

## 4.3 BIOLOGICAL RESOURCES

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### 4.3.1 INTRODUCTION

This biological resources chapter of the Revised Draft EIR provides an evaluation of the biological resources, including special-status species and sensitive habitats, on and in the immediate vicinity of the SHW project. It also presents potential impacts to biological resources from the anticipated construction and operation of the separate, but related, Porter and Rachel Carson Colleges dining facilities expansion project, which would serve residents of the SHW project and the existing colleges (see **Section 4.3.5** below).

The analysis in this section is tiered from the biological resources impact analysis contained in the 2005 LRDP EIR, supplemented by project-specific surveys and studies. Based on focused site specific studies for special status plants and wildlife as well as habitat evaluation, the biological resources assessment describes the existing conditions on the project sites (e.g., vegetation types and sensitive habitats, and special-status species observed or expected), identifies potential impacts to sensitive habitat and special-status plants, invertebrates, amphibians, reptiles, birds, and mammals, and sets forth mitigation/avoidance measures for impacts found to be significant.

The section is revised from the section in the Draft EIR, in that it presents additional information regarding surveys conducted at the Hagar site and new information regarding changes to the project description identified in this Revised Draft EIR. In addition, comments received on the Draft EIR related to the biological resources impact analysis were reviewed and the key issues raised in the comments are summarized below:

#### Heller Site

- The proposed development does not consider bird safety building designs to avoid potential bird strikes.
- The proposed Heller site development does not mitigate for potential impacts to special-status birds.
- The proposed Heller site development could impact California red-legged frogs during construction.

## Hagar Site

- The purple needlegrass grassland is considered coastal prairie habitat and should be mitigated at a 3:1 ratio instead of the proposed 1:1 ratio and the loss of purple needlegrass should be considered a cumulative impact.
- No protocol-level plant surveys were conducted at the Hagar site. The survey methodology and survey area of the reconnaissance-level surveys at the Hagar site is not defined.
- No California red-legged frog assessment was conducted at the Hagar site. The proposed Hagar site development could impact California red-legged frogs that may occur at the Hagar site. The off-site ponds southeast of the Hagar site were not assessed for California red-legged frogs and could be indirectly impacted by the proposed development by pollution, increased lighting, increased noise, and human traffic.
- The proposed Hagar site development may be within half a mile of a golden eagle nest in the Pogonip City Park. The proposed Hagar site development does not mitigate for potential impacts to foraging golden eagles and other special-status birds. Loss of foraging habitat for golden eagles and other raptors and birds at the Hagar site would be considered a significant cumulative impact.
- The proposed Hagar site development would impact burrowing owls. Additional burrowing owl surveys should be conducted at the Hagar site.
- The proposed Hagar site development does not consider bird safety building designs to avoid potential bird strikes.
- Observations of special-status birds from the eBird online database were not included in the Draft EIR.
- The proposed Hagar site development could impact large and small mammals, reptiles, and insects.
- The proposed Hagar site does not assess glare impacts to nocturnal wildlife due to increased lighting from the development.
- The proposed Hagar site development would disrupt wildlife movement to and from the Pogonip City Park and would fragment the East Meadow.
- The proposed Hagar site development would impact the Ohlone tiger beetle.
- The proposed Hagar site development would result in indirect effects that could include: an increase in the spread of non-native plants; use of rodenticides that could poison predatory wildlife; and an increase in the number of pet dogs and pet or feral cats that could prey on burrowing owls and other wildlife.

These comments are addressed in the revised analysis presented in this section.

## 4.3.2 ENVIRONMENTAL SETTING

### 4.3.2.1 Regional Setting

The SHW project is located on the UC Santa Cruz campus in the City of Santa Cruz in Santa Cruz County, California (**Figure 3.0-2**). The proposed project would be constructed on two sites: the first site is in the western portion of the campus, west of Heller Drive (“Heller site”), and the second site is in the southeastern portion of the campus on Glenn Coolidge and Hagar Drives (“Hagar site”). The project is situated within the *Santa Cruz, Calif.*, United States Geological Survey (USGS) 5- by 11-minute quadrangle. Land uses adjacent to the campus include Pogonip City Park and Henry Cowell Redwoods State Park to the east, Wilder Ranch State Park to the west, residential neighborhoods to the southeast and south, the rural residential Cave Gulch neighborhood to the northwest, and private land and small-scale rural development to the north (**Figure 3.0-2**).

### 4.3.2.2 Project Site Setting

#### Heller Site

The approximate 13-acre Heller site is located between Empire Grade Road and Heller Drive (**Figure 3.0-3**). The Heller site is developed with the Family Student Housing (FSH) complex, an apartment complex with about 40 buildings and associated roadways and parking. The FSH complex also includes a childcare center which is located in one permanent building and several modular buildings, with an associated fenced play yard. Land uses surrounding the Heller site include: (1) Rachel Carson and Oakes Colleges to the east; (2) an informal recreational field, meadow, and Heller Drive to the south; (3) an undeveloped, wooded area to the west; and (4) Porter Meadow to the north, an expansive meadow on rolling topography.

#### Hagar Site

The approximate 17.3-acre Hagar site is located in a meadow at the northeastern corner of the intersection of Glenn Coolidge Drive and Hagar Drive (**Figure 3.0-4**). The site consists of a hillside with gently rolling topography that slopes down to Glenn Coolidge Drive. The site is undeveloped and covered with grasslands. A sinkhole/detention basin is present in the southeastern corner of the site.

With regard to the surrounding land uses, the East Meadow extends to the north of the project site and as such, lands to the north and west of the Hagar site are composed of grasslands of composition similar to those on the site. Approximately 0.4 miles north of the Hagar site, at the top of the East Meadow, is the

East Remote parking lot. The large lot consists of three parking areas that are immediately south of a groomed grass playing field and a smaller unpaved site used for construction contractor parking and staging and campus shuttle parking. The UC Santa Cruz Center for Agroecology and Sustainable Food Systems (CASFS) and affiliated agricultural fields are located across Hagar Drive to the west of the project site. Also to the west of the site is the Cowell Lime Works Historic District. The Cardiff Terrace, Hagar Court, and Hagar Meadow employee housing developments lie to the south and southwest of the Hagar site. An off-campus residential subdivision (Springtree neighborhood) is located southeast of the Hagar site. The neighborhood includes a small park and Kalkar Quarry Pond that are situated in an old quarry. To the east, beyond Glenn Coolidge Drive, are undeveloped grasslands that extend onto Pogonip City Park.

#### 4.3.2.3 Project Site Surveys and Mapping

Biological resources on the Heller and Hagar project sites were identified through the review and compilation of existing information, including detailed surveys, studies, and mapping prepared by biological resource consultants, and completion of reconnaissance-level field surveys by LSA, the EIR biologist. The review provided information on general resources in the area and the distribution and habitat requirements of special-status species that have been recorded from or are expected to occur in the project vicinity, including: records on occurrences of special-status species and sensitive natural communities maintained by the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB; CDFW 2017) and the California Native Plant Society's (CNPS) On-line Inventory of Rare and Endangered Plants (CNPS 2017). The following studies and mapping of the project sites have been completed for the project:

- California Red-legged Frog Site Assessment for University of California Santa Cruz, West Campus Housing Area. Prepared by Biosearch Associates (Biosearch 2016; 2017).
- West Campus Housing Project, University of California, Santa Cruz, Rare Plant Survey Report. Prepared by Biotic Resources Group (BRG 2016).
- Results of Botanical Survey of Lower Quarry Field. Prepared by Biotic Resources Group (BRG 2013).
- University of California Santa Cruz California Red-legged Frog Site Assessment. Prepared for Campus Planning, University of California Santa Cruz. Prepared by EcoSystems West (EcoSystems 2000).
- West Campus Housing Project on the University of California Santa Cruz Campus, Presence-Absence Survey Report for the Endangered Ohlone Tiger Beetle. Prepared by Entomological Consulting Services, Ltd. (ECS 2016).

- Potential California Red-legged Frog Use of College Eight Detention Basin, U.C. Santa Cruz. Prepared by H.T. Harvey & Associates Ecological Consultants (HT Harvey 2008).
- Biological Assessment for the California Red-legged Frog, Stormwater Infrastructure Improvements Phase II, University of California, Santa Cruz. Prepared by H.T. Harvey & Associates Ecological Consultants (HT Harvey 2009).
- Final Habitat Conservation Plan, Ranch View Terrace, University of California, Santa Cruz. Prepared by Jones & Stokes (Jones & Stokes 2005).
- California Red-legged Frog Habitat Assessment of the University of California, Santa Cruz Lower Campus. Prepared by Jones & Stokes (Jones & Stokes 2002).
- UC Santa Cruz Site Stewardship Grassland Monitoring Program Progress Report. Prepared by Lucy Lynn (Lynn 2007).

Biologists from LSA conducted field reconnaissance surveys of the Heller site on May 2 and June 24, 2017 and August 17, 2018, of the Hagar site on October 5 and December 7, 2017 and July 31, 2018. The surveys were conducted in order to verify habitat conditions described in the background biological resources reports and identify sensitive habitat and areas subject to special regulations, such as potential waters of the United States and/or areas which likely support or harbor special-status species. The surveys involved walking throughout the two sites to ensure that all habitat types and features were identified. All plants and animals observed were recorded in field notes.

LSA's senior botanist conducted protocol-level plant surveys at the Hagar site on March 15, and June 13, 2018, which were conducted on dates that coincide with special-status plants that have the potential to occur on the site (see **Appendix 4.3**).

LSA biologists also visited the off-site Kalkar Quarry Pond on July 31, 2018, and used aerial imagery and observations of two private off-site ponds from a distance via public roads on July 31 and August 17, 2018, to assess their habitat and their potential to support California red-legged frogs.

In addition to LSA's surveys, the following focused assessments and surveys were conducted for the proposed project:

- In conjunction with a California red-legged frog (*Rana draytonii*; CRLF) site assessment, Biosearch Environmental Consulting conducted field surveys within the vicinity of the Heller site, including the proposed utility corridor, on May 10 and 13, 2016; June 7 and 10, 2016; and May 2 and June 8, 2017 (Biosearch 2016, 2017).
- Biotic Resources Group conducted protocol-level plant surveys within the vicinity of the Heller site, including the proposed utility corridor on March 23, April 16, May 6, May 20, and June 13, 2016 (BRG 2016).

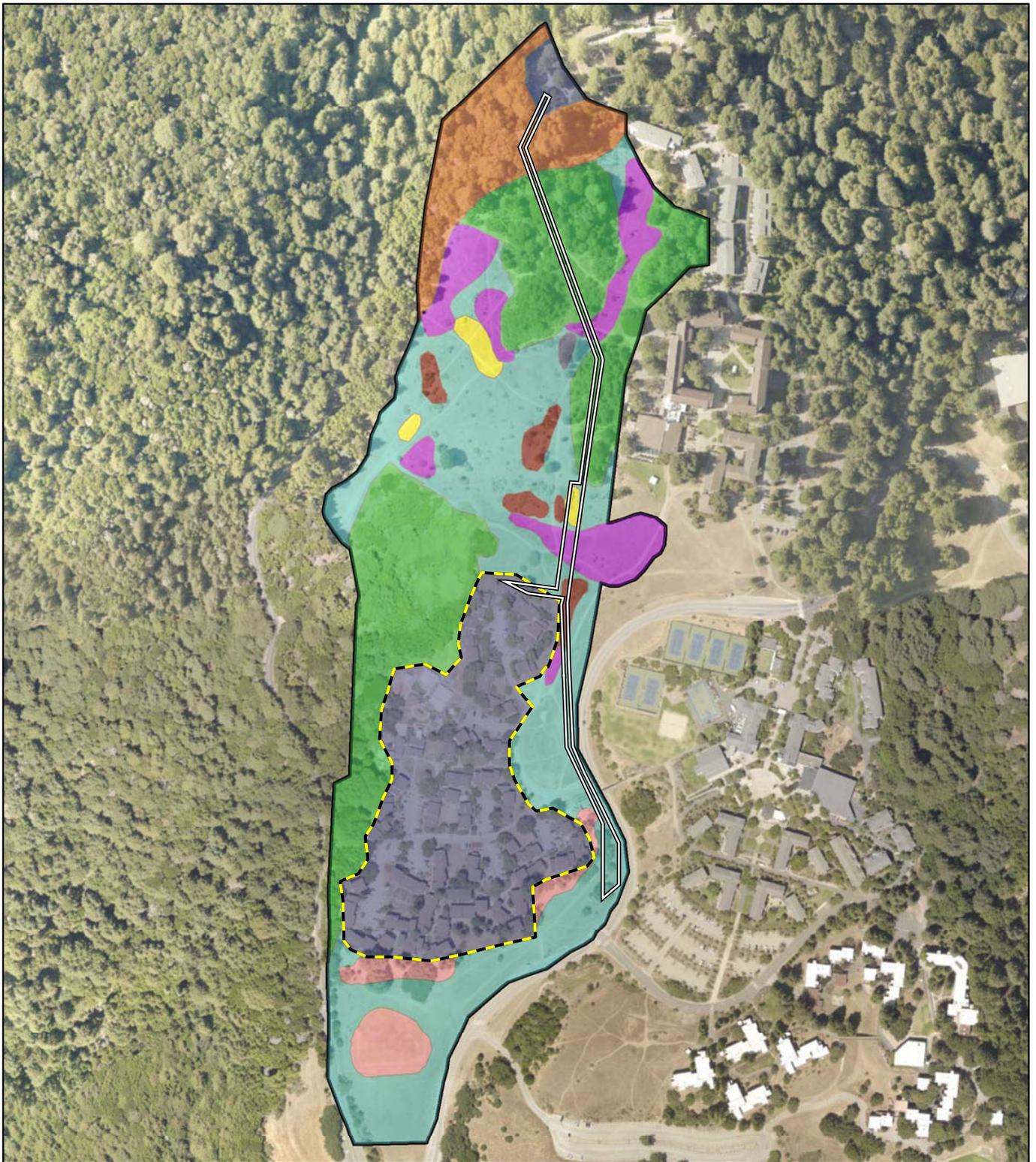
- Entomological Consulting Services conducted adult Ohlone tiger beetle (*Cicindela ohlone*) surveys within suitable habitat in the vicinity of at the Heller site, including the proposed utility corridor on March 10, 16, 22, and 31, April 8, 16, 24, and 30, and May 6, 2016 and larval burrow surveys on June 21, 2016 (ECS 2016).
- LSA and Biosearch Associates conducted a CRLF field survey and site assessment within the vicinity of the Heller site, including the proposed utility corridor and mapped potential CRLF dispersal corridors through the site, on May 2, 2017.
- LSA surveyed the Hagar site and proposed alignments of off-site utility improvements to map the vegetation and assessed the habitat for special-status plants on October 5, 2017.
- LSA conducted a burrowing owl survey within suitable habitat on and within 500 feet of the Hagar site within 2 hours of dusk on December 7, 2017. The survey was conducted to assess non-breeding use of the site in accordance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation (CDFG 2012). The survey was conducted by walking transects spaced up to 50 feet apart throughout the survey area, which included the development footprint at the Hagar site, the proposed alignments of off-site utility improvements, and adjacent suitable habitat within 500 feet, where access was permitted. LSA also surveyed portions of the upper East Meadow just south of the east remote parking lot. LSA did not conduct a protocol-level burrowing owl survey, which includes multiple surveys, at the Heller site because burrowing owls are not known to winter in the vicinity of the Heller site, which is likely due to the lack of preferred habitat, such as short grasslands.

In addition to the above surveys, several additional field surveys have been conducted on the UC Santa Cruz campus in which the survey area overlapped with the Heller and Hagar sites. Specifically, Biotic Resources Group conducted focused plant surveys and coastal prairie habitat mapping on May 8 and June 1, 2013 within the proposed utility corridor southwest of Hagar Drive (BRG 2013). Most of the other surveys are referenced in the 2005 LRDP EIR (UCSC 2006).

The habitat maps from the special-status plant reports (BRG 2013 and 2016) were used for mapping the habitat types for the Heller and Hagar sites. LSA biologists field-verified these mapped habitats and mapped additional areas of purple needlegrass grasslands. LSA digitized and modified the habitat map of the project site provided in the rare plant survey report for the Heller site (BRG 2016). Imagery for the habitat maps was acquired from ESRI World Imagery (dated July 23, 2016) and has a 0.1-meter resolution.

#### 4.3.2.4 Vegetation and Wildlife Habitat Present on the Project Sites

The Heller and Hagar project sites encompass approximately 30 acres on the campus. Habitats and land cover types within the Heller site consist of developed areas, wild oats grassland, California oats grassland, purple needlegrass grassland, coyote brush scrub, California bay forest, redwood forest, and developed/landscaped lands (**Figure 4.3-1**), while habitat and land cover within the Hagar site consist of purple needlegrass grassland and developed land (**Figure 4.3-2**).



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Legend

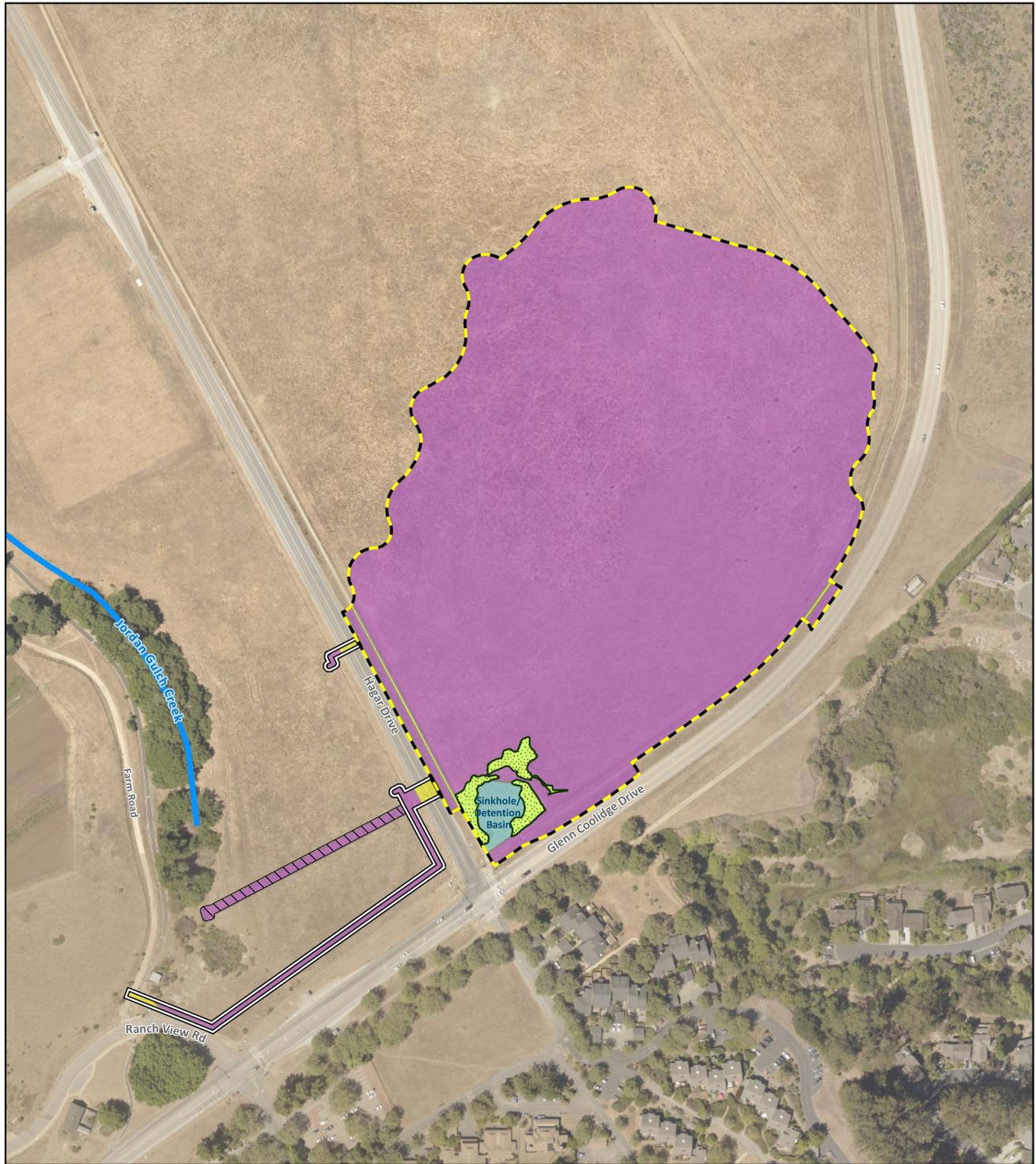
- Study Area Boundary
- Heller Site
- Proposed Utility Corridor

Land Cover Types

- California Bay Forest
- California Oat Grass Prairie
- Coyote Brush Scrub
- Developed
- Landscaping
- Purple Needlegrass Grassland
- Redwood Forest
- Wild Oats Grassland

SOURCE: UCSC, 2017

FIGURE 4.3-1

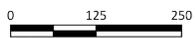


LEGEND

-  Hagar Site
-  Proposed Utility Corridor
-  Proposed Storm Drain

Land Cover Types

-  Sinkhole/Detention Basin
-  Developed
-  Purple Needlegrass Grassland
-  Creeping Rye Grass Turfs



SOURCE: UCSC, 2017

FIGURE 4.3-2

## Soils

Several soil units have been mapped at the Heller and Hagar sites, most of which are various types of loam soils. The soil units at the Heller site are mapped as Watsonville loam, Aptos loam, Lompico-Felton complex, Elkhorn sandy loam, and Tierra-Watsonville complex, while the soil units mapped within the proposed utility corridor are Los Osos loam, Lompico-Felton complex, and Tierra-Watsonville complex (UC Davis Soil Resource Laboratory 2017). The soil units at the Hagar site are mapped as Elkhorn sandy loam, Danville loam, and Aptos loam, warm, while the soil units at the proposed utility corridor are mapped as Elkhorn sandy loam and Danville loam (UC Davis Soil Resource Laboratory 2017).

## Vegetation Communities/Land Cover Types

### Heller Site

The proposed development footprint at the Heller site encompasses approximately 13 acres within the existing developed FSH complex, where natural habitats are not present. However, vegetation and land cover types in the area around the Heller site consist of mostly plant species associated with the grassland, coyote brush scrub, mixed evergreen forest, coastal prairie, grassland, as well as developed/landscaped habitats. The proposed utility corridor, which extends north from the Heller site, occurs within mostly natural vegetation communities (**Figure 4.3-1**). The approximate acreages of the habitat/land cover communities within the proposed utility corridor were derived from the plant survey report prepared by the Biotic Resources Group (BRG 2016). The vegetation communities associated with the project site and utility corridor are presented in **Table 4.3-1, Land Cover Types at the Heller Site**, below. Each of these vegetation communities is described below.

**Table 4.3-1  
Land Cover Types at the Heller Site**

Habitat/Land Cover Type	Acres
<i>Project Site</i>	
Developed/Landscaped	13.0
<i>Utility Corridor</i>	
California Oat Grass Prairie	0.1
Purple Needlegrass Grassland	0.1
Wild Oats Grassland	0.5
Coyote Brush Scrub	0.1
California Bay Forest	0.3
Redwood Forest	0.1
Developed/Landscaped	0.1
<b>Total</b>	<b>14.3</b>

### ***California Oat Grass Prairie (Danthonia californica Herbaceous Alliance)***

California oat grass (*Danthonia californica*) prairie occurs within portions of the Porter Meadow, along a slope west of Porter College, and along a portion of the grassy ridge west of Porter College (toward Empire Grade Road). Areas with greater than 10 percent cover by California oat grass were classified as California oat grass prairie (coastal prairie) (BRG 2016). This cover value threshold is consistent with classification of perennial grasslands presented in the Manual of California Vegetation (Sawyer et al. 2009). In addition to California oat grass, the prairie supports other native grasses, including purple needlegrass (*Stipa pulchra*) and meadow barley (*Hordeum brachyantherum*). Non-native grasses are also present, such as wild oat (*Avena barbata*), rattlesnake grass (*Briza maxima*), and rattail sixweeks grass (*Festuca myuros*). In general, the composition of native and non-native forbs is similar to the purple needlegrass grassland discussed below. Two additional native forbs, yellow Mariposa lily (*Calochortus luteus*) and Ithuriel's spear (*Triteleia laxa*), were also present within the California oat grass prairie. All associations within this alliance are considered sensitive natural communities by the California Department of Fish and Wildlife (CDFW).

### ***Purple Needlegrass Grassland (Nassella pulchra [Stipa pulchra] Herbaceous Alliance)***

This vegetation alliance is characterized by the presence of greater than 10 percent cover of purple needlegrass, which is the cover value threshold listed in the Manual of California Vegetation (Sawyer et al. 2009). Within the study area, additional non-native grass species such as soft chess (*Bromus hordeaceus*), rye grass (*Festuca perennis*), and false brome (*Brachypodium distachyon*) are also present. Non-native forbs present include English plantain (*Plantago lanceolata*), filaree (*Erodium botrys*), cut-leaved plantain (*Plantago coronopus*), wild radish (*Raphanus sativa*), sheep sorrel (*Rumex acetosella*), cat's ear (*Hypochaeris* spp.), hairy hawkbit (*Leontodon saxatilis*), common sow thistle (*Sonchus oleraceus*), California bur clover (*Medicago polymorpha*), and scarlet pimpernel (*Anagallis arvensis*). Native forbs are also present, but are less abundant. Commonly observed species include sun cups (*Taraxia ovata*), blue-eyed grass (*Sisyrinchium bellum*), checkerbloom (*Sidalcea malviflora*), sky lupine (*Lupinus nanus*), California buttercup (*Ranunculus californica*), miniature lupine (*Lupinus bicolor*), soap plant (*Chlorogalum pomeridianum*), California poppy (*Eschscholzia californica*), and spreading rush (*Juncus patens*). All associations within this alliance are considered sensitive natural communities by CDFW.

### ***Wild Oats Grassland (Avena barbata Semi-Natural Herbaceous Stands)***

Wild oats grassland is the dominant plant cover type within the Heller site vicinity. Grassland occurs both south (including south of the ball field) and north of FSH complex and west of Porter College. The composition and density of native and non-native grasses and forbs vary throughout the survey area

based on slope, human activities, and land management actions. Wild oat is co-dominant with other non-native species such as ripgut brome (*Bromus diandrus*) and rattlesnake grass. In addition to wild oat and ripgut brome, other non-native species are present, such as rattail sixweeks grass, soft chess (*Bromus hordeaceus*), dogtail grass (*Cynosurus echinatus*), false brome, silver hair grass (*Aira caryophyllea*), rye grass, orchard grass (*Dactylis glomerata*), and quaking grass (*Briza minor*). Non-native forbs are prevalent throughout the grassland and include species observed in the purple needlegrass grassland. This alliance is not considered a sensitive natural community by CDFW.

### ***Coyote Brush Scrub (Baccharis pilularis Shrubland Alliance)***

Coyote brush scrub is dispersed in patches amid the grasslands as well as along the edges of the California bay forest. The scrub is dominated by coyote brush (*Baccharis pilularis*), with lesser amounts of poison oak (*Toxicodendron diversilobum*) and immature Coast live oak (*Quercus agrifolia*). A small amount of annual and perennial grasses and forbs typical to the adjacent grasslands occurs in the understory, with the addition of bracken fern (*Pteridium aquilinum* var. *pubescens*), yarrow (*Achillea millefolium*), hedgenettle (*Stachys* sp.), California cudweed (*Pseudognaphalium californicum*), bull thistle (*Cirsium vulgare*), California blackberry (*Rubus ursinus*), and poison hemlock (*Conium maculatum*). **Figure 4.3-1** depicts the areas of coyote brush scrub in the Heller site vicinity. This alliance is not considered a sensitive natural community by CDFW.

### ***California Bay Forest (Umbellularia californica Forest Alliance)***

California bay forest is present along the western edge of the Heller site and along the northern end of the proposed utility corridor. Co-dominants vary throughout the stand and include coast live oak, Douglas fir (*Pseudotsuga menziesii*), and tan oak (*Notholithocarpus densiflorus* var. *densiflorus*). Other native species present include redwood (*Sequoia sempervirens*) and madrone (*Arbutus menziesii*). The forest understory is dense and diverse with small trees and shrubs; commonly observed species include poison oak, California hazel (*Corylus cornuta* subsp. *californica*), coyote brush, snowberry (*Symphoricarpos* sp.), blue elderberry (*Sambucus nigra* subsp. *caerulea*), Oregon grape (*Berberis aquifolium* var. *dictyota*), and California blackberry. Native herbaceous species present include hound's tongue (*Cynoglossum grande*), Western sword fern (*Polystichum munitum*), wood strawberry (*Fragaria vesca*), bracken fern, yerba buena (*Clinopodium douglasii*), miner's lettuce (*Claytonia perfoliata* subsp. *perfoliata*), California man-root (*Marah fabacea*), and woodland tarweed (*Anisocarpus madioides*). Non-native species observed include pines, French broom (*Genista monspessulana*), English ivy (*Hedera* spp.), cotoneaster (*Cotoneaster* sp.), bull thistle, Italian thistle (*Carduus pycnocephalus*), English daisy (*Bellis perennis*), and greater periwinkle (*Vinca major*). **Figure 4.3-1** depicts areas of California bay forest in the survey area. All associations within this alliance are considered sensitive natural communities by CDFW.

### ***Redwood Forest (Sequoia sempervirens Forest Alliance)***

A small amount of redwood forest is present within the study area, and intergrades with the adjacent California bay forest. Redwood trees dominate these stands with other native trees present in smaller numbers, such as Douglas fir, madrone, California bay, and tan oak. The understory is sparse, with a layer of duff, with a few scattered species present such as hound's tongue, sword fern, and wood strawberry (*Fragaria vesca*). All of the redwood forest on the campus has been logged at least once and is therefore second-growth. All associations within this alliance are considered sensitive natural communities by CDFW.

### ***Ball Field (Landscaped)***

To the south of the Heller site, one area is a mowed and maintained softball field vegetated with Bermuda grass (*Cynodon dactylon*).

### ***Developed/Landscaped***

Within the Heller site, developed and landscaped areas support native and non-native landscape trees, shrubs, and herbaceous species (**Figure 4.3-1**). The landscaped and developed areas include buildings, roads, trails, ornamental shrubs, and native and non-native trees, such as non-native pines (*Pinus* sp.), coast redwood, and ornamental trees.

### **Hagar Site**

Vegetation and land cover types at the Hagar site consist of mostly plant species associated with the purple needlegrass grassland and developed habitats. The approximate acreage of the habitat/land cover communities within the Hagar site and the alignments of off-site utility improvements were derived from LSA's site visits. **Figure 4.3-2** provides a map of habitat within the Hagar site. The approximate acreages of the habitat/land cover communities within the Hagar site and off-site utility improvement alignments are listed in **Table 4.3-2, Land Cover Types at the Hagar Site**, below:

**Table 4.3-2  
Land Cover Types at the Hagar Site**

Habitat/Land Cover Type	Acres
<i>Project Site Work Limit</i>	
Purple Needlegrass Grassland	17.1
Creeping Rye Grass Turfs	0.2
<i>Utility Corridor/Storm Drain/Recycled Water</i>	

Habitat/Land Cover Type	Acres
Purple Needlegrass Grassland	0.5
Developed	0.1
<b>Total</b>	<b>17.9</b>

### ***Purple Needlegrass Grassland (Nassella pulchra [Stipa pulchra] Herbaceous Alliance)***

The Hagar site supports stands of purple needlegrass, with other non-native grass species present such as wild oats, rip gut brome, and Mediterranean barley (*Hordeum marinum*). Common forb species present are predominantly non-native and include wild radish, Italian thistle, bindweed (*Convolvulus arvensis*), English plantain, sheep sorrel, filaree, and cat's ear. Native species observed include California poppy and coast tarweed (*Madia sativa*). All associations within this alliance are considered sensitive natural communities by CDFW.

### ***Creeping Rye Grass Turfs (Leymus triticoides [Elymus triticoides] Herbaceous Alliance)***

Creeping rye grass turfs is a sensitive natural community that occurs near the southeastern corner of the Hagar site, in and around the detention basin/sinkhole. It was observed during a survey of the Hagar site in mid-June 2018 in a limited area of approximately 0.2 acre. Although purple needlegrass occurs in the areas where this grassland was observed, creeping rye grass is the more dominant plant species and therefore, this area is more accurately mapped as creeping rye grass turfs.

### ***Developed***

Within the Hagar site, the developed areas occur along the alignments of the proposed utility improvements where the utility lines will be installed beneath roads, Hagar Drive and Farm Road (**Figure 4.3-2**).

### **Wildlife**

The habitat types present on the Heller and Hagar sites provide suitable habitat for many common native animals that have adapted to rural settings. Wildlife species observed at or near the Heller site during LSA's surveys consist of those typically associated with grassland and forested habitats, including western fence lizard (*Sceloporus occidentalis*), red-tailed hawk (*Buteo jamaicensis*; including young), red-shouldered hawk (*B. lineatus*), American kestrel (*Falco sparverius*), common raven (*Corvus corax*), California scrub-jay (*Aphelocoma californica*; including young), band-tailed pigeon (*Patagioenas fasciata*), acorn woodpecker (*Melanerpes formicivorus*), chestnut-backed chickadee (*Poecile rufescens*), western wood-pewee (*Contopus sordidulus*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), Bewick's

wren (*Thryomanes bewickii*), western bluebird (*Sialia mexicana*), violet-green swallow (*Tachycineta thalassina*), dark-eyed junco (*Junco hyemalis*), black-headed grosbeak (*Pheucticus melanocephalus*), spotted towhee (*Pipilo maculatus*), lark sparrow (*Chondestes grammacus*), lesser goldfinch (*Spinus psaltria*), house finch (*Haemorhous mexicanus*), Botta's pocket gopher (*Thomomys bottae*), and black-tailed deer (*Odocoileus hemionus columbianus*).

Wildlife or animal signs observed at or near the Hagar site during LSA's surveys consist of those typically associated with grassland habitats, including red-tailed hawk, red-shouldered hawk, American kestrel, white-tailed kite (*Elanus leucurus*), common raven, California scrub-jay, northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), yellow-rumped warbler (*Setophaga coronata*), oak titmouse (*Baeolophus inornatus*), bushtit, chestnut-backed chickadee (*Poecile rufescens*), Bewick's wren, Say's phoebe (*Sayornis saya*), European starling (*Sturnus vulgaris*), western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), golden-crowned sparrow (*Zonotrichia atricapilla*), house finch, Botta's pocket gopher, California ground squirrel (*Otospermophilus beecheyi*), Audubon's cottontail (*Sylvilagus audubonii*), black-tailed deer, and coyote (*Canis latrans*).

#### 4.3.2.5 Special-Status Species

LSA reviewed the CNDDDB (CDFW 2017) for records of special-status species occurrences within 5 miles of the project sites, and the CNPS On-line Inventory of Rare and Endangered Plants (CNPS 2017) was also reviewed for species in the Santa Cruz, Davenport, Felton, Laurel, and Soquel USGS quadrangles. LSA also reviewed the special-status species lists from the UC Santa Cruz 2005 LRDP EIR (UCSC 2006). In addition, LSA reviewed the eBird (2018) online database for observations of special-status bird species within the project vicinity. Using these sources, lists of special-status plants and animals that have the potential to occur on or in the vicinity of the Heller and Hagar sites were compiled (Table 1, in **Appendix 4.3**).

For the purposes of this assessment, special-status species are defined as follows:

- Species that are listed, formally proposed, or designated as candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA);
- Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act (CESA);
- Plant species given the California Rare Plant Ranking (CRPR) of 1A, 1B, 2, 3, and 4 as assigned by a collaborative group of over 300 botanists in government, academia, non-governmental organizations, and the private sector. This group is sanctioned by, and jointly managed by, CDFW and the CNPS;

- Animal species designated as Species of Special Concern or Fully Protected by CDFW; and
- Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA guidelines; or Species that are considered a tax of special concern by local agencies.

The scientific and vernacular nomenclature for the plant and wildlife species used in this analysis are from the following standard sources: plants, Baldwin et al. (2012) and updates listed on the Jepson Herbarium website (<http://ucjeps.berkeley.edu/eflora/>); amphibians and reptiles, Crother (2017) and/or AmphibiaWeb ([www.amphibiaweb.org](http://www.amphibiaweb.org)); birds, American Ornithologists' Union (1998) and supplements through 2017; and mammals, Bradley et al. (2014). To the extent feasible, vegetation cover within the project site was classified according to Sawyer et al. (2009).

### ***Special-Status Plant Species***

The available background information identifies 47 special-status plant species that have potential to occur in the region (Table 1, in **Appendix 4.3**).

Although marginal habitat for many of these species occurs within the proposed utility corridor associated with the Heller site, protocol-level surveys conducted in 2016 for these and other special-status plant species resulted in no observations of special-status plant species (BRG 2016).

Protocol-level plant surveys were also conducted within an area encompassing the alignments of the off-site utility improvements southwest of Hagar Drive in 2013 (BRG 2013) and on the Hagar site and the alignments of the utility improvements on March 15, and June 13, 2018 (see **Appendix 4.3**). The 2018 surveys were conducted to coincide with the blooming period of five special-status plants that had the potential to occur at the Hagar site due to the presence of suitable grassland habitat: Point Reyes horkelia (*Horkelia marinensis*), marsh microseris (*Microseris paludosa*), San Francisco popcorn-flower (*Plagiobothrys diffusus*), Santa Cruz clover (*Trifolium buckwestiorum*), and Pacific Grove clover (*Trifolium polyodon*). The 2018 surveys were conducted by a qualified and experienced botanist in accordance with the *California Department and Fish Wildlife's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). The survey area consisted of the proposed development footprint and off-site improvements at the Hagar site and an additional buffer survey area of approximately 25 feet surrounding the project site. No special-status plants were observed during the surveys.

### ***Special-Status Wildlife Species***

Based on the CNDDDB search (and species lists in the 2005 LRDP EIR), 47 special-status wildlife species were evaluated for their potential to occur on or in the general vicinity of the project sites (Table 1, in

**Appendix 4.3).** More detailed evaluation is provided below for the following special-status species and/or species groups which are known or may occur at the project sites and could be affected by project construction. The only special-status wildlife species observed during LSA's surveys was the white-tailed kite, which was foraging over the Hagar site during the December 2017 survey.

**Ohlone Tiger Beetle.** The Ohlone tiger beetle (Federally Endangered) occurs in poorly drained clay or sandy clay soil over bedrock of Santa Cruz mudstone within remnant native grasslands with California oat grass and purple needlegrass in Santa Cruz County (CDFW 2017). The Santa Cruz County soil maps identifies these soils as Watsonville loams, which are often characterized by mima mounds (Bowman and Estrada 1980 as cited in ECS 2016; ECS 2016). Grasslands occupied by Ohlone tiger beetles have been observed primarily on level ground, where the vegetation is sparse or bare ground is prevalent (ECS 2016).

Presence-absence surveys for the Ohlone tiger beetle within the Heller site utility corridor were conducted during the spring of 2016 by Dr. Richard Arnold (ECS 2016). No Ohlone tiger beetles were found during the 2016 surveys (ECS 2016). Although California oat grass prairie and purple needlegrass grasslands occur on the Heller site utility corridor, Watsonville loams are absent, which likely precludes the presence of this beetle (ECS 2016). Suitable habitat, including Watsonville loams, for this species is not present on the Hagar site. Therefore, this species is not likely to occur at the Hagar site.

**California Red-legged Frog.** CRLF is a Federally Threatened species and California Species of Special Concern [SSC] that is known to occur in the creeks, drainages, and ponds in Santa Cruz County. CRLF are known to occur in the vicinity of the Heller site and the site is located within designated CRLF critical habitat unit SCZ-1 (USFWS 2010). Moore Creek on the UC Santa Cruz campus occurs along the eastern boundary of SCZ-1. Critical habitat designation applies only to specific areas within the mapped units that provide those physical and biological features essential to the conservation of the species (USFWS 2010). Because CRLF are known to use aquatic, riparian, and upland habitat, they may be present in any of these habitat types. U.S. Fish and Wildlife Service (USFWS) considers upland habitat as areas that provide shelter, shade, moisture, foraging opportunities, and predatory avoidance up to 1 mile from occupied breeding and non-breeding habitat, depending on surrounding landscape and dispersal barriers (USFWS 2010, Biosearch 2016). Maintaining dispersal corridors between breeding and non-breeding habitats is considered essential for preserving CRLF populations (USFWS 2010, Biosearch 2016).

CRLF have been recorded in at least 14 locations within 1 mile of the Heller site, all within the Moore Creek watershed (CDFW 2017, Biosearch 2016). CRLF have been observed in four locations along the West Branch of Moore Creek, situated just south of the Heller site and at College Eight detention basin just east of Heller Drive (CDFW 2017), but this detention basin does not provide suitable breeding habitat

for CRLF (Biosearch 2016). CRLF have also been observed along the East Branch of Moore Creek between 0.2 and 0.4 mile southeast of the Heller site, in pools in Moore Creek downstream of Empire Grade approximately 0.7 mile south-southeast of the site, and in a seasonal pond above a tributary to Moore Creek located approximately 0.7 mile south of the site (CDFW 2017, Biosearch 2016). The closest breeding site for CRLF is the Arboretum Pond, located approximately 0.5 mile southeast of the Heller site (Biosearch 2016, EcoSystems West 2000, Jones and Stokes 2002). In addition to these occurrences, CRLF have been observed along Adams Creek, a tributary to Wilder Creek approximately 1.2 miles to the northwest (CDFW 2017), Wilder Ranch State Park approximately 1.4 miles to south-southwest, the Upper Dairy Gulch Pond (which is a breeding pond) approximately 1.7 miles to the south-southwest, along Wilder Creek approximately 1.9 miles to the southwest (CDPR 2001, 2005 as cited in Biosearch 2016), and along a drainage at Jade Ranch approximately 1.6 miles to the south-southwest (Biosearch 2016).

In 2016, Biosearch prepared a CRLF site assessment for the proposed Heller site and adjacent Porter Meadow where the utility corridor is proposed, in accordance with U.S. Fish and Wildlife Service's 2005 *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog*. Biosearch visited the project site in May and June, 2016 to document habitat conditions for CRLF (Biosearch 2016). Biologists from Biosearch and LSA also conducted a site visit on May 2, 2017 and Biosearch conducted another site visit on May 10, 2017 to evaluate dispersal habitat at and around the Heller site. For the CRLF site assessment, the suitability of upland and dispersal habitats for CRLF was evaluated based on vegetation type, presence of potential refugia, moisture and distance from known breeding sites and the presence or absence of barriers to overland movements (buildings, roads, retaining walls) that were considered and characterized as either impassable or passable (Biosearch 2016, 2017). In part, because portions of Moore Creek, Cave Gulch, and Wilder Creek provide suitable non-breeding aquatic habitat for CRLF (EcoSystems West 2000, Jones and Stokes 2002, Biosearch 2017), the forest, coyote brush scrub, and grassland habitats on or near the Heller site were determined to provide upland and dispersal habitat for CRLF (**Figure 4.3-3**).

The Heller site is also situated within a mile of the Arboretum Pond, a known CRLF breeding site. Potential CRLF movement corridors from the Arboretum Pond to non-breeding habitat occur along the East Branch of Moore Creek both north and south of the Arboretum Pond, across Empire Grade to the west towards Wilder Creek, and between the Moore Creek and the Wilder Creek watersheds (EcoSystems West 2000, Jones & Stokes 2002, Biosearch 2016, Biosearch 2017).

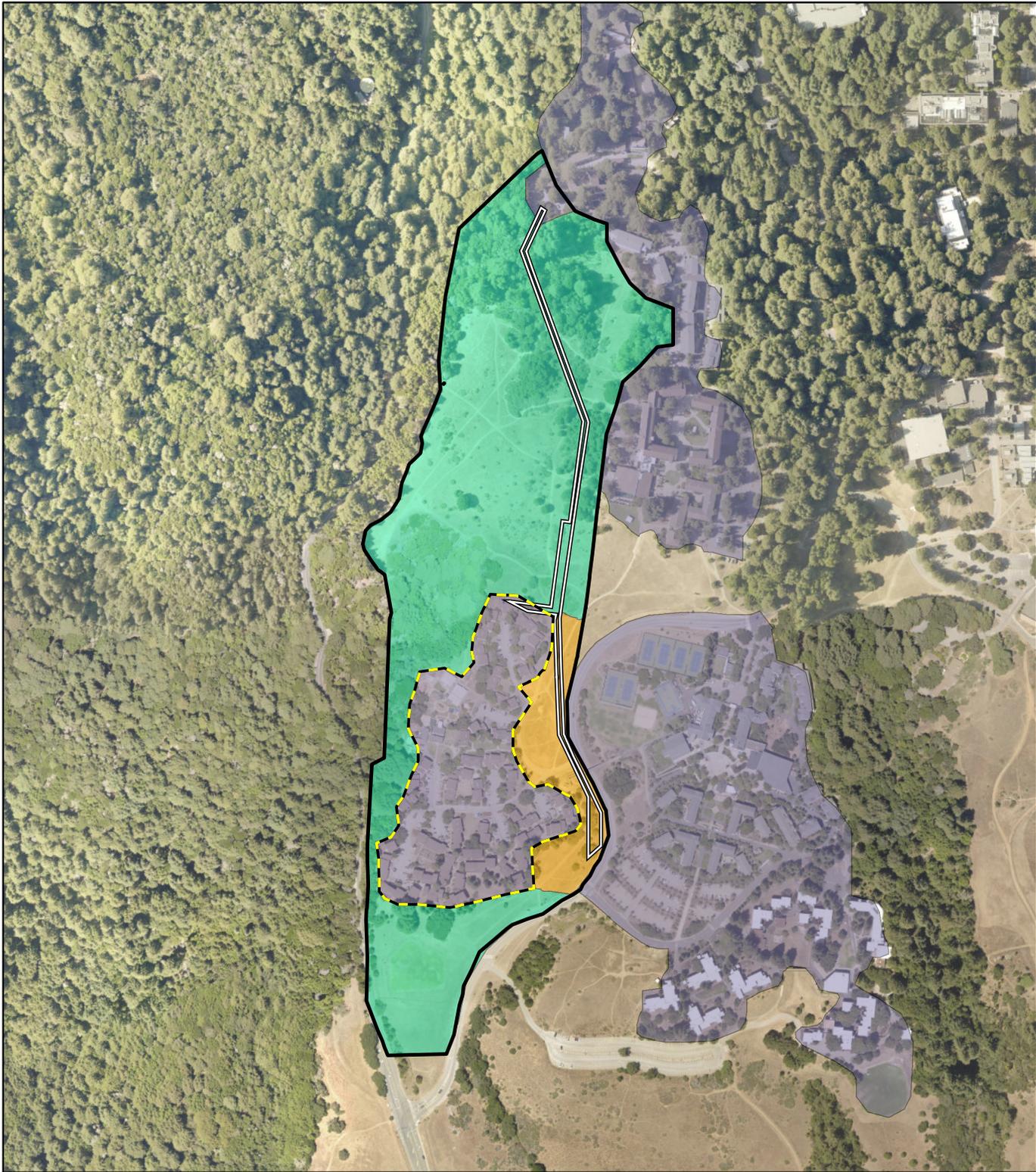
The developed areas of the UC Santa Cruz campus, including the FSH complex, Porter College, Porter and Kresge Infill Apartments, Oakes College, and Rachel Carson College, present substantial barriers to CRLF movements, but Heller Drive, although it likely results in mortality to dispersing CRLF, is not considered a complete movement barrier to CRLF (Biosearch 2016). The FSH complex, proposed site of

the Heller site housing development, is developed and presents extensive and substantial barriers to CRLF movements, including buildings, retaining walls, storm drains and other barriers and hazards to dispersal (Biosearch 2016). The eastern edge of the FSH complex supports mostly mowed grassland interspersed with trees and lacks dense vegetation or leaf litter. However, California ground squirrel burrows, which provide cover, moisture and shade for CRLF, were observed in this area (Biosearch 2016). The proposed utility corridor to the north and the area of the storm water improvements to the northwest, which support grassland, coyote brush scrub, and forest habitats (**Figure 4.3-1**), occur within the CRLF upland and dispersal habitat. Habitat features that provide shade, moisture, foraging opportunities and predator avoidance for CRLF, including dense vegetation, leaf litter, organic debris, and California ground squirrel burrows occur along the proposed utility corridor (Biosearch 2016). The area of the storm water improvements to the south, which support wild oats grassland and landscaping, also occurs within the CRLF upland and dispersal habitat.

CRLF are not known to occur in the vicinity of the Hagar site due to the lack of suitable aquatic or breeding habitat adjacent to the site. Jordan Gulch, which is located west of the Hagar site, is not known to support CRLF due to the lack of suitable breeding or high quality non-breeding aquatic habitat (HT Harvey 2009, EcoSystems 2000). Three ponds, the Kalkar Quarry Pond, the Rittenhouse Pond, and another pond southeast of the Rittenhouse Pond, are present to the southeast of the Hagar site. All three ponds are hydrologically connected via a stream channel and are located on private land surrounded by residential development. These ponds have not been recorded as breeding or aquatic habitat for CRLF (CDFW 2017, City of Santa Cruz 2008). Not all of these ponds were accessible for surveys as two of the three ponds are on private lands. However, due to the presence of potential suitable breeding or non-breeding aquatic habitat, CRLF could occur in these ponds. CRLF could move from the Arboretum Pond or from the Moore Creek, Cave Gulch, and Wilder Creeks through the Hagar site to these ponds.

**California Giant Salamander.** The California giant salamander (*Dicamptodon ensatus*; SSC) is known to occur in Wilder Creek, Cave Gulch stream, and Empire Cave (CDFW 2017). It occurs in wet coastal forests near streams and seeps with aquatic larvae inhabiting cold, clear streams, or occasionally in lakes and ponds and adults occurring in wet forests under rocks. Adult salamanders have been observed within the California bay forest near the southern portion of the Porter Meadow (CNR 2017). This salamander could occur at the Porter Meadow and forest habitat within the proposed utility corridor for the Heller site.

**Western Pond Turtle.** Western pond turtles (*Emys marmorata*; SSC) may briefly occur along the creeks in the vicinity of the project sites, but no suitable aquatic habitat is present on or immediately adjacent to the sites.



LSA

Legend

-  Study Area Boundary
-  Heller Site
-  Proposed Utility Corridor

California Red-legged Frog Habitat

-  Minimal Dispersal Habitat
-  Upland and Dispersal Habitat
-  Developed and Roads – Substantial Dispersal Barriers



SOURCE: UCSC, 2017

FIGURE 4.3-3

This species has been documented approximately a half mile from the Heller site in the Arboretum Pond within the UC Santa Cruz campus and in lower Moore Creek just south of the campus (CDFW 2017). The Arboretum Pond and the pool areas of lower Moore Creek are the only suitable breeding habitat for western pond turtles on or immediately adjacent to the campus (Jones & Stokes 2004 as cited in UCSC 2006).

**Special-Status Birds.** Several special-status bird species are known to or could occur near the Heller and Hagar sites, including the golden eagle (*Aquila chrysaetos*; California Fully Protected), northern harrier (*Circus cyaneus*; SSC), white-tailed kite (California Fully Protected), short-eared owl (*Asio flammeus*; SSC), long-eared owl (*Asio otus*; SSC), loggerhead shrike (*Lanius ludovicianus*; SSC), Vaux's swift (*Chaetura vauxi*; SSC), black swift (*Cypseloides niger*; SSC), yellow warbler (*Setophaga petechia*; SSC), olive-sided flycatcher (*Contopus cooperi*; SSC), grasshopper sparrow (*Ammodramus savannarum*; SSC), tricolored blackbird (*Agelaius tricolor*; SSC), and burrowing owl (*Athene cunicularia*; SSC). Golden eagles, white-tailed kites, long-eared owls, Vaux's swifts, and olive-sided flycatcher could nest in the forest habitats, loggerhead shrikes could nest in the trees and shrubs, and northern harriers, short-eared owls, burrowing owls, and grasshopper sparrows could nest in the grassland habitats on and adjacent to the sites. Yellow warblers could occur in the forest habitats during migration. Vaux's swift, black swift, and tricolored blackbird could forage on or adjacent to the sites.

Burrowing owls could winter and/or forage in the grassland habitat on or adjacent to the sites. They winter in ground squirrel burrows, pipes, culverts, concrete piles, rock rip-rap, and other artificial structures. Burrowing owls historically nested within the UC Santa Cruz campus grassland habitat with several breeding pairs observed nesting during the 1970s, but nesting was last confirmed in the grasslands south of the east remote parking lot in the early 1980s (UCSC 2006). Currently, burrowing owls are known to winter within the upper East Meadow south of the east remote parking lot and north of the Hagar site (CDFW 2017, eBird 2018) and near Ranch View Road and the CASFS agricultural areas more than 700 feet west of the Hagar site (eBird 2018). One burrowing owl, which was not a breeding owl, was also observed south of the project site near the Kalkar Quarry Pond in March 2018 (eBird 2018). Nests of all native birds, regardless of their regulatory status, are protected by the Federal Migratory Bird Treaty Act and provisions of the California Fish and Game Code. Suitable nesting habitat is present on and adjacent to the Heller and Hagar sites for both special-status and common bird species.

**Special-Status Bats.** The Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*; SSC), pallid bat (*Antrozous pallidus*; SSC), western mastiff bat (*Eumops perotis californicus*; SSC), western red bat (*Lasiurus blossevillii*; SSC), long-eared myotis (*Myotis evotis*; Western Bat Working Group [WBWG] - Medium Priority), fringed myotis (*Myotis thysanodes*; WBWG - High Priority), long-legged myotis (*Myotis volans*; WBWG - High Priority), and yuma myotis (*Myotis yumanensis*; WBWG - Low-Medium Priority)

may periodically fly or forage over the Heller and Hagar sites, but no suitable roosting habitat for these bat species occurs on both sites, although suitable habitat is present adjacent to the Heller site.

**San Francisco Dusky-footed Woodrat.** The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectans*; SSC) could build woodrat houses within the California bay forest, redwood forest, and coyote brush scrub habitat at or near the Heller site. No woodrat houses were observed during LSA's reconnaissance surveys at the Heller site, but woodrat houses could occur within the California bay forest north of the Heller site where the storm water improvements are proposed. No suitable woodrat habitat is present at or near the Hagar site.

**American Badger.** The American badger (*Taxidea taxus*; SSC) occurs in grassland habitat where prey species, such as small mammals, occur. This species could occur at or near the Hagar site, although no potential den sites were observed during LSA's focused burrow survey (for burrowing owls) conducted in December 2017. A dead badger was found in 2004 at UC Santa Cruz, north of the Hagar site between the east remote parking lot and the east recreation playing fields (CDFW 2017). This species is unlikely to occur within the Porter Meadow near the Heller site due to the limited habitat present and the site's proximity to urban development and isolation from larger grasslands.

#### 4.3.2.6 Sensitive Natural Communities

The California oats grassland (coastal prairie), California bay forest, and purple needlegrass grassland on and near the Heller site and the utility corridor, and the purple needlegrass grassland and creeping rye grass turfs at the Hagar site and the alignments of the proposed utility improvements are considered to be sensitive natural communities by CDFW.

#### 4.3.2.7 Wetlands and Other Jurisdictional Waters

No wetlands or other jurisdictional features occur at the Heller and Hagar sites. Wilder Creek, a detention basin, and drainage channels occur near the Heller site, and a sinkhole/detention basin, Jordan Gulch Creek and Kalkar Quarry Pond occur near the Hagar site.

#### 4.3.2.8 Wildlife Movement Corridors and Wildlife Nursery Sites

Wildlife such as black-tailed deer (*Odocoileus hemionus columbianus*), raccoons (*Procyon lotor*), coyotes (*Canis latrans*), gray foxes (*Urocyon cinereoargenteus*), bobcats (*Lynx rufus*), reptiles, amphibians (including CRLF), birds, and occasionally mountain lions (*Felis concolor*) move through the grassland, forest, and coyote brush scrub habitats at the Heller and/or Hagar sites (**Figures 4.3-1 and 4.3-2**).

Within the vicinity of the Heller site, wildlife movement corridors are present within the grassland in the Porter Meadow north of the existing FSH complex, the California bay forest west of the FSH complex, the ballfield south of the FSH complex, and within a narrow stretch of habitat that extends in a north-south direction between the FSH complex and Heller Drive. The Porter Meadow between the FSH complex and Porter College supports an important wildlife movement corridor that provides a linkage between the habitat north and west of the Heller site to the habitat to the east, including habitat associated the West and East Branches of Moore Creek. In regards to CRLF movement, most of these areas provide suitable dispersal habitat for CRLF with the exception of the north-south corridor between the FSH complex and Heller Drive, which provides minimal dispersal habitat for CRLF due to its relatively narrow width (**Figure 4.3-3**).

The Hagar site is situated in the lower most portion of the East Meadow and is bordered by grasslands within the East Meadow to the north, by Hagar Drive, grasslands, Jordan Gulch, agricultural lands, and development to the west, and Glenn Coolidge Drive, Kalkar Quarry Pond, and residential and non-residential development to the south, and Glenn Coolidge Drive and the Pogonip City Park to the east (**Figure 3.0-4, Project Vicinity – Hagar Site**).

No known native wildlife nursery sites occur on or immediately adjacent to near the Heller or Hagar sites.

### 4.4.3 REGULATORY CONSIDERATIONS

#### 4.4.3.1 Federal Laws and Regulations

##### *Federal Endangered Species Act*

The federal Endangered Species Act (FESA) of 1973, as amended, provides the regulatory framework for the protection of plant and animal species (and their associated critical habitats), which are formally listed, proposed for listing, or candidates for listing as endangered or threatened under the FESA. The FESA has four major components: provisions for listing species, requirements for consultation with the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries, prohibitions against “taking” of listed species, and provisions for permits that allow incidental “take.” The FESA also discusses recovery plans and the designation of critical habitat for listed species. Both the USFWS and the NOAA Fisheries share the responsibility for administration of the FESA. During the CEQA review process, each agency is given the opportunity to comment on the potential of the proposed project to affect federally listed plants and animals.

### ***Clean Water Act, Section 404 and 401***

The USACE and the United States Environmental Protection Agency (U.S. EPA) regulate the discharge of dredged or fill material into waters of the U.S., including wetlands, under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). Waters of the U.S. 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, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. The lateral limits of jurisdiction in those waters may be divided into three categories – territorial seas, tidal waters, and non-tidal waters – and is determined depending on which type of waters is present (Title 33 CFR Parts 328.4(a),(b),(c)). Activities in waters of the U.S. regulated under Section 404 include fill for development, water resource projects (such as dams and levees), infrastructure developments (such as highways and airports), and mining projects. Section 404 of the CWA requires a federal license or permit before dredged or fill material may be discharged into waters of the U.S., unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities).

Section 401 of the CWA (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 U. S. to obtain a certification from the state in which the discharge originates or would originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters. At the point where the discharge originates or would originate, the discharge would have to comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. In California, the responsibility for the protection of water quality under the CWA rests with the State Water Resources Control Board (SWRCB) and its nine RWQCBs.

### ***Migratory Bird Treaty Act & Bald and Golden Eagle Protection Act***

The Federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.), Title 50 Code of Federal Regulations (CFR) Part 10, prohibits taking, killing, possessing, transporting, and importing of migratory birds, parts of migratory birds, and their eggs and nests, except when specifically authorized by the Department of the Interior (DOI). As used in the act, the term “take” is defined as meaning “to pursue, hunt, capture, collect, kill or attempt to pursue, hunt, shoot, capture, collect or kill, unless the context otherwise requires.” With a few exceptions, most birds are considered migratory under the MBTA. Disturbances that causes nest abandonment and/or loss of reproductive effort or loss of habitat upon which these birds depend could be in violation of the MBTA. A December 2017 opinion from the Office of the Solicitor for the U.S. Department of the Interior (M-opinion) concluded the MBTA restrictions apply only to affirmative and purposeful actions, such as hunting and poaching that reduce migratory birds

and their nests and eggs, by killing or capturing, to human control and not incidental taking. April 2018 guidance from the Principal Deputy Director of the USFWS provides further guidance on revisions to past policies and guidance regarding the MBTA. This guidance concludes the MBTA's prohibitions on take of migratory birds apply only when the purpose of the action is to take migratory birds, their eggs, or their nests.

The Bald Eagle Protection Act (16 U.S.C. 668) was passed in 1940 to protect bald eagles (*Haliaeetus leucocephalus*) and was later amended to include golden eagles. Under the act it is unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, their parts, products, nests, or eggs. Take includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing eagles.

#### 4.4.3.2 State Laws and Regulations

##### *California Endangered Species Act*

California enacted similar laws to the FESA, the California Native Plant Protection Act (NPPA) in 1977 and the CESA in 1984. The California Endangered Species Act (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. It converted all "rare" animals 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. CDFW implements NPPA and CESA, and its Biogeographic Data Branch maintains the CNDDDB, a computerized inventory of information on the general location and status of California's rarest plants, wildlife, and natural communities. During the CEQA review process, CDFW is given the opportunity to comment on the potential of the proposed project to affect listed plants and wildlife species.

##### *Fully Protected Species and 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 California Fish and Game Code sections (fish at §5515, amphibian and reptiles at §5050, birds at §3511, and mammals at §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 CDFW to authorize take resulting from recovery activities for state-listed species.

California Species of Special Concern 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 cumbersome recovery efforts that might ultimately be required. This designation is also intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although these species generally have no special legal status, they are given special consideration under CEQA during proposed project review.

### ***California Fish and Game Code, Sections 3503 and 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 house sparrows (*Passer domesticus*) 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 MTBA, 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.

### ***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 CDFW 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. Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

### *California Native Plant Society (CNPS) Rare Plant Ranking System*

The CNPS has been involved in assembling, evaluating, and distributing information on special-status plant species in the state, as listed in the *Inventory of Rare and Endangered Plants of California* (CNPS 2001 and electronic inventory update). CNPS has recently updated their rating system for the rarity of special-status plants, and now include both a California Rare Plant Rank and a Threat Rank. Species are ranked according to their rarity status.<sup>1</sup> CEQA requires government agencies to consider environmental impacts of discretionary projects and to avoid or mitigate them where possible. Under Section 15380, CEQA provides protection for both State-listed species and for any other species which can be shown to meet the criteria for State listing. The CDFW recognizes that special-status plants with a California Rare Plant Rank of 1A (Presumed extinct in California), 1B (Rare, threatened, or endangered in California and elsewhere), and 2 (Rare and endangered in California, but are more common elsewhere) in the CNPS Inventory consist of plants that, in a majority of cases, would qualify for listing and these species should be addressed under CEQA review. In addition, CDFW recommends, and local governments may require, protection of species which are regionally significant, such as locally rare species, disjunct populations, essential nesting and roosting habitat for more common wildlife species, or plants with a CNPS California Rare Plant Rank of 3 (Plant species for which additional data is needed – a review list) and 4 (Plant species of limited distribution – a watch list).

### *Sensitive Natural Communities*

Sensitive natural communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. These resources have been defined by federal, state, and local conservation plans, policies or regulations. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in its CNDDDB. Sensitive natural communities are also identified by the CDFW on its List of California Natural Communities Recognized by the CNDDDB. Impacts to sensitive natural communities and habitats identified in local or regional plans, policies, regulations or by federal or state agencies must be considered and evaluated under CEQA (CCR: Title 14, Div. 6, Chap. 3, Appendix G).

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<sup>1</sup> The CNPS Inventory contains the following listings:  
 1A = Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere.  
 1B = Plants Rare, Threatened, or Endangered in California and Elsewhere.  
 2A = Plants Presumed Extirpated in California, But More Common Elsewhere.  
 2B = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere.  
 3 = Plants About Which More Information is Needed – A Review List.  
 4 = Plants of Limited Distribution – A Watch List.

Although sensitive natural communities have no legal protective status under FESA and CESA, they are provided some level of protection under CEQA. The CEQA Guidelines identify potential impacts on a sensitive natural community as one of six significance criteria. As an example, a discretionary project that has a substantial adverse effect on any riparian habitat, native grassland, valley oak woodland, or other sensitive natural community would normally be considered to have a significant effect on the environment. Further loss of a sensitive natural community could be interpreted as substantially diminishing habitat, depending on its relative abundance, quality and degree of past disturbance, and the anticipated impacts to the specific community type. Where determined to be a significant impact under CEQA, the potential impact would require mitigation through avoidance, minimization of disturbance or loss, or some type of compensatory mitigation when unavoidable.

#### **4.3.3.3 Local Plans and Policies**

As a state entity, the University of California, of which UC Santa Cruz is a part, is not subject to local ordinances for the protection of biological resources. The Campus's policies for the protection of biological resources are set forth in the 2005 LRDP, and include the following.

- Respect major landscape and vegetation features. Development will be sensitive to preservation of UC Santa Cruz's distinctive physical features, including ravines, major grasslands, chaparral, and areas of redwood and mixed evergreen forests.
- Maintain continuity of wildlife habitats. To the extent possible, development will minimize interruption of wildlife movement and fragmentation of habitats.
- Maintain natural surface drainage flows as much as possible. UC Santa Cruz will use financially viable sustainable design strategies to manage storm water, thereby preserving groundwater supplies, major springs, seep zones, year round springs, and major drainage channels, while at the same time preventing slope erosion.

#### **4.3.4 IMPACTS AND MITIGATION MEASURES**

##### **4.3.4.1 Significance Criteria**

The impacts of the proposed project on biological resources would be considered significant if they would exceed the following significance criteria, in accordance with Appendix G of the State CEQA Guidelines and the 2005 LRDP EIR:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

#### **4.3.4.2 CEQA Checklist Items Adequately Analyzed at the 2005 LRDP Level or Not Applicable to the Project**

Although redevelopment of the FSH complex on the Heller site was evaluated in the 2005 LRDP EIR, the currently proposed Heller site housing is substantially different from the previous proposal and includes an off-site utility corridor and storm water improvements which was not previously evaluated for biological resource impacts. The Hagar site and associated utility improvements were not envisioned for development under the 2005 LRDP. Therefore, although the analysis below uses the prior LRDP level analysis to the extent appropriate, all of the CEQA checklist items listed above under Significance Criteria are addressed in the project-level analysis below. Furthermore, the cumulative impacts analyzed in the 2005 LRDP EIR are re-analyzed to address the proposed development of the Hagar site and the higher density of development proposed for the Heller site.

#### **4.3.4.3 Methodology**

Both project sites and the alignments of the associated off-site utility improvements were surveyed to identify habitats present within the areas to be disturbed or developed. The areas were also surveyed, using species-specific protocols set forth by the regulatory agencies, to determine the presence or absence of certain special-status plant and wildlife species. The information gathered was used to quantify and evaluate likely impacts on sensitive habitats and special-status species. The significance of project impacts was identified by comparing the impacts to thresholds of significance set forth above.

#### 4.3.4.4 2005 LRDP EIR Mitigation Measures Included in the Proposed Project

**Table 4.3-3, 2005 LRDP EIR Mitigation Measures**, presents the mitigation measures in the 2005 LRDP EIR that are applicable to the proposed project. Since these previously adopted mitigation measures are already being carried out as part of implementation of the 2005 LRDP, they are included in, and they are a part of the proposed project, and will not be readopted. Implementation of these mitigation measures is assumed as part of the proposed project impact analysis.

**Table 4.3-3  
2005 LRDP EIR Mitigation Measures**

Mitigation Measure	Description
BIO-2A	<p>The Campus shall avoid removal of coastal prairie through redesign of proposed development areas and road alignments where possible. The design of all campus facilities shall include a buffer between development and prairie in order to reduce indirect impacts from edge effects such as increases in noxious weed species. The width of each buffer will depend on the site and the nature of adjacent development. The minimum buffer shall be 30 feet from the edge of paved areas or buildings to the edge of coastal prairie.</p> <p>Landscaped areas are acceptable within the habitat buffer, provided that they are planted with species that are not invasive in coastal prairie (i.e., no non-native grasses) and are not fire prone.</p>
BIO-2B	<p>The Campus shall mitigate for unavoidable losses of coastal prairie by restoring coastal prairie at a 3:1 ratio. Before impacts to coastal prairie occur, a management and monitoring plan, including quantitative success criteria, shall be prepared for the restoration site. Success criteria for the restoration shall include providing equivalent or greater overall (rather than species specific) cover of native perennial bunchgrasses (such as purple needlegrass, California oatgrass, and Pacific panic grass) and native forbs (such as white hyacinth and dwarf brodiaea) as is found in the coastal prairies that will be lost to development. Management of the site shall continue for at least 15 years to protect the coastal prairie management areas from reverting to annual grassland. If coastal prairie restoration does not meet the success criteria after 5 years, restoration shall be remedied (e.g., replanting) or restoration attempted on a new, more suitable site.</p>
BIO-6	<p>To avoid or minimize the introduction or spread of noxious weeds into uninfested areas, the Campus shall incorporate the following measures into the project plans and specifications for work at the project sites:</p> <ul style="list-style-type: none"> <li>• Only certified, weed-free materials shall be used for erosion control.</li> <li>• The Campus shall identify appropriate best management practices to avoid the dispersal of noxious weeds. The Campus shall then include appropriate practices in construction standards to be implemented during construction in all north campus areas. Typical best management practices include the use of weed-free erosion control materials and revegetation of disturbed areas with seed mixes that include native species and exclude invasive non-natives.</li> <li>• In uninfested areas, topsoil removed during excavation shall be stockpiled and used to refill the trench on site if it is suitable as backfill.</li> <li>• For the proposed utility corridors at the Heller and Hagar sites, surveys shall be conducted for noxious plant species in construction and staging areas before and during construction. Photographs of the utility corridor both before and after construction shall be taken to document site conditions.</li> <li>• Rumble-strips shall be installed to reduce transport of noxious weed seeds within the soil on truck and equipment tires.</li> <li>• Noxious species shall be removed if introduced to the sites.</li> </ul>

Mitigation Measure	Description
BIO-8	The Campus shall continue to limit visitation of caves on campus, and discourage activities by members of the public that could jeopardize the physical integrity, condition or scientific value of the caves, through appropriate signage and educational literature, Campus Natural Reserve website information, or other appropriate measures.
BIO-9	<p>UC Santa Cruz will implement the following measures to avoid direct impacts to the CRLF:</p> <ul style="list-style-type: none"> <li>• Initial ground-disturbing activities in the Moore Creek watershed, including grading and vegetation removal, will not occur during the period when CRLF are most likely to be in or near aquatic environments and not dispersing. Therefore, construction in CRLF habitat shall be restricted to the period after May 1 and before October 15.</li> <li>• A qualified biologist shall examine the project area 24 hours before project activities begin and during any initial vegetation, woody debris, tree removal, or other initial ground-disturbing activities. If a CRLF is observed at any time before or during project activities, all activities will cease. The Campus will coordinate with the appropriate agencies to develop avoidance measures before commencing project activities.</li> <li>• Initial construction activities, including vegetation removal and grading, shall not occur when it is raining.</li> </ul>
BIO-10	<p>Prior to construction or site preparation activities, a qualified biologist shall be retained to conduct nest surveys at each site that has appropriate nesting habitat. The survey shall be required for only those projects that will be constructed during the nesting/breeding season of golden eagle, northern harrier, long-eared owl, white-tailed kite, or other special-status birds, or other birds protected by the Migratory Bird Treaty Act and/or California Fish and Game Code (typically February 1 through August 31).</p> <p>The survey area shall include all potential nesting habitat, including the California bay forest, redwood forest, isolated trees, shrubs, and grasslands that are within 200 feet of the proposed project grading boundaries. The survey shall be conducted no more than 14 days prior to commencement of construction activities.</p> <p>If active nests of golden eagle, northern harrier, long-eared owl, white-tailed kite, and other special-status birds, or other species protected under the Migratory Bird Treaty Act and the California Fish and Game Code are present in the construction zone or within 300 feet of the construction zone, a temporary fence shall be erected at a distance of 50 to 300 feet around the nest site (to be determined by the biologist according to the species and site conditions). Clearing and construction within the fenced area shall be postponed until juveniles have fledged and there is no evidence of a second nesting attempt as determined by the biologist.</p>
BIO-12A	Prior to any ground disturbance of grassland habitats on the lower campus, a qualified biologist will conduct a preconstruction survey to identify western burrowing owls and/or potential habitat features (e.g., burrows) and to evaluate use by burrowing owls in accordance with current CDFW survey guidelines (CDFG 2012). <sup>1</sup> Surveys will be conducted within the proposed disturbance footprint and a 500-foot radius of the disturbance boundary of each proposed project. For construction activities occurring within the western burrowing owl habitat (whether during breeding or non-breeding seasons), surveys will be conducted within 30 days prior to construction. The surveys will document whether burrowing owls are nesting on or directly adjacent to disturbance areas. Survey results will be valid only for the season during which the survey is conducted. If western burrowing owls are found during the breeding or nonbreeding season, Mitigation BIO-8B will be implemented.
BIO-12B	<p>If burrowing owls are found, the Campus will avoid all burrowing owl nest sites to the extent feasible. Avoidance will include establishment of a non-disturbance buffer zone of at least 250 feet around each nest site during the breeding season. If burrowing owls are found outside the breeding season (September 1–January 31), avoidance will include the establishment of at least a 160-foot non-disturbance buffer zone around each burrow being used. In both cases, highly visible temporary construction fencing will delineate the buffer zone.</p> <p>If burrowing owl nest sites cannot be avoided, burrowing owls may be excluded from burrows using one-way doors, provided that a Burrowing Owl Exclusion Plan is</p>

Mitigation Measure	Description
	<p>developed and approved by CDFW prior to implementation. This measure is described in detail below.</p> <p>In order to displace burrowing owls without destroying eggs, young, or adults, one-way doors will be installed on owl burrows before February 1 prior to disturbance, and each burrow will be monitored following CDFW's protocol (CDFG 2012). Suitable artificial burrows will be created nearby according to the conservation measures established for this species. The protocol includes monitoring the burrow for a 48-hour period after the one-way doors are installed. The doors will be checked every 24 hours following installation to determine whether they are still intact. If the one-way door is still correctly installed after a continuous 48-hour period (i.e., no animals have dug up the door and rendered it useless), then the one-way door will be removed and the burrows will be excavated using hand tools and plastic tubing to maintain an escape route for any animals still inside the burrow.</p>
<b>BIO-13A</b>	<p>If tree removal or grading activity commences on a project site in the north campus during the breeding season of native bat species (April 1 through August 31), a field survey shall be conducted by a qualified biologist to determine whether active roosts of special-status bats (pallid bat, Townsend's big-eared bat, western red bat, long-eared myotis, fringed myotis, long-legged myotis, yuma myotis, or greater western mastiff bat) are present on the site or in areas containing suitable roosting habitat within 50 feet of the site.</p> <p>Field surveys shall be conducted in late April or early May in the season before construction begins, when bats are establishing maternity roosts but before pregnant females give birth. If no roosting bats are found, no further mitigation would be required.</p>
<b>BIO-13B</b>	<p>If roosting bats are found, disturbance of the maternity roosts shall be avoided by halting construction until either (1) the end of the breeding season or, (2) a qualified biologist removes and relocates the roosting bats in accordance with CDFW requirements.</p>
<b>BIO-14</b>	<p>A pre-construction/grading survey of all suitable San Francisco dusky-footed woodrat habitat within 100 feet of the proposed grading footprint shall be conducted by a qualified biologist to detect any woodrat nests. The survey shall be conducted no more than 14 days prior to commencement of construction activities. If active nests (stick houses) are identified within the construction zone or within 100 feet of the construction zone, a fence shall be erected around the nest site with a 100-foot minimum buffer from construction activities. At the discretion of the biologist, clearing and construction within the fenced area would be postponed or halted until juveniles have left the nest. The biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests will occur. If any woodrat is observed within the grading footprint outside of the breeding period, individuals shall be trapped and relocated to a suitable location in proximity to the project site by a qualified biologist in accordance with CDFW requirements, and the nest dismantled so it cannot be reoccupied.</p>
<p>Source: UC Santa Cruz 2006</p> <p><i>a LRDP Mitigations BIO-12A and 12B have been updated with minor changes. The original mitigation measures used the acronym CDFG. That is revised here to CDFW to reflect the revised name of the California Department of Fish and Wildlife. In addition, the LRDP mitigation refers to the 1995 Burrowing Owl survey guidelines. Those have since been updated and the current guidelines are from 2012.</i></p>	

#### 4.3.4.3 Project Impacts and Mitigation Measures

**SHW Impact BIO-1:** Development of the proposed project would result in a substantial adverse impact on four sensitive natural communities. (*Potentially Significant; Less than Significant with Mitigation*)

The previously published Draft EIR noted that two natural communities that are considered sensitive natural communities by CDFW occur on the project sites or within the utility corridors associated with the two project sites. The Draft EIR characterized both natural communities and presented the project's impacts on those two communities. On June 13, 2018, the project botanist conducted another special-status plant survey of the Hagar site and discovered and mapped the occurrence of one more sensitive natural community in a limited portion of the site near the detention basin/sinkhole. Additionally, the California bay forest north of the Heller site may be impacted by proposed storm water improvements that may be installed within a portion of the forest. The potential for the proposed project to affect the four sensitive natural communities is discussed below.

##### **California Oat Grass Grassland/Coastal Prairie**

California oat grass grassland (referred to as coastal prairie in the 2005 LRDP EIR) is a sensitive natural community that occurs in the Porter Meadow to the north of the Heller site (**Figure 4.3-1, Land Cover at the Heller Site**). The proposed housing development would not impact this habitat, but the proposed utility corridor may temporarily impact approximately 0.1 acre of California oat grass grassland. However, the project would implement LRDP Mitigation BIO-2, which requires projects to avoid and minimize impacts to this sensitive community and maintain minimum buffers to protect the resource. In the event that removal of the sensitive natural community cannot be avoided, the mitigation measure requires compensation for the acreage removed by restoring suitable habitat at a 3:1 ratio. As a result of compliance with the LRDP mitigation, the impact on this community would be less than significant. An additional mitigation measure (**SHW Mitigation BIO-1A**) is set forth below to further strengthen and clarify LRDP Mitigation BIO-2, and would be implemented to mitigate the impact.

##### **Purple Needlegrass Grassland**

Purple needlegrass grassland is a sensitive natural community that occurs in the Porter Meadow to the north of the Heller site, in the area where the Heller site utility corridor is proposed, and it occurs throughout the Hagar site both where the housing development is proposed and where the off-site utility improvements are proposed (**Figure 4.3-1, Land Cover at the Heller Site**, and **Figure 4.3-2, Land Cover at the Heller Site**). The proposed development at the Heller site would temporarily impact approximately 0.1 acre of purple needlegrass grassland within the proposed utility corridor, while the proposed

development at the Hagar site would permanently impact up to 17.1 acres of purple needlegrass grassland and temporarily impact approximately 0.5 acre within the proposed off-site utility alignments. The impact on this sensitive natural community would be considered significant. **SHW Mitigation BIO-1B** is set forth below to mitigate both the permanent removal of this community as well as temporary impacts during construction.

Although purple needlegrass is often a component of California oat grass prairie, purple needlegrass alone would not be considered as coastal prairie that must be compensated at a ratio of 3:1. Purple needlegrass grassland is a more common sensitive natural community than coastal prairie and purple needlegrass when seeded in restored grasslands performs well. Therefore, a mitigation ratio of 1:1 is proposed in **SHW Mitigation BIO-1B** below.

### **Creeping Rye Grass Turfs**

Creeping rye grass turfs occurs in a limited area of approximately 2,914 square feet in the southeastern corner of the Hagar site, in and around the detention basin/sinkhole. Given its limited distribution on the site and its location in the southeastern corner where no improvements with permanent impacts are proposed, the proposed Hagar site development is not expected to result in permanent impacts on this natural community. However, should changes be made during final design to some of the utility improvements, such as the storm water detention basins, storm drains or recycled water line that are near the area where this community occurs, there could be temporary and/or permanent impacts on this plant community associated with the construction of the facilities. These impacts, if they were to occur, would be considered significant. **SHW Mitigation BIO-1C** would address this potential impact.

### **California Bay Forest**

California bay forest (*Umbellularia californica* Forest Alliance) is a sensitive natural community that occurs immediately north of the Heller site and may be impacted by proposed storm water improvements associated with development of the site. The proposed storm water improvements would direct storm water from roughly the northern half of the Heller site to slopes to the north and west. Storm water would be discharged using level spreaders along the slopes. The storm water improvements would include a buried storm drain that would terminate in a series of level spreaders, which are perforated storm drains that are laid on a sloping ground surface for the diffuse discharge of storm water. The proposed improvements would result in the discharge of more storm water to this area than under current conditions because instead of a small portion of the existing FSH complex that currently drains to the northwest, with the project about half the Heller site would drain to the northwest. However, only storm water would be discharged during and following storm events, and the project would not cause

runoff to be discharged to the bay forest on a year-round basis. As a result, the increase in runoff would not result in changes to the plant community in the California bay forest.

The installation of the storm drain and level spreaders would avoid the removal of trees but could require the removal of understory vegetation, such as California blackberry (*Rubus armeniacus*), poison oak, coyote brush, and yerba buena, present in the area of installation. Although the alignment of the storm drain would be restored, the area of the level spreaders would be maintained clear of vegetation in order to access and conduct maintenance on the level spreaders. Therefore, the storm water improvements would result in the loss of a small acreage of California bay forest understory, which would be a potentially significant impact. In addition, although removal of trees within the California bay forest would be avoided and standard tree protection best management practices, such as the use of tree protection zone fencing, would be implemented, tree roots often extend far beyond the canopy dripline and trenching and other ground disturbance could potentially affect the root systems of trees near the improvements. The potential impact would be considered significant. **SHW Mitigation BIO-1D** is set forth below to address both potential impacts.

**Mitigation Measures:**

**SHW Mitigation BIO-1A: California oat grass grassland**

The restoration to compensate for the loss of the California oat grass grassland shall be performed using native species from local seed sources. The management and monitoring plan shall be reviewed and approved by the Campus.

**SHW Mitigation BIO-1B: Purple needlegrass grassland**

Where purple needlegrass grasslands are temporarily impacted, the temporarily impacted areas shall be restored by seeding purple needlegrass. The restoration shall be performed using native species from local seed sources.

For any unavoidable permanent losses of purple needlegrass, the Campus shall mitigate by (1) permanently protecting approximately 17.1 acres of existing purple needlegrass grassland within the campus or (2) by restoring purple needlegrass grassland at a ratio of at least 1:1.

In the event that restoration is the chosen mitigation, the Campus will identify one or more potential sites for restoration on the campus, and will direct the preparation of a management and monitoring plan, including quantitative success criteria, for the restoration site(s). The plan will specify that restoration shall be performed with purple needlegrass from local seed sources. Success criteria for the restoration shall include providing equivalent or greater overall (rather than species specific) cover of purple needlegrass as is found in the purple needlegrass grassland that will be lost to development. This management and monitoring plan shall be reviewed and approved by the Campus. Management of the site shall continue for at least 5 years to protect the restored areas from reverting to annual grassland. If purple needlegrass restoration does not meet the success criteria after 5 years, restoration shall be remedied (e.g., replanting) or restoration will be attempted on a new, more suitable site. This same plan will also apply to restored purple needlegrass grassland within the temporarily impacted areas.

**SHW Mitigation BIO-1C: Creeping Rye Grass Turfs**

Where creeping rye grass turfs are temporarily impacted, the temporarily affected areas will be restored by seeding and/or planting plugs of creeping rye grass. The restoration shall be performed using native species from local seed sources.

For any unavoidable permanent losses for up to 0.2 acre of creeping rye grass turfs, the Campus shall mitigate by (1) permanently protecting an equivalent acreage of existing creeping rye grass turfs within the campus to the acreage removed or (2) by restoring creeping rye grass turfs at a ratio of at least 1:1.

In the event that restoration is the chosen mitigation for the permanently impacted creeping rye grass turfs, the Campus will identify one or more potential sites for restoration on the campus, and will direct the preparation of a management and monitoring plan, including quantitative success criteria, for the restoration site(s). The plan will specify that restoration shall be performed with creeping rye grass from

local seed sources. Success criteria for the restoration shall include providing equivalent or greater overall (rather than species specific) cover of creeping rye grass as is found in the creeping rye grass turfs that will be impacted. This management and monitoring plan shall be reviewed and approved by the Campus. Management of the site shall continue for at least 5 years to protect the restored areas from reverting to annual grassland. If creeping rye grass restoration does not meet the success criteria after 5 years, restoration shall be remedied (e.g., replanting) or restoration will be attempted on a new, more suitable site. This same plan will also apply to restored creeping rye grass turfs within the temporarily impacted areas.

**SHW Mitigation BIO-1D: California Bay Forest**

*Mitigation for Loss of Understory*

Where California bay forest understory vegetation is temporarily impacted, the temporarily affected areas will be restored by seeding and/or planting native California bay forest understory plants, such as California blackberry, coyote brush, and yerba buena.

For any unavoidable permanent losses, the Campus shall mitigate (1) by permanently protecting an equivalent acreage of existing California bay forest within the campus to the acreage impacted, or (2) by restoring California bay forest understory vegetation at a ratio of at least 1:1.

In the event that restoration is the chosen mitigation, the Campus will identify one or more potential sites for restoration on the campus, and will direct the preparation of a management and monitoring plan, including quantitative success criteria, for the restoration site(s). The plan will specify that restoration shall be performed with California bay forest understory vegetation from local plant sources. Success criteria for the restoration shall include providing plant survivorship (or established) and providing equivalent or greater overall (rather than species specific) cover of California bay forest understory vegetation as is found in the understory vegetation that will be impacted due to the storm drain improvements. This management and monitoring plan shall

be reviewed and approved by the Campus. Management of the site shall continue for at least 5 years. If restoration does not meet the success criteria after 5 years, restoration shall be remedied (e.g., replanting) or restoration will be attempted on a new, more suitable site. This same plan will also apply to restored understory vegetation within the temporarily impacted areas.

***Mitigation for Impact to Tree Root Systems***

Tree Protection Zone fencing shall be installed under the supervision of a qualified arborist and maintained to prevent direct damage to trees. The fence shall be placed at a distance that is at or outside of the drip lines of trees or 8 feet from their trunk, whichever is greater. Heavy machinery shall not be allowed to operate or be stored within the dripline of avoided trees unless approved by a qualified arborist. Excavation work within the dripline of trees shall be conducted with light equipment or by hand whenever possible to avoid tearing of large diameter roots. Root pruning shall be performed with a sharp blade taking care not to tear root tissue. Construction materials or debris shall not be placed adjacent to or against the trunks of the trees. Disposal or depositing of oil, gasoline, chemicals or other harmful materials within the forest shall be prohibited. The certified arborist shall be present to monitor activities that may pose a potential threat to the trees.

**Significance after Mitigation:** Implementation of LRDP mitigation and **SHW Mitigations BIO-1A, BIO-1B, BIO-1C, and BIO-1D** would reduce the project's impacts on sensitive natural communities to a less than significant level.

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**SHW Impact BIO-2: The proposed project would not result in an adverse impact, directly and indirectly, on special-status plant species. (No Impact)**

Focused plant surveys conducted at the Heller site and the areas of the associated off-site improvements resulted in no identified special-status plants (see **Appendix 4.3**). Therefore, project development on the Heller site would not impact special-status plants.

A habitat evaluation of the Hagar site was conducted by LSA in late 2017 which concluded that five special-status plants, including Point Reyes horkelia, marsh microseris, San Francisco popcorn-flower, Santa Cruz clover, and Pacific Grove clover, have a low potential to occur at the Hagar site due to the presence of suitable or marginally suitable grassland habitat. Following that habitat assessment, two appropriately timed, protocol-level plant surveys of the Hagar site were completed by a qualified botanist consistent with the 2018 California Department of Fish and Wildlife survey protocol (CDFW 2018). The first survey was conducted on March 15, 2018, which coincided with the beginning of the blooming period for the San Francisco popcorn flower. The second survey was completed on June 13, 2018, near the end of the blooming period for San Francisco popcorn flower, and during the blooming period for Point Reyes horkelia, marsh microseris, Santa Cruz clover, Pacific Grove clover, and several other special-status plants known to occur in the region. No special-status plants were observed during both surveys. Two protocol-level surveys are considered sufficient for determining absence of these species. Therefore, the proposed Hagar site development would not result in an impact on special-status plant species.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-3: The proposed project would not introduce or cause the spread of noxious weeds, which could reduce the abundance of native plants and sensitive communities. (*Less than Significant*)**

Noxious weeds are defined as plants on the California Department of Food and Agriculture's List of California Noxious Weeds; or weeds rated as high or moderate by the California Invasive Plant Council (CDFA 2017; Cal-IPC 2017). Noxious weeds occur in the Porter Meadow at the Heller site and at the Hagar site in the grasslands at both of the proposed development site and the proposed utility corridor. Noxious weeds observed at the project sites include Italian thistle, bull thistle, field bindweed, wild oats, ripgut brome, false brome, and rye grass.

Construction activities at the project sites could introduce noxious weeds or result in their spread into adjacent habitat, such as the California oats grassland, purple needlegrass grassland, creeping rye grass turfs, and California bay forest, which could adversely impact these sensitive natural communities. Noxious weeds could disperse within these habitats via construction equipment or personnel. However, as an element of development under the LRDP, the proposed project is required to and will implement LRDP Mitigation BIO-6 which requires project plans and specifications to include measures that would ensure that noxious weeds are not introduced to the project vicinity by landscaping and erosion control

activities on the project site. Therefore, with the LRDP mitigation incorporated into the project, the impact of the proposed project related to noxious weeds would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-4:** **The proposed project could result in a substantial adverse impact (i.e., loss or degradation of habitat) on cave invertebrates, including the Santa Cruz telemid spider, Dolloff Cave spider, Empire Cave pseudoscorpion, or Mackenzie's Cave amphipod. (Potentially Significant; Less than Significant with Mitigation)**

Four special-status cave invertebrate species, the Santa Cruz telemid spider, Dolloff Cave spider, Empire Cave pseudoscorpion, and Mackenzie's Cave amphipod are known to occur in the Empire Cave, which is a karst formation along the Cave Gulch stream just west of Porter Meadow near the Heller site. The 2005 LRDP EIR included an evaluation of the increasing number of students living on the campus and the resulting potential increase in trespassing through the cave, which could in turn increase impacts to Empire Cave and these special-status invertebrates. The EIR set forth LRDP Mitigation BIO-8 to reduce trespass, and concluded that the impact would be reduced to a less than significant level. The proposed development at the Heller site would add more students to the western portion of the campus compared to the number of students analyzed for this portion of the campus in the 2005 LRDP EIR. Therefore, the potential for increased trespass would be greater than previously analyzed. Furthermore, based on observations by the Campus Natural Reserve (CNR) Manager, despite the implementation of LRDP Mitigation BIO-8 by the Campus, the cave continues to be visited heavily by students and others, and the quality of the habitat continues to be degraded by unauthorized activities conducted in the cave. The addition of about 2,900 resident students to the western portion of the campus would likely further increase the potential for unauthorized student visitation of the cave, and degradation of habitat would worsen. This indirect potential impact of the proposed project would be significant. Mitigation is set forth below to address this impact.

**Mitigation Measures:**

**SHW Mitigation BIO-4:** The Campus shall implement the following measures:

- Require mandatory stewardship training for residents of the proposed Heller site housing (either online or in person) designed to bring awareness to sensitive environments and ways

to reduce impacts to the cave resources. The training could be provided by the CNR.

- Install additional interpretive signage about the cave species and their habitats, Best Stewardship/Leave no Trace principles for lessening the impact on the environment, and the CNR lands and mission.
- The CNR Manager will work with Campus Police to evaluate additional enforcement actions that may be implemented to address the unauthorized activities by campus and non-campus population at the cave.

**Significance after Mitigation:** Implementation of **LRDP Mitigation BIO-8**, which is included in the proposed project, and **SHW Mitigation BIO-4** would reduce the impacts to Empire Cave invertebrates to a less than significant level.

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**SHW Impact BIO-5:** **The proposed project could result in a substantial adverse effect on important movement habitat and direct impacts to California red-legged frog. (Potentially Significant; Less than Significant with Mitigation)**

As discussed above, CRLF are known to occur in the western portion of the campus along the two branches of Moore Creek and are known to breed in the Arboretum Pond. The western portion of the campus is also located within designated CRLF critical habitat unit SCZ-1. There are no known occurrences of the species from the eastern portion of the campus where the Hagar site is located and the area lies outside designated critical habitat for the species. The potential for the proposed SHW project to affect the species is evaluated below by site.

#### **Heller Site**

The Heller site and off-site utility alignments do not contain any water bodies that provide suitable breeding or non-breeding aquatic habitat for CRLF. The Heller site and off-site improvements are, however, located within 0.5 mile of the Arboretum Pond. Furthermore, CRLF has been documented in the West Branch of Moore Creek just south and southeast of the Heller site on the opposite side of Heller Drive as well as in the East Branch of Moore Creek between 0.2 and 0.4 mile from the Heller site (CDFW 2017, Biosearch 2017). Based on the known occurrences of the species in the project vicinity, and the

manner in which the species is known to disperse and move between drainages and breeding sites, the Heller site and off-site improvements are located in an area that could provide suitable upland and dispersal habitat for CRLF. The area surrounding the Heller site has also been mapped as designated critical habitat (USFWS 2010). Therefore, the development of the proposed housing at the Heller site would have the potential to affect CRLF.

Recognizing the potential for the Heller site development to affect CRLF, in 2017, the Campus prepared an updated Site Assessment in accordance with the USFWS 2005 *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog*. The purpose of this assessment was to identify those areas on and around the Heller site that would be considered upland and dispersal habitat and those areas that would not support CRLF dispersal and would not be considered critical habitat. USFWS guidance related to CRLF critical habitat notes that the critical habitat designation applies only to specific areas within the mapped units that provide those physical and biological features essential to the conservation of the species (constituent habitat elements) (USFWS 2010). This assessment evaluated the study area for constituent habitat elements and identified the existing FSH housing complex as containing substantial barriers to overland movement by the species and hence not suitable dispersal habitat. The assessment also concluded that although Heller Drive potentially results in mortality of dispersing CRLF, the roadway is not a barrier to CRLF movement and that CRLF likely disperse across and along the roadway and through Porter Meadow to the north of the FSH complex and through the playing field to the south of the FSH complex. Using this information, and to avoid any reduction in CRLF upland and dispersal habitat, the Campus selected the site of the proposed housing to be limited to the existing FSH complex and childcare facility. The Campus also communicated with the USFWS in July 2017, and discussed the results of the Site Assessment and the proposed siting of the Heller site housing with the USFWS. Based on input received from the USFWS, the Campus further refined the project design to include two enhanced dispersal areas for CRLF (**Figure 3.0-5a, Proposed Site Plan-Heller Site**). The first approximately 1.76-acre dispersal area would enhance an existing movement corridor that would extend generally in a north-south direction between Heller Drive and the east and south side of the proposed development, and the second dispersal area would consist of a barrier-free CRLF corridor that would extend east-west through the proposed housing development. The enhanced movement corridor along the west side of Heller Drive would be 40 feet wide and would be planted with small- to medium-sized native shrubs and grasses of the native coastal scrub plant community. The enhanced movement corridor would be installed with open fencing to restrict access from people, but allow CRLF to disperse through the areas. These areas would be graded to remove all vertical obstructions greater than 1 foot high to allow for CRLF dispersal, and culverts would be installed to provide a movement corridor under the roadways. The 48-inch wide elliptical culverts (with a minimum height of 2 feet) would be partially buried to provide uninterrupted dispersal movement on a continuous ground surface. The corridor

across the site would be similar to the enhanced movement corridor but would be only 15-20 feet wide and would not be fenced. The Campus submitted the proposed project site plan and habitat enhancement concept to the USFWS for comment. The Campus also identified the avoidance measures that would be implemented during project construction. The USFWS confirmed on March 1, 2018, that the proposed project area and the avoidance and mitigation measures identified by the Campus were consistent with its advice and that the Campus had taken measures to reduce the potential for take of CRLF.

Based on the proposed site plan for the Heller site, the proposed project would essentially be developed within the existing footprint of the FSH complex, with approximately 0.67 acre of habitat along the project's eastern edge also incorporated into the project site. This small loss of marginal dispersal upland habitat would be offset by the enhanced dispersal areas provided as part of the project.

While the proposed project design would avoid loss of CRLF upland and dispersal habitat, construction activities at the Heller site, including the proposed off-site utilities, could directly impact CRLF, if present on the site during project construction. The 2005 LRDP EIR included LRDP Mitigation BIO-9, which stipulates the conditions that construction projects must comply with to avoid mortality of CRLF during project construction. While this mitigation measure would be implemented as part of the proposed project and would help reduce the impact on CRLF during construction, the impact would still be potentially significant. Additional avoidance measures, which are the same set of avoidance measures submitted to and reviewed by the USFWS, are listed in **SHW Mitigation BIO-5A** below to reduce impacts related to construction activities to a less than significant level.

Lastly, construction of the proposed utility corridor at the Heller site could temporarily impact dispersal of CRLF through Porter Meadow. The utility corridor, which would extend in a north-south direction through Porter Meadow would be approximately 9-12 feet wide and 2,300-feet long. Construction of the utility corridor would take approximately 45 days and would involve trenching within grassland and other habitats and the installation of exclusion (silt) fencing that would temporarily disrupt the movement of CRLF through the meadow. To address potentially significant short-term construction-phase impacts on CRLF movement at the Heller site during the construction of utility improvements, **SHW Mitigation BIO-5B** is set forth below, which would reduce the impact to a less than significant level.

### **Hagar Site**

CRLF has not been recorded in the vicinity of the Hagar site due to the lack of suitable aquatic and breeding habitat. The Hagar site is also outside the portion of the campus that is mapped as designated critical habitat for the species (USFWS 2010). Although the Arboretum Pond is located approximately 0.5

mile to the west, the Hagar site is separated from that breeding site by several barriers to dispersal, including the Ranch View Terrace residential development, roads, and buildings associated with the Arboretum and the CASFS. Jordan Gulch, which is located to the west of the Hagar site, is not known to support CRLF due to the lack of suitable breeding or high quality non-breeding aquatic habitat (HT Harvey 2009, EcoSystems 2000). Therefore, the potential for the species to occur on the site is low. However, as noted in **Section 4.3.2.5**, although the Kalkar Quarry Pond and two additional ponds on private property southeast of the campus are not known to support CRLF, these ponds may provide suitable aquatic habitat for CRLF. Consequently, CRLF has the potential to disperse through the Hagar site while moving to and from occupied breeding habitat at the Arboretum Pond or aquatic habitat in Moore, Wilder, and Cave Gulch creeks to potential breeding or aquatic habitat in the Kalkar Quarry Pond and other ponds southeast of the Hagar site. Therefore, while the loss of CRLF of upland habitat due to the development of the Hagar site would be a less than significant effect, should CRLF disperse through the site during construction, CRLF could be adversely affected. This impact would be potentially significant. Additionally, trenching associated with off-site utility improvements could also affect CRLF, should it disperse through the work areas. **SHW Mitigation BIO-5A** and **5B** are set forth below to address these potential impacts.

Regarding the effect of runoff from the Hagar site on the Kalkar Quarry Pond, both in terms of a reduction in the volume of runoff discharged as well as the quality of the runoff, the impact of Hagar site storm water runoff on the Kalkar Quarry Pond volume and water quality is evaluated in **SHW Impact HYD-3**, and is determined to be less than significant. As there would be no changes in pond volume and water quality due to the project to affect pond's habitat values should CRLF be present in the pond, no indirect impacts on potential CRLF habitat would occur.

#### **Mitigation Measures:**

**SHW Mitigation BIO-5A:** In addition to LRDP Mitigation BIO-9, the project shall implement the following avoidance measures at both project sites.

- Prior to the commencement of construction activities, a qualified biologist shall be present a training session for all project personnel to provide an overview on the CRLF, applicable regulatory policies and provisions regarding their protection, and the avoidance and minimization measures to be followed to protect the species. All crew members shall be briefed on the reporting process in the event that an inadvertent injury should occur to a special-status species during construction. This

training shall be incorporated into the daily job orientation and safety training provided to new craft coming onsite.

- The biologist may train one or more members of the contractor staff to serve as biological monitor with responsibility for daily inspection of the construction fencing as described below.
- The contractor, in coordination with the biologist, shall install exclusionary fencing around the entire project work site. The fencing shall be heavy-duty silt-fence or similar material (not open-meshed). It shall be buried a minimum of 6 inches so that CRLF cannot crawl under the fence and shall be inspected and maintained throughout the construction period, as specified below.
- Installation of the fencing shall be monitored by the biologist. Cover boards shall be placed at approximately 100-foot intervals outside the fence to provide cover for wildlife that encounters the fence. Cover boards shall be monitored weekly by the biological monitor to ensure that they remain in place and are functional.
- A qualified wildlife biologist shall monitor all construction activities within CRLF upland or dispersal habitat daily during initial ground-disturbing activities, including grading, excavation, and vegetation removal.
- The biologist shall perform spot checks of the site once a week.
- If a CRLF is observed at any time during project activities, all work that may result in disturbance, injury, or mortality to the individual shall cease. The contractor shall notify the biologist, who shall in turn contact the Campus and USFWS.
- Prior to the start of daily construction activities, the biologist or a biological monitor trained by the biologist shall inspect the perimeter fence to ensure that it is not ripped or has holes and that the base is still buried. The fence shall also be inspected to

ensure that no CRLF are trapped in the fence. Any CRLF found along and outside the fence shall be closely monitored until the CRLF moves away from the construction area.

**SHW Mitigation BIO-5B:** Temporary exclusion fencing shall be placed around the perimeter of the trenched utility corridor and storm water improvements. If possible, all trenched areas shall be completed and backfilled by the end of the work day. Any open trenches that cannot be backfilled shall be covered by the end of the work day. If installation of the utility lines cannot be completed within one day, the utility lines and storm drains shall be trenched in sections no longer than 300 feet in length to allow CRLF movement around the exclusion fences. Trenching shall not occur in amounts greater than what can be completed during the following work day.

**Significance after Mitigation:** Implementation of LRDP Mitigation BIO-9 which is included in the proposed project, and **SHW Mitigations BIO-5A and -5B** would reduce the impacts to CRLF to a less than significant level.

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**SHW Impact BIO-6:** The proposed project could result in direct impacts to California giant salamanders. (*Potentially Significant; Less than Significant with Mitigation*)

No suitable habitat for California giant salamanders is present within or adjacent to the Hagar site. Construction of the project within the proposed utility corridor and storm drain improvements area within the California bay forest associated with the Heller site could directly impact California giant salamanders, particularly within the forest habitats, if present during construction activities. The impact would be potentially significant.

**Mitigation Measures:**

**SHW Mitigation BIO-6:** Implement **SHW Mitigations BIO-5A and -5B**.

**Significance after Mitigation:** Most of the measures listed in **SHW Mitigations BIO-5A and -5B** would also apply to California giant salamanders, other amphibians, reptiles, and small mammals and implementation of these measures, such as construction monitoring, and environmental awareness training would reduce the potential for direct impacts to California giant salamanders and other small

animals. Implementation of **SHW Mitigations BIO-5A and -5B** would reduce the impacts to California giant salamanders to a less than significant level.

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**SHW Impact BIO-7: The proposed project would not result in the loss or abandonment of active nests for special-status raptors and other special-status and protected birds. (*Less than Significant*)**

Tree removal and construction activities on the Heller and Hagar sites, if conducted during the nesting season, could result in the loss of active bird nests. Construction activities at both sites, including construction-related noise, could result in the loss or abandonment of active nests of special-status bird species, such as the golden eagle, northern harrier, long-eared owl, white-tailed kite, and other protected bird species, that may be present within and/or near the project sites and the utility corridors. However, the proposed project would implement LRDP Mitigation BIO-11, which sets forth measures that the Campus requires all projects to implement during construction to avoid impacts to nesting birds, including preconstruction surveys of all potential nesting habitats at and within 200 feet of the project work areas, and establishment of appropriately sized buffer zones in the event that active nests are observed in the survey area. Therefore, with the LRDP mitigation incorporated into the project, the impact of the proposed project on nesting birds would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-8: The proposed project would not result in a substantial adverse impact on western burrowing owl. (*Less than Significant*)**

Western burrowing owls are known to overwinter at UC Santa Cruz within the East Meadow and grasslands in the southwestern corner of the campus (CDFW 2017). Burrowing owls historically nested within the campus grassland habitat with several breeding pairs observed nesting during the 1970s, but nesting was last confirmed in the grasslands south of the East Remote parking lot in the early 1980s (UCSC 2006). Currently, burrowing owls are known to overwinter within the upper East Meadow south of the East Remote parking lot (CDFW 2017). The proposed Hagar site development would be located in the southern portion of the East Meadow. The site was surveyed by LSA for burrowing owls in December 2017. Although no ground squirrel burrows or other potential burrow sites were observed within the area proposed for development on the Hagar site during the survey, potential burrow sites were observed at the sinkhole/detention basin immediately adjacent to the site and within the proposed utility corridor

west of the site (**Figure 4.3-2**). Burrowing owls could also occur within the Porter Meadow adjacent to the Heller site. The proposed project would have the potential to impact western burrowing owls if the species were present on or adjacent to the sites during construction activities. However, LRDP EIR Mitigations BIO-12A and BIO-12B are applicable to the proposed project and would be implemented as part of the proposed project. These measures require that preconstruction surveys be conducted to confirm the absence of the species from the project construction areas and vicinity prior to commencement of construction. In the event that burrowing owls are found, all active burrow sites will be avoided to the extent feasible and non-disturbance buffers will be established. Therefore, with the LRDP mitigation incorporated into the project, the project's impact on burrowing owls would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-9:** **The proposed project would not result in a substantial adverse impact associated with the disturbance of roosting sites for special-status bats. (*Less than Significant*)**

Eight special-status bat species have the potential to forage over or roost near the project sites: pallid bat, Townsend's big-eared bat, western red bat, long-eared myotis, fringed myotis, long-legged myotis, yuma myotis, and greater western mastiff bat. However, habitat in the vicinity of the Hagar site is not highly suitable for these bat species and given the distance to the nearest trees that might contain roosts, noise from construction activities at the Hagar site is not expected to result in abandonment of roosts. With regard to the Heller site, although bats can roost in buildings, the buildings on the Heller site are occupied and well maintained and are unlikely to contain roosting bats. However, high quality roosting habitat is located within the forest habitat adjacent to the Heller site. Should special-status bat species establish a maternity or other roost near the Heller site, noise generated by construction could cause abandonment of roosts. The 2005 LRDP EIR set forth Mitigations BIO-13A and BIO-13B to avoid and minimize impacts on special-status bat species. Both measures are applicable to the proposed project and would be implemented as part of the proposed project. These measures require that preconstruction surveys be conducted to confirm the absence of active bat roosts from the project site and vicinity prior to commencement of construction. In the event that special-status bat roosts are observed during the preconstruction surveys, all roost sites will be avoided to the extent feasible and non-disturbance buffers will be established. Therefore, with the LRDP mitigation incorporated into the project, the project's impact on special-status bats would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-10:** **The proposed project would not result in a substantial adverse impact associated with the loss of potential San Francisco dusky-footed woodrat nests. (*Less than Significant*)**

Suitable habitat for San Francisco dusky-footed woodrat occurs in the California bay forest, redwood forest, and coyote brush scrub habitats within or adjacent to the Heller site and associated utility corridor. Inhabited woodrat nests have been observed in the north campus area (Bankie 2005 as cited in UCSC 2006) and in the Campus Natural Reserve (Jones & Stokes 2004 as cited in UCSC 2006). Construction activities within or immediately adjacent to the forest habitats and within the proposed utility corridor and the area of the storm water improvements at the Heller site could impact woodrat nests, if present. The 2005 LRDP EIR set forth Mitigation BIO-14 to avoid and minimize impacts on this species. The measure is applicable to the proposed project and would be implemented as part of the proposed project. It requires that preconstruction surveys be conducted to confirm the absence of the species from the project work areas prior to commencement of construction. In the event that active woodrat nests are observed, a 100-foot buffer shall be erected around the nest to avoid disturbance. Therefore, with the LRDP mitigation incorporated into the project, the project's impact on the San Francisco dusky-footed woodrat would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-11:** **The proposed project could interfere with the movement of wildlife species or with established native resident or migratory wildlife corridors. (*Potentially Significant; Less than Significant with Mitigation*)**

The 2005 LRDP EIR identified Moore Creek and Jordan Gulch as wildlife movement routes between the lower campus and the north campus (UCSC 2006). These corridors help provide connectivity for larger animals, such as raccoon, bobcat, gray fox, mountain lion, and black-tailed deer, to travel between the Great Meadow and adjacent open space areas of the upper campus, Wilder Ranch State Park, Pogonip City Park, and Henry Cowell Redwoods State Park. The proposed project would not affect these movement routes.

Wildlife movement corridors in the vicinity of the Heller site include the East Branch of Moore Creek to the east and Cave Gulch and Wilder Creek to the west. The intervening area between these drainages is

developed with Rachel Carson and Porter Colleges as well as the FSH complex, which reduce the ability of wildlife to pass through this area. East-west movement between these drainages is available via Porter Meadow, although Heller Drive, retaining walls and other development do reduce movement through the area.

Placement of the proposed housing on the developed FSH complex site would avoid any reduction in the area available to wildlife for movement via Porter Meadow. Furthermore, the proposed development at the Heller site has been designed to enhance wildlife corridors (**Figure 3.0-5a**). Construction of the proposed utility corridor at the Heller site, however, could temporarily impact movement of smaller animal species, such as CRLF (See **SHW Impact BIO-5**). However, implementation of **SHW Mitigation BIO-5** would reduce this impact to a less than significant level.

Development of the grasslands within the Hagar site would not significantly impact wildlife movement, since the large animal species could continue to move through a larger portion of the East Meadow north of the site, which would not be impacted. Additionally, other wildlife that currently move through the Hagar site are generally species that are adapted to the campus environment and would likely continue to move through or around the site after project construction is completed. The development is proposed at the lower end of the East Meadow near Hagar and Glenn Coolidge Drives and although the acreage of the meadow would decrease by approximately 17 acres, the proposed development would not fragment any grassland habitat within the East Meadow. The impact on wildlife movement at the Hagar site would be less than significant.

The proposed buildings at the Heller site would have the potential to affect movement of birds by causing birds to collide into the buildings. Resident and migratory birds could die or be injured by striking reflective and plate glass windows or other features associated with the new buildings. However, as discussed in **Section 3.0, Project Description**, bird-safe design features have been incorporated into the design of the buildings at the Heller site to make it easier for birds to detect buildings and avoid flying into the buildings. With respect to the Hagar site housing development, although the design of the project does not specifically include bird-safe design features, the buildings are low-rise (two stories), have variegated exteriors, and limited glazing. As a result, Hagar site development is also not expected to result in a significant impact on bird movement. However, to ensure the final designs of the project include appropriate bird safety designs, **SHW Mitigation BIO-11b** shall be implemented.

#### **Mitigation Measures:**

**SHW Mitigation BIO-11A:**      Implement **SHW Mitigation BIO-5**.

**SHW Mitigation BIO-11B:** The Campus shall review the final designs of the buildings at the Heller and Hagar sites to ensure that appropriate bird safety designs have been effectively incorporated to reduce potential impacts to birds.

**Significance after Mitigation:** Less than significant

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**SHW Impact BIO-12:** Outdoor lighting associated with the proposed project could impact wildlife behavior adjacent to the project sites. (*Potentially Significant; Less than Significant with Mitigation*)

Outdoor lighting could impact the behavior of wildlife species, such as CRLF and other nocturnal species. Artificial lighting could impact these species by altering their reproductive behavior, such as disrupting their territorial or courtship vocalizations. Wildlife that are active at night may avoid areas that are exposed to lighting, since many of these species use the darkness as cover to protect them from predation by other animals. Glare from the outdoor lighting has the potential to also impact Wilder Creek and the forest habitat surrounding the creek channel, which support habitat for CRLF, California giant salamanders, and other amphibians, which are often more active at night. The impact would be potentially significant.

**Mitigation Measures:**

**SHW Mitigation BIO-12:** Outdoor lighting shall incorporate the following design guidelines:

- New outer outdoor lighting shall be directed away from the habitat surrounding the sites and away from the proposed enhanced wildlife movement corridors.
- Dimmer lights, the use of motion sensors, and late night off-periods shall be used to minimize lighting impacts to the adjacent sensitive habitat.
- Generally following the International Dark-Sky Association guidelines for minimizing light pollution, outdoor lighting shall be provided in a manner that provides for nighttime safety, utility, security, and enjoyment while preventing light trespass into natural areas surrounding the sites.

- The design objective shall be to preclude any net increase in ambient lighting into adjacent sensitive habitats.
- All external lighting shall include full-cutoff angles, which focus on target areas and do not extend to adjacent sensitive habitat.
- Any pedestrian/bicycle pathway safety lighting shall be limited to low-bollard style lights that limit illumination to the trail surface.

**Significance after Mitigation:** Implementation of **SHW Mitigation BIO-12** would reduce the impact to a less than significant level.

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**SHW Impact BIO-13: The proposed project would not conflict with a local policy for protecting biological resources. (*Less than Significant*)**

LRDP policies for the protection of biological resources state that development will be sensitive to preservation of UC Santa Cruz's distinctive physical features, including ravines, major grasslands, chaparral, and areas of redwood and mixed evergreen forests, and that to the extent possible, development will minimize interruption of wildlife movement and fragmentation of habitats. The LRDP also notes that UC Santa Cruz will use financially viable sustainable design strategies to manage storm water, thereby preserving groundwater supplies, major springs, seep zones, year round springs, and major drainage channels, while at the same time preventing slope erosion.

As discussed under **SHW Impact BIO-5**, at the Heller site which is within an area that provides upland and dispersal habitat for CRLF, and is adjacent to forested lands that provide habitat for other species, the project has been designed to remain within the previously developed area and avoid and minimize impacts to biological resources. Furthermore, the project has been designed to avoid reduction in wildlife movement habitat and to enhance movement through the area. The Heller site development has been designed to include sustainable design strategies for storm water management consistent with NPDES requirements. With regard to the Hagar site development, the proposed development is clustered at the southeastern end of the East Meadow near the two existing roads and other nearby development. This manner of siting and development minimizes the amount of grassland habitat that would be removed and fragmentation or substantial loss of movement habitat. As the preceding analysis shows, with implementation of the LRDP and proposed project-specific mitigation measures, impacts to biological resources would be less than significant. Therefore, the project will not conflict with the 2005 LRDP

policies for the protection of biological resources on the campus, and the impact would be less than significant. The City of Santa Cruz and Santa Cruz County general plans and ordinances, including any tree protection ordinances, do not apply to the Campus.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-14:** **The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. (*Less than Significant*)**

The proposed project would not conflict with an adopted habitat conservation plan (HCP), natural community conservation plan, or other approved local, regional, or state habitat conservation plan. The Ranch View Terrace HCP addresses impacts of that project on CRLF and Ohlone tiger beetle. The proposed project is consistent with the Campus's commitments under the Ranch View Terrace HCP, and therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-15:** **The proposed project would not result in a substantial adverse impact on wetlands or other jurisdictional features. (*No Impact*)**

No wetlands or other jurisdictional features are present on the Heller site. Wilder Creek occurs near the Heller site but the proposed project would not involve any work within or near the creek. All of the off-site improvements would also not involve work within or near the creek or other jurisdictional features.

Similarly, no wetlands or other jurisdictional features occur at the Hagar site. Although a sinkhole/detention basin is present on the site, the sinkhole does not exhibit any bed or bank and no wetland indicator plant species or riparian vegetation is present in the area of the sinkhole. Therefore, the sinkhole is not considered a wetland or a jurisdictional feature. Furthermore, no project-related improvements are planned in the area of the detention basin/sinkhole. Jordan Gulch is located to the west of the Hagar site, and although two outfalls with energy dissipaters for the disposal of storm water and excess recycled water are planned to discharge into Jordan Gulch, the area where the outfalls would be located does not contain any wetlands nor does it display any stream channel features such as bed or bank. Although some riparian vegetation is present along Jordan Gulch, the area where the outfalls

would be located does not support any riparian vegetation. Consequently, the outfall structures would not be located in potentially jurisdictional waters. The proposed project would not impact wetlands or other potentially jurisdictional features.

Regarding the effect of runoff from the Hagar site on the Kalkar Quarry Pond both in terms of a reduction in the volume of runoff discharged as well as the quality of the runoff, the impact of Hagar site storm water runoff on the Kalkar Quarry Pond volume and water quality is evaluated in **SHW Impact HYD-3**, which shows that there would be no changes in pond volume and water quality due to the project. As there would be no changes in pond volume and water quality due to the project to affect pond's habitat values or potential jurisdictional features, no indirect impacts on a potential jurisdictional feature would occur.

**Mitigation Measures:** No mitigation is required.

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**SHW Impact BIO-16:** **The proposed project would not result in substantial adverse indirect impacts related to use of rodenticides, or from the introduction of pet dogs and cats to the project area. (*Less than Significant*)**

As noted in **Chapter 3.0, Project Description**, the project sites will be landscaped using climate adaptive landscaping, which will comprise low growing native plants, climate adaptive ornamental shrubs, and groundcovers. The open spaces and landscaping on both sites would be maintained by Capstone Management Partners. Rodenticides would be used only if needed, and their use would require the submittal and approval of an Integrated Pest Management plan that complies with the campus standards.

Pet dogs and cats and feral cats could prey on special-status birds, common birds, and other special-status or common wildlife species. However, the Campus will enforce its existing pet policy which does not allow students to have pet cats and dogs on the campus, and will enforce policies that restrict the feeding of feral cats at the Heller and Hagar sites.

For these reasons, implementation of the proposed project would not result in significant indirect impacts on special-status and common wildlife and plant species. The impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

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### 4.3.5 PORTER AND RACHEL CARSON DINING FACILITIES PROJECT IMPACTS AND MITIGATION MEASURES

#### Environmental Setting

Vegetation communities and land cover types at the sites of the related Porter and Rachel Carson dining facilities expansion project consists of wild oats grasslands and developed/landscaped areas (**Figures 3.0-8 and 3.0-9**). The wild oats grassland is a plant community that supports primarily annual non-native grass species. The proposed elevated seating and dining area associated with the Porter Dining Hall would be constructed over approximately 0.12 acre of wild oats grassland.

The area of the proposed Rachel Carson dining hall expansion is developed and/or landscaped, and does not provide habitat for special-status plant species. The grassland area where the Porter dining hall expansion is proposed was surveyed for plant species in 2016 (BRG 2016). No special-status plant species were observed in the area during the focused surveys.

The project sites are mapped within the USFWS-designated critical habitat for CRLF (USFWS 2010). The area of Rachel Carson dining hall expansion is developed and/or landscaped, with retaining walls that form barriers to CRLF movement, and therefore does not qualify as designated habitat or suitable dispersal habitat. The grassland habitat south of the Porter dining hall provides suitable dispersal habitat for CRLF that may disperse between Wilder Creek and Moore Creek (**Figure 4.3-3**). Other wildlife, such as black-tailed deer may also forage and move through this grassland habitat. No other special-status wildlife species are likely to occur within these grasslands since they are situated closed to the existing development at Porter College, are frequently mowed, and thus provide limited cover for wildlife, but birds protected by the Migratory Bird Treaty Act and/or California Fish and Game Code could nest in the area.

#### Impacts and Mitigation Measures

**DF Impact BIO-1: The proposed dining facilities expansion project would not result in potential significant impacts to nesting birds. (*Less than Significant*)**

Construction of the proposed Porter and Rachel Carson dining facilities could result in adverse impacts on nesting birds, if active bird nests are present on or near the sites at the time of construction. Construction activities could directly impact active bird nests or result in nest abandonment, which would be a violation of the Migratory Bird Treaty Act and/or California Fish and Game Code. However, the proposed dining facilities expansion project would implement LRDP Mitigation BIO-11, which sets forth measures that the Campus implements to avoid impacts to nesting birds, including preconstruction surveys of all potential nesting habitats at and within 200 feet of the project work areas, and

establishment of appropriately sized buffer zones in the event that active nests are observed in the survey area. Therefore, with the LRDP mitigation incorporated into the project, the impact of the project on nesting birds would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**DF Impact BIO-2: The proposed dining facilities expansion project would result in potential significant impacts to California red-legged frog. (*Potentially Significant; Less than Significant with Mitigation*)**

3057403.1 Design of the Porter dining hall expansion would either consist of the addition of a second story to the existing building or if it is a building extension, the extension would be constructed on piers to allow CRLF to continue to move through and use the site, which will avoid the removal of any suitable upland or dispersal habitat for CRLF.

While the proposed project design would avoid loss of CRLF upland habitat, construction activities at the Porter Dining site could directly impact CRLF, if present on the site during project construction. The 2005 LRDP EIR included LRDP Mitigation BIO-9, which stipulates the conditions that construction projects must comply with to avoid mortality of CRLF during project construction. While this mitigation measure would be implemented as part of the proposed project and would help reduce the impact on CRLF during construction, the impact would still be potentially significant. Additional avoidance measures are identified in **DF Mitigation BIO-2**, which is the same set of avoidance measures submitted to and reviewed by the USFWS for **SHW Mitigation BIO-5A**, would reduce impacts related to construction activities to a less than significant level.

**Mitigation Measures:**

**DF Mitigation BIO-2:** Implement **SHW Mitigation BIO-5A**.

**Significance after Mitigation:** Implementation of **SHW Mitigation BIO-5A** would reduce the impact to a less than significant level.

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**DF Impact BIO-3: Implementation of the proposed dining facilities expansion project would not interfere with wildlife movement. (*Less than Significant*)**

Expansion of the dining facilities at Rachel Carson College would not interfere with wildlife movement as the improvements would be located within a developed area that does not currently provide high quality wildlife movement. The proposed Porter dining hall expansion could, however, impact existing wildlife

movement in the vicinity but the impact would not be significant for reasons presented below. During construction, wildlife may alter their movements to surrounding grassland areas, however that impact would be temporary and of a short duration. Regarding long-term impacts on wildlife movement, although the expansion area is situated within undeveloped wild oats grassland, this grassland is mowed and is situated immediately adjacent to the existing dining hall facility where wildlife movement is less frequent due to the lack of higher quality grasslands with cover and proximity to human activity and not likely to be used for movement by special-status species, such as CRLF. Because the proposed seating and dining area would be elevated, CRLF and other animals, such as lizards and small mammals would be able to continue to move through the site. Furthermore, a relatively large area of grassland within the existing wildlife movement corridor, which provides a greater amount of wildlife movement, would remain intact. For these reasons, the impact of the expansion project on wildlife movement would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**DF Impact BIO-4: Implementation of the proposed dining facilities expansion project would not result in any significant conflicts with local plans and policies. (*Less than Significant*)**

The City and County plans and ordinances are not applicable to the dining facilities expansion project. The project has been designed to reduce impacts to biological resources and with implementation of the LRDP mitigation measures and other mitigation measures, impacts to biological resources would be less than significant.

**Mitigation Measures:** No mitigation is required.

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#### 4.3.6 CUMULATIVE IMPACTS AND MITIGATION MEASURES

**SHW Impact C-BIO-1: The proposed project, in conjunction with other past, present and reasonably foreseeable future development, would not result in significant cumulative impacts on biological resources. (*Less than Significant*)**

The cumulative impacts of campus development under the 2005 LRDP along with other development in the City of Santa Cruz, on biological resources are analyzed in the 2005 LRDP EIR under LRDP Impacts BIO-17, BIO-18, and BIO-19, and were determined to be less than significant because campus projects would be required to implement appropriate LRDP mitigation measures to avoid or minimize impacts to significant resources.

The redevelopment of the Heller site was envisioned and evaluated in the 2005 LRDP EIR. Furthermore, impacts to biological resources associated with the Heller site would be minimal due to the housing development being confined within the existing FSH site. The development of the Hagar site was not foreseen or analyzed in the 2005 LRDP EIR, and the development of the Hagar site would result in the loss of approximately 17 acres of the lower East Meadow, which supports purple needlegrass grassland and provides foraging and movement habitat for wildlife. However, the remaining portion of the East Meadow and the larger tracts of grasslands within the project vicinity would remain unaffected and available for foraging and wildlife movement, and the loss of purple needlegrass grassland would be mitigated. Furthermore, as stated in the project-level impact analysis above, as an element of the planned development under the 2005 LRDP, the proposed project would implement all applicable mitigation measures from the 2005 LRDP EIR as well as additional project-specific mitigation measures as necessary, and therefore with mitigation, would not result in new or greater impacts than previously analyzed in the 2005 LRDP EIR. The cumulative impacts of the proposed project are adequately addressed by the analysis in the 2005 LRDP EIR, and would be less than significant.

**Mitigation Measures:** No mitigation is required.

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