bat	-/-	Habitat mosaics including trees	Limited habitat. Unlikely to be present
Microtus californicus sanpabloensis	San Pablo Vole	-/-/	Saltmarshes of San Pablo Creek	Suitable habitat not present. Unlikely to be present
Neotoma fuscipes annectans	Dusky-footed woodrat	-/SSC	Riparian woodlands, poison oak scrub	Suitable habitat present. No stick houses observed. Moderate potential to be present.

Scientific Name	Common Name	Fed/State/CNPS Status	Preferred Habitat (blooming period)	Likelihood of Occurrence in the Project Area
Nyctinomops macrotis	free-tailed bat	-/-/	Low lying arid areas	Habitat unsuitable. Unlikely to be present
Reithrodontomys raviventris	Salt marsh harvest mouse	E/E/--	Salt marshes with a dense plant cover of pickleweed and fat hen adjacent to an upland site.	Project area does not have suitable habitat. Unlikely to be present on the site
Sorex ornatus sinuosus	Suisun shrew	-/SSC	Tidal marshes of N San Pablo and Suisun Bays	Distribution outside of project site. Habitat unsuitable. Unlikely to be present
Sorex vagrans halicoetes	salt marsh wandering shrew	-/SSC	Salt marshes	Limited distribution. Unlikely to be present
Taxidea taxus	Badger	--/SSC/--	Sandy uplands with supply of rodents	Project area does not have suitable habitat. Unlikely to be present.

STATUS KEY:
FE: Federally Endangered CNPS List 1B: Rare and endangered in California and elsewhere
FT: Federally Threatened CNPS List 2: Rare in California, more common elsewhere
BCC: Bird of Conservation Concern CNPS List 3: Species about which More Information is Needed
BSSC: Bird Species of Special Concern (Shuford and Gardali 2008) Levels 1-3, lowest to highest priority
CE: California Endangered CNPS List 4: Watch List
CT: California Threatened
CSC: California Species of Special Concern
FP State Fully Protected
WL State Watch List
Bold = likelihood of occurrence is moderate or high

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8.0 Qualifications of the Author

Michael Marangio is a biological consultant with over 35 years of experience. He has extensive specialized knowledge in the area of endangered species surveys, management plans, and compliance monitoring, especially for special status amphibians and reptiles. He has a Masters degree in zoology from Rutgers University where he specialized in herpetological studies. He also has a Masters of Landscape Architecture from University of California, Berkeley, with a specialization in environmental planning. Michael has federal 10(a)(1)(A) recovery permits for research and surveys for the California tiger salamander (*Ambystoma* californiense) and Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*). He is also experienced in conducting surveys for California red-legged frog (*Rana draytonii*).