

## 4.3 BIOLOGICAL RESOURCES

### 4.3.1 Introduction

This section presents existing RBC site biological resources and analyzes the potential for development under the 2014 LRDP to affect those resources. Information and analysis in this section is based on California Natural Diversity Database (CNDDDB) searches (CNDDDB 2012), several previous reports including RFS Habitat Assessment Report and RFS Constraints Analysis (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a, 2012), the RFS Remediation Project IS (URS 2003), UC Richmond Field Station's Remnant Coastal Terrace Prairie (Amme 2005), RFS Grasslands Constraints Analysis (Wildlife Research Associates and Jane Valerius Environmental Consulting 2013a), URS (2007) Botanical Survey Report, The Watershed Project (2007) Remediation and Restoration Progress Report, Lidicker et al. (2003) compendium of flowering plants at the Richmond Field Station, The Manual of California Vegetation (Sawyer et al. 2009), and Richmond Field Station Remediation Project Biological Assessment Report (Blasland, Bouck, and Lee, Inc. 2003). A Tetra Tech biologist and professional wetland scientist conducted a site visit and general biological survey on January 4, 2013 (Tetra Tech 2013a). Tetra Tech biologists delineated wetlands on February 13 and 15, 2013 (Tetra Tech 2013b).

The biological resources discussed in this section are vegetation communities, wildlife habitats, wildlife movement corridors, common wildlife, special-status plant and wildlife species, and sensitive natural communities, including wetlands.

Public and agency NOP comments related to biological resources are summarized below:

- Conduct a thorough biological site survey;
- Analyze project impacts on all biological resources;
- The site contains remnant native coastal prairie grasslands that occur in very few locations, possibly only at this site;
- Native coastal prairie grasslands should be preserved on-site, and direct and indirect impacts should be prevented during construction and subsequent operations, including by use of buffer zones;
- Remnant California poppy (*Eschscholzia californica*) and Rancheria clover (*Trifolium alborpurpureum*) populations should be preserved in landscaping plans;
- Specify a weed management plan for the project, including controlling threats to the native grasslands, controlling invasive species such as Italian fennel and pampass grass in the marsh;
- Use local-endemic ecotypes wherever native plants are prescribed;
- Demolition, tree removal, construction, and restoration activities may impact wildlife;
- Impacts on species listed under the US or California Endangered Species Act, including California clapper rail, may require mitigation and permitting;
- Implement measures to reduce impacts on wildlife: minimize outdoor lighting, restrict human presence near sensitive habitats, control trash, reduce construction and operating noise, use bird-safe building standards, avoid structures that could serve as raptor perches near the shoreline, and provide setbacks from the shoreline;
- The project area is adjacent to recently restored wetlands; and
- Comply with local and regional land use laws, regulations, and plans.

## 4.3.2 Environmental Setting

### **Vegetation Communities**

The project site has five general vegetation communities: native grasslands, non-native grasslands, ornamental/landscaping, eucalyptus stands, and tidal salt marsh (Figure 4-8).

#### Native Grassland

Native grassland communities include California oatgrass and purple needlegrass alliances. California oatgrass grassland is dominated by California oatgrass (*Danthonia californica*). Other species noted in this community includes soft chess (*Bromus hordaceus*), Italian ryegrass (*Lolium multiflorum*), English plantain (*Plantago lanceolata*) and bristly ox-tongue (*Picris echioides*). This community has been reported in all meadows except the Far North Meadow (URS 2007) (Figure 4-8). Harding grass (*Phalaris aquatica*), a non-native species, has invaded much of the oatgrass grassland areas and some areas are slowly transitioning into coastal scrub by the invasion of coyote brush (*Baccharis pilularis*) (URS 2007).

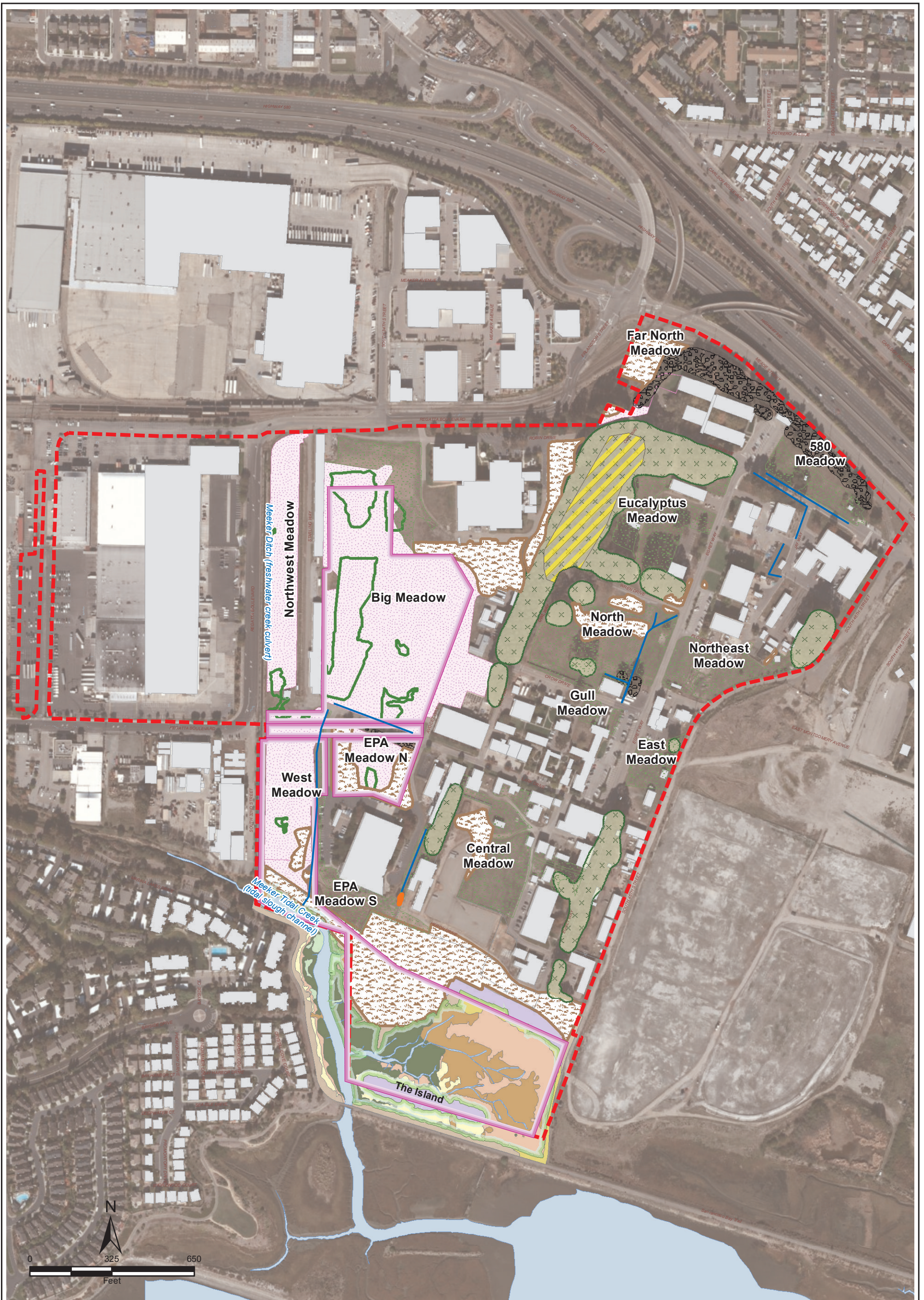
Purple needlegrass grassland also occurs in several areas. Purple needlegrass (*Nasella pulchra*) is typically found in deep soils with high clay content. Nonnative species are also common in this community type and include rattail fescue (*Vulpia myuros*), sixweeks fescue (*Vulpia bromoides*), silver European hair grass (*Aira caryophyllea*), ripgut brome (*Bromus diandrus*), soft chess, and red brome (*Bromus madritensis*). This community has been reported in all meadows except the Far North Meadow (URS 2007).

California “coastal prairie” or “coastal terrace prairie” are “communities,” or conglomerations of native perennial and/or annual grasses that inhabit moist, temperate areas of the California coastal region. Such grasslands occurring along the north and central California coast experience a milder climate than interior grasslands, with weather mediated by fog. These grasslands are typically dense or tall and may be naturally patchy, reflecting differences in soils and moisture availability. Although none of the species found in a coastal prairie are necessarily rare or endangered, the grassland community itself is an uncommon configuration of species. As noted in Table 4.3-1 below, there are no known occurrences of special status (endangered or rare) plant species occurring at the RBC site. However, some plants occurring at the site are uncommon locally.

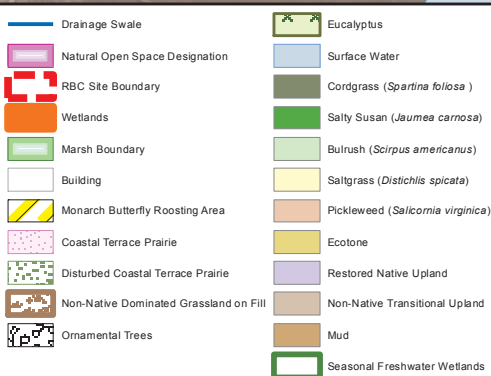
A 1999 report estimated that moist grasslands occur on about 7,000 acres in the San Francisco Bay Area, a decline from approximately 60,000 acres in historic times (Goals Project 1999). Coastal terrace prairie may be characterized by different species; the oatgrass and purple needlegrass community at the RFS makes up an even smaller portion of the remaining moist grasslands. In addition to occurrences at the RFS, coastal prairie grasslands occur in the vicinity at portions of the San Pablo Peninsula, such as Point Molate (City of Richmond 2013). Coastal prairie grasslands also occur on Brooks Island (Goals Project 1999).

The RFS occurrence of coastal terrace prairie is considered unique as “the only Coastal Terrace Prairie in lowland clay soils in the greater East Bay Area.” This soil type comprises the majority of the RBC site upland area (Amme 1993). A 1993 study concluded that “the remnant coastal prairie grassland at Richmond Field Station is scientifically and ecologically invaluable, and virtually impossible to recreate” (Amme 1993). In August of 1996, then-UC Berkeley Chancellor Chang-Lin Tien wrote then-Assembly member Tom Bates proposing, subject to approval, a commitment to incorporate a wetland and grassland reserve into long range plans at the Richmond Field Station. The letter identified approximately 8.7 acres of coastal grasslands at the RFS site, setting this acreage aside as a reserve. This acreage is at the core of the Natural Open Space proposed in the LRDP (Figure 4-8).





This figure depicts existing conditions across the RBC site and the area designated as Natural Open Space in the 2014 LRDP.



## Biological Resources

Richmond, California

Figure 4-8



UC Berkeley has maintained its commitment through passive preservation of the grasslands. However, since 1996 the grasslands have also been the subject of some restoration effort (Watershed Project 2007) and of academic study at UC Berkeley.

Grasslands are a dynamic resource, and human understanding of coastal prairie grasslands has evolved over time. Based upon its reserve status, the RFS reserve areas were left undisturbed and mowing of them was discontinued beginning in the 1990s. Stewards have since learned that native grasslands should not go untouched, but instead are sustained by disturbances such as mowing, fire, grazing and burrowing that help reduce competition from non-native species. Native grasslands have been shown to benefit from types of disturbance that help to limit invasion by non-native species, or limit invasion by successional species (Immel-Jeffery et al. 2013). In the 1993 study of the RFS, the area west of Building 280 at the RFS was not identified as coastal terrace prairie grassland. Known as the Northwest Meadow, it was mowed routinely, and today exhibits characteristics of a high quality coastal terrace prairie grassland (Wildlife Research Associates and Jane Valerius 2013a). Meanwhile other areas have deteriorated (RFS 2012 Restoration Report, ESPM 187, p. 6; page 22). In 2007, mowing protocols for the reserve areas were re-instituted and are followed today.

Since 1993 the effort to protect grasslands in the city of Richmond has expanded. The East Bay chapter of the California Native Plant Society has designated the entirety of the Richmond shoreline as a botanical priority protection area. CNPS is an advocacy organization with not-for profit status; members of CNPS include biologists and horticulturists as well as amateur enthusiasts. CNPS has developed a “Rare Natural Communities Initiative” stating that “of key importance to CNPS are those vegetation communities that are, in and of themselves, rare” including “high quality stands of native north coastal terrace prairie” (CNPS Undated).

The science of restoration, once thought to be “nearly impossible” (Stromberg et al. 2007) has progressed and evidence of restoration can be seen at the RBC site as well as elsewhere in California (e.g., CNPS Undated, Kraft et al. 2007, Watershed Project 2007). Restoration can be a very detailed and resource intensive process; it requires a detailed management strategy for many years after initial project implementation (Stromberg et al. 2007, Kraft et al. 2007).

The coastal terrace grassland community on the RBC site is composed of valley needlegrass grassland (also known as purple needlegrass alliance) and California oatgrass bunchgrass grassland alliance. The community at the site is considered to be a “sensitive natural community of limited distribution” under protocols prepared by CDFW (CDFG 2009).

It is common for grasslands to be variable in quality and species composition. This is the case for the grasslands at the RBC site as described below. The highest quality meadows on the site are identified here as the “sensitive natural community.”

Wildlife Research Associates and Jane Valerius Environmental Consulting (2013a) evaluated the condition of these grasslands in spring 2012 to update the previous condition assessment by URS (2007). Their goal was to rank the quality of coastal-terrace prairie grassland habitat based on presence of absolute cover of purple needlegrass (5%) and/or California oatgrass (greater than 25%), as described by the membership rule of the series in the Manual of California Vegetation (Sawyer et al. 2009); the quality ranking was not dependent on the presence of other native plant species. The rankings used to classify the RBC meadows are:

- *High Quality*: California oatgrass (>50%) or purple needlegrass (>20%),
- *Medium Quality*: California oatgrass (25-50%) or purple needlegrass (5-19%), and
- *Low Quality*: California oatgrass (0-24%) or purple needlegrass (0-4%).

Further qualitative evaluation of the coastal-terrace prairie grass was based on:

- Consideration of nearby populations and total species distribution,
- The consideration of nearby occurrences of special-status communities and natural community distribution, and
- Analysis of potential threats, including those from invasive species, to the plants and natural communities.

The evaluation concluded that there are 22 acres of high quality coastal terrace prairie grassland habitat at the RBC site (Wildlife Research Associates and Jane Valerius Environmental Consulting 2013a).

The grasslands that support high-quality coastal terrace are in the Big Meadow, West Meadow, Northwest Meadow, and EPA North Meadow in the central-western portion of the RBC site (Wildlife Research Associates and Jane Valerius Environmental Consulting 2013a). The Big Meadow represents the only known coastal-terrace prairie grassland on lowland clay soils (Clear Lake-Cropley and Capay-Rincon soil types) in the greater East Bay Area (Amme 2005). The coastal-terrace prairie grassland community in the Big Meadow, West Meadow, and other meadows supports populations of plant species with very limited distribution in Contra Costa and Alameda Counties (EBCNPS 2004).

#### Non-Native Annual Grassland

Non-native annual grasslands on the RBC site are primarily dominated by Harding grass, wild oats (*Avena* sp.), ripgut brome, soft chess, Italian ryegrass, and hare barley (*Hordeum murinum* ssp. *leporinum*) along with non-native forbs such as English plantain, geraniums (*Geranium dissectum* and *G. molle*), black mustard (*Brassica nigra*), chicory (*Cichorium intybus*), and teasel (*Dipsacus fullonum*) (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a). Non-native annual grasslands are dispersed throughout much of the RBC site.

Portions of the annual grassland habitat were noted to include wetland plants such as umbrella sedge (*Cyperus eragrostis*), Dallis grass (*Paspalum dilatatum*), bristly ox-tongue (*Picris echioides*) and bird's-foot trefoil (*Lotus corniculatus*).

#### Ornamental/Landscaped

Areas around buildings include landscaping and ornamentals such as cotoneaster (*Cotoneaster* sp.), firethorn (*Pyracantha* sp.), blackwood acacia (*Acacia melanoxylon*), wax myrtle (*Myrica californica*), Monterey pine (*Pinus radiata*), and olive (*Olea Europa*) (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a).

#### Eucalyptus Stands

The eucalyptus stands are dominated by blue gum (*Eucalyptus globulus*). Understory is limited under the blue gum trees and is composed of non-native annual grasses and forbs. The eucalyptus stands occur in the central portion of the RBC site and run from north to south (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a) (Figure 4-8). A majority of the trees were planted more than a century ago by the California Cap Company to create a blast barrier between the cap company and the adjacent properties. Recent tree failures have shown the stands are infected with heart rot, a fungal disease that causes the decay of wood at the center of the tree. Heart rot is a major factor in the economics of logging and the natural growth dynamic of many older forests. As the fungi grow, they decay more wood and the tissue becomes increasingly soft and weak. The trees will continue to grow around the decayed heart wood because the live wood is not affected; however the extensive decay makes the tree more

susceptible to broken branches and causes sudden failure of the tree. Increased failures of the eucalyptus trees at the RBC site have been occurring over the last 10 years (Shackleton 2013).

### Salt Marsh

Western Stege Marsh on the southern portion of the RBC site includes high marsh, low marsh, tidal mudflat, and open water slough habitats (Blasland, Bouck, and Lee, Inc. 2003) (Figure 4-8). The high marsh is dominated by inland saltgrass and the low marsh is dominated by pacific cordgrass (*Spartina foliosa*). Inland saltgrass is typically found in temperate grassland with sparse shrub layer. The areas that are now Western Stege Marsh and the transition area just north of the marsh were historically intertidal mudflats. Offshore breakwaters constructed in the 1930s and the rerouting of Meeker Creek from further west to its current location resulted in soil deposition and transition of the mudflats to the tidal marshland which exists today.

### **Wetland and Aquatic Features**

Western Stege Marsh and Meeker Slough, in the Natural Open Space in the southern portion of the RBC site, include high marsh, low marsh, tidal mudflat, and open water slough habitats (Blasland, Bouck, and Lee, Inc. 2003; Tetra Tech 2010). They are all jurisdictional wetlands (Figure 4-8). The primary hydrologic feature in the area is the approximately 40- to 50-foot wide Meeker Slough. The high marsh is dominated by inland saltgrass and the low marsh is dominated by pacific cordgrass. Inland saltgrass is typically found in temperate grassland with sparse shrub layer. Habitats can be irregularly flooded or permanently saturated with shallow water table in haline or saline water chemistry (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a). Western Stege Marsh is considered a sensitive natural community. The saltmarsh habitat provides high quality wildlife habitat for numerous special-status species and also functions to reduce erosion and sedimentation.

Prior to the RBC site's ownership by UC, historical industrial operations on it and adjacent properties caused sediment contamination in the Western Stege Marsh (Tetra Tech 2010). UC Berkeley undertook Western Stege Marsh remediation beginning in 2002 in response to the October 2001 San Francisco Bay RWQCB Order (No. 01-102) issued to UC Berkeley and Zeneca. Remediation was conducted in three phases during 2002, 2003 and 2004. Five years of remediation monitoring was completed in 2010.

Other than Western Stege Marsh and Meeker Slough, additional small areas of wetland could be present on the RBC site. Most of the site has not yet been delineated. Ponded water has been observed in annual grassland habitat for extended periods throughout the rainy season and may constitute potentially jurisdictional seasonal wetlands. These ponded areas were noted to include wetland plants, such as umbrella sedge, Dallis grass, bristly ox-tongue, and bird's-foot trefoil. Given the low-lying aspect of the grassland areas and adjacency to the tidal salt marsh, some of the depressional areas in the grassland may qualify as jurisdictional wetlands.

A wetland delineation (Tetra Tech 2013b) was conducted for the southeastern portion of the RBC site in February 2013. One 300-square foot herbaceous wetland swale was identified and delineated downstream of a drainage channel, approximately 50 feet east of the southeastern corner of the EPA Building (Figure 4-8).

The most common plant species observed in the wetland swale were brown-headed rush (*Juncus phaeocephalus*), followed by Harding grass. Clay loam soils with characteristics indicative of hydric soils are present. The wetland swale water source is largely from the drainage channel from the north. To the east, a second culvert appears to also convey water, as indicated by the location of known underground water conveyances. Water is conveyed southward from the wetland swale through a third culvert where it flows to another open swale for approximately 20

feet. Beyond this point, there is very little evidence of an open swale. Another underground culvert carries water off the RBC site to Western Stege Marsh. Due to topographic variation (gradual sloping to the southeast) below the third culvert and lack of sufficient moisture, the wetland swale does not appear to be directly hydrologically connected to navigable waters of Meeker Slough; as a result, the wetland swale does not appear to be jurisdictional and is periodically maintained as a drainage ditch. USACE has not yet made its formal jurisdictional determination, but during an inspection of the site, USACE staff commented that the features do not appear to be jurisdictional for these reasons.

### **Wildlife Habitats**

#### Grasslands

Grassland habitat, including native and non-native grasslands, provides primary habitat, such as nesting and foraging, and secondary habitat, such as movement corridors. Small species using this as primary habitat include reptiles and amphibians, such as southern alligator lizard (*Gerrhonotus multicarinatus*), western fence lizard (*Sceloporus occidentalis*), and Pacific slender salamander (*Batrachoseps attenuatus*) (Wildlife Research Associates and Jane Valerius 2013a). These grasslands may also attract seed-eating and insect-eating birds and mammals. California quail (*Lophortyx californicus*), mourning dove (*Zenaidura macroura*), and meadowlark (*Sturnella neglecta*) are a few seed-eaters that nest and forage in grasslands. Insect-eaters, such as scrub jay (*Aphelocoma coerulescens*), barn swallow (*Hirundo rustica*), and mockingbird (*Mimus polyglottus*), use the habitat for foraging only. Additional species that could use the grasslands include American crow (*Corvus brachyrhynchos*) and western bluebird (*Sialia mexicana*). Grasslands are important foraging grounds for aerial and ground foraging insect-eating bat species, such as myotis (*Myotis* spp.) and pallid bat (*Antrozous pallidus*). A large number of other mammal species, such as California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), and black-tailed jackrabbit (*Lepus californicus*), also forage within grasslands and have been reported on the site (Gustein 1989). Small rodents attract raptors (birds of prey), such as owls that hunt at night, as well as dayhunting raptors such as red-tailed hawks (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), among others, which have been reported on the site (Gustein 1989). Black-tailed deer (*Odocoileus hemionus californicus*) use grassland for grazing and, if the grass is tall enough, for bedding at night. Surveys of the coastal terrace prairie grasslands for moth and butterfly species in the early 1990s found five or six species not known to occur in the East Bay previously (UC Berkeley 1992, 1994). These species are rare in the East Bay area, but are not designated special status species.

#### Salt Marsh

The Richmond Inner Harbor and associated saltmarsh in Western Stege Marsh is on the RBC site southern boundary. Species occurring in the salt marsh habitat include great blue heron (*Ardea herodias*) and great egret (*Ardea alba*). They forage in the salt marsh and nest in nearby riparian areas. Shorebirds, such as black-necked stilt (*Himantopus mexicanus*), willet (*Catoptophorus semipalmatus*), American avocet (*Recurvirostra americana*), and gulls (*Larus* spp.), use salt marshes for foraging on crustaceans and arthropods. Waterfowl use saltmarshes for feeding and resting during the winter and spring migrations along the Pacific Flyway. Feral cats and red fox (*Vulpes vulpes*), both non-native species, have become a recent threat to mammalian and avian species using salt marshes and other wetlands. Saltmarsh habitat provides important foraging and drinking areas for bats such as *Myotis* species and pallid bat (*Antrozous pallidus*). Several special status wildlife species are unique to this habitat, including California clapper rail (*Rallus longirostris obsoletus*) that has been reported in Western Stege Marsh (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a).

### Eucalyptus Stands

RBC site eucalyptus stands are shown on Figure 4-8. The monarch butterfly (*Danaus plexippus*) is known to form tight aggregations during the winter months, often in eucalyptus trees, for cover and thermal regulation. Monarchs historically depended on native California trees but, due to land development, logging, and land management, have had to rely more on non-native eucalyptus trees in the last century. Potential negative impacts of eucalyptus trees on monarch butterflies are not well understood. Eucalyptus appears to offer less protection to butterflies and birds from wind and precipitation than native pines, cypress, and redwood (Stock et al. no date; Williams 2002). The eucalyptus trees provide cover and potential nesting habitat for raptors and songbirds. Because of the physical characteristics of these trees, nests are more likely to be shaken out of eucalyptus trees by the wind. Thus, eucalyptus may provide habitat for monarchs and birds, and be a sink, attracting these species to a habitat that can be harmful. Because any large tree has some potential for roosting bats, especially those with hollows or loose bark, bats could roost in these trees. The lack of understory minimizes the use of this habitat by insects and invertebrates (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a).

### Developed

There are several structures on the RBC site (Figure 4-8). Bird species that potentially use these structures include passerines (songbirds), such as barn swallow (*Hirundo rustica*), black phoebe (*Sayornis nigricans*), and European starling (*Sturnus vulgaris*), and raptors, such as barn owl (*Tyto alba*). These species have adapted to the disturbances associated with human settlements and will nest and forage near humans. In general, the nesting season for both passerines and raptors typically begins at the end of February and may last up to mid-August.

Buildings also provide bat roosting habitat. Because bats show high roost fidelity, it is possible for older structures to provide roost habitat for decades. Not all buildings available to bats provide the temperature, humidity, and other requirements for bats. As a result, not all buildings provide suitable roost habitat (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a). Other mammal species that could use developed habitats include cottontail (*Sylvilagus bachmani*), house mouse (*Mus musculus*), deer mouse (*Peromyscus maniculatus*), raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), and opossum (*Didelphis virginiana*).

### **Wildlife Movement Corridors**

Wildlife movement includes migration (*i.e.*, usually one way per season), inter-population movement (*i.e.*, long-term genetic flow) and small travel pathways (*i.e.*, daily movement corridors in an animal's territory) (McCullough 1996). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow between populations.

Overall, the RBC site provides a mosaic of habitats that are accessible to mobile wildlife species, particularly birds. The site offers foraging, nesting, and roosting habitats for many species. Movement corridors in the RBC site include the Western Stege Marsh to the south, Meeker Slough that runs along the western border and the meadows in the western portion of the site (Figure 4-8). The eucalyptus stands provide movement corridors for those species that require cover, such as wild turkey (*Meleagris gallopavo*) and California towhee (*Pipilo crissalis*). The developed habitat provides a potential area for movement for common mammalian species, such as raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), and opossum (*Didelphis virginiana*).

### **Wildlife**

Wildlife resources at the RBC site and vicinity include numerous species of invertebrates, fish, reptiles, amphibians, birds, and mammals (including bats) in habitats as described above.



Developed areas provide little habitat value to most wildlife species; therefore, wildlife on the property consists of species that have adapted to the human-influenced landscape. The general lack of understory growth does not provide much habitat for insects and invertebrates and in turn, there are few reptiles (which feed upon insect prey). In general, wildlife species are not expected to be found in any consistent numbers within developed areas at the RBC site and the available habitat would mainly be used for cover or resting. Small mammal species that may be found with developed areas on the site include cottontail, black-tailed jackrabbit, house mouse, deer mouse, pocket gopher, and squirrels. Striped skunk and red fox prey on the smaller mammal species.

Representative birds at the site include gulls, herons, waterfowl, hummingbirds, swallows, raptors, northern mockingbird, European starling, American crow, western meadowlark, western bluebird, Saltmarsh common yellowthroat, Alameda song sparrow (*Melospiza melodia pusilla*), and the western meadowlark as described above.

There are numerous RBC site structures that may be used by various passerine bird species, such as barn swallow and black phoebe, and raptor species, such as barn owl. These species have adapted to the human disturbance and nest and forage near humans. In general, the nesting season for passerines and raptors typically begins at the end of February and may last to mid-August. The conclusion of the nesting season varies according to species; certain bird species can produce up to three broods each year (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a).

The state of California considers the monarch butterfly (*Danaus plexippus*) to be restricted in its distribution, declining throughout its range, or associated with declining habitats in California. This species is well known for its long migrations. They travel between 1,200 and 2,800 miles or more from the United States and Canada to central Mexican forests where they overwinter. The mountain forests provide areas for hibernation and the less extreme climate gives them a better chance to survive. Monarchs seasonally occur in the RBC site eucalyptus stands and landscaped areas. They use the eucalyptus trees for cover and for thermal regulation during the winter months as described in the earlier Eucalyptus Stands section (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a). Surveys of the coastal-terrace prairie grasslands for moth and butterfly species in the early 1990s found five or six species not known to occur in the East Bay previously. These species are rare in the East Bay area but not special status species.

### **Special-Status Species**

The analysis addresses all special-status species with the potential to occur on the RBC site. For this EIR, special-status species are those that are legally protected by CDFW, USFWS, or the Migratory Bird Treaty Act (MBTA). State and federally listed species known or that have the potential to occur are listed in Table 4.3-1. Legally protected species include those that are federally listed as endangered, threatened, or candidate species under the ESA; that are state listed as endangered, threatened, rare, California fully protected, or species of special concern under the California Endangered Species Act (CESA) or California Fish and Game Code; or that are listed in the MBTA. Protected species include those plant species listed as 1A or 1B on the California Native Plant Society (CNPS) plant list (CNDDDB 2012). The 1A list is for plants presumed to be extinct in California, and the 1B list is for plants that are rare or endangered in California and elsewhere. These laws are described in Section 4.3.3. No special-status invertebrates, reptiles, amphibians, fish, or plants meeting the above criteria have been documented at the RBC site, and no suitable habitat is present (Table 4.3-1) (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a; CNDDDB 2013).

## **Birds**

The RBC site consists of several vegetation communities, as described above, in close proximity to each other, adjacent to surface water associated with the bay. This combination provides food, water, and cover for a relatively diverse avian community. These habitats offer perching, roosting, foraging, migrating, and breeding opportunities for a variety of avian species. A relatively large number of bird species have been documented on the site (Loughman 1989, eBird 2014, Berthelsen no date). A portion of these species nests at the RBC site, while others may nest elsewhere and forage at the RBC site, especially at the Western Stege Marsh, Meeker Slough, and the grasslands. A substantial number of species may only occur briefly during migration in the spring and fall especially at Western Stege Marsh and Meeker Slough. Special status bird species that could occur at the RBC site are described below.

### Migratory Bird Treaty Act

Most native bird species, including all raptors, are protected under the MBTA. Passerine birds such as the Allen's (*Selasphorus sasin*) or Anna's hummingbird (*Calypte anna*) may occur as they feed on the flower nectar in the developed, horticultural landscaped areas. Raptors such as the American kestrel (*Falco sparverius*), osprey (*Pandion haliaetus*), barn owl (*Tyto alba*) and northern harrier (*Circus cyaneus*) likely roost and forage in the grasslands and marsh. A variety of bird species may nest on and in the buildings, including cliff swallow, barn swallow, black phoebe, barn owl, and American kestrel. Most of the bird species described above under Wildlife Habitats are protected by the MBTA with the exception of non-native species such as European starling. The marsh provides habitat for open water species, including pied-billed grebe (*Podilymbus podiceps*), double-crested cormorant (*Phalacrocorax auritus*), caspian tern (*Sterna caspia*), and a variety of duck species, all of which are protected under MBTA. The grasslands provide habitat for a variety of grassland birds, such as western meadowlark, as described above under Wildlife Habitats.

### Endangered Species Act

The California clapper rail is a medium-sized waterbird listed as Endangered under the ESA (EPA 2010). This species uses salt marshes dominated by pickleweed and Pacific cordgrass and make use of small tidal sloughs for foraging, movement corridors, and escape habitat. They construct nests out of primarily either pickleweed (*Salicornia virginica*) or cordgrass (*Spartina foliosa*). They primarily eat invertebrates. California clapper rail is known to nest and forage in Western Stege Marsh and Meeker Slough and is a year-round resident. They breed from February to late August.

The California least tern, which is listed as Endangered under the ESA, has been observed at Meeker Slough (eBird 2014). This small shorebird nests colonially on sparsely vegetated sites, usually on a sand or gravel substrate near water, including at documented sites in San Francisco Bay (CDFG no date). Least terns feed in shallow estuaries or lagoons where small fish are abundant by hovering and plunging into the water. This species is likely to forage at Meeker Slough on occasion but is very unlikely to nest at the RBC site due to a lack of suitable nesting habitat.

### California Endangered Species Act

The California clapper rail and California least tern, as described above, are also listed as Endangered under the CESA. Willow flycatcher (*Empidonax traillii*) is listed as Endangered under the CESA. This species generally occurs in wet meadows and montane riparian habitats at elevations of 2,000 to 8,000 feet. It is a spring and fall migrant at lower elevations and has been observed at Meeker Slough on at least one occasion (eBirds 2014). This species could occur on occasion at Meeker Slough during spring and fall migration, but is very unlikely to nest at the RBC site based on its current documented range (CDFG 2005). California black rail (*Laterallus*

*jamaicensis coturniculus*) is listed as Threatened under the CESA. Suitable salt marsh habitat exists at Western Stege Marsh. However, the species has not been documented at the RBC site (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a; CNDDDB 2013; Loughman 1989; eBird 2014; Berthelsen no date).

Other marsh birds with the potential to occur are the Saltmarsh common yellowthroat and the Alameda song sparrow, both protected as a California Species of Concern and under the MBTA. Overall, there is moderate potential for passerines to nest in the RBC project site and for saltmarsh shorebirds to occur or possibly nest in the saltmarsh. Raptors are likely to occur in buildings and other roost sites.

#### California Species of Special Concern

Several bird species that have been documented at the RBC site are California Species of Special Concern (Table 4.3-1) (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a; CNDDDB 2011, 2012, 2013; Loughman 1989; eBird 2014; Berthelsen no date; CDFW 2014). These include northern harrier, white-tailed kite (*Elanus leucurus*), saltmarsh common yellowthroat, loggerhead shrike (*Lanius ludovicianus*), Alameda song sparrow, and black skimmer (*Rynchops niger*). The yellowthroat, song sparrow, and skimmer use habitats found in the marsh and slough. The shrike uses grasslands and other open habitats, and the harrier and kite could use both the grassland and marsh/slough habitats. Burrowing owl (*Athene cunicularia hypogea*) has not been identified on the RBC site, but has been reported adjacent to the site to the east (CNDDDB 2013; Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a).

#### California Fully Protected Species

White-tailed kite, American peregrine falcon (*Falco peregrinus anatum*), California black rail, brown pelican (*Pelecanus occidentalis*), California clapper rail, and California least tern are California fully protected species that have been observed at least once or have potential to occur at the RBC site (Table 4.3-1) (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a; CNDDDB 2011, 2012, 2013; Loughman 1989; eBird 2014; Berthelsen no date; CDFW 2014). This designation provides that these protected species "...may not be taken or possessed at any time..." Brown pelican could forage in Meeker Slough, and American peregrine falcon could pass through the site over the marsh and slough in spring and fall during migration and potentially forage. There is no nesting habitat for either species at the RBC site. The other California fully protected species are described previously.

#### **Salt-Marsh Harvest Mouse**

The salt-marsh harvest mouse (*Reithrodontomys raviventris*) is both federally and state endangered. It occurs in saltmarshes and may potentially be found in the RBC site marshland, which provides suitable habitat. It inhabits tidal and non-tidal salt and brackish marshes around the San Francisco Bay. Optimal habitat typically contains a dense mat of vegetation cover and open areas composed of pickleweed (*Sarcocornia pacifica* [*Salicornia virginiana*]) or other salt marsh species, such as fat hen, salt grass, annual grasses, baltic rush, and alkali heath, with no pickleweed present (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a). This species also can move into adjoining grasslands during high winter tides. Development has removed much of the salt marsh harvest mouse habitat and few mice are considered to survive in created wetlands without peripheral halophyte (salt tolerant upland species) zone.



**Table 4.3-1  
Special Status Species That Could Occur at the RBC Site**

| Common Name  | Scientific Name                          | Federal/State/<br>CNPS Status | Habitat   | Likelihood of<br>Occurrence /<br>Notes  |
|--|--|-------------------------------|---|---|
| <b>Invertebrates</b> – None. No suitable habitat present for special status insects. |  |                               |   |   |
| <b>Fish</b> – None. No suitable habitat present for special status fish.             |  |                               |   |   |
| <b>Amphibians</b>  |  |                               |   |   |
| California red-legged frog   | <i>Rana aurora draytonii</i>             | FT/CSC/--                     | Lowlands and foothills in or near permanent sources of deep water, with dense, shrubby, or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development.  | None. No suitable habitat present.  |
| <b>Reptiles</b>  |  |                               |   |   |
| Western pond turtle  | <i>Clemmys marmorata</i>                 | --/CSC/--                     | Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites and upland habitat for egg-laying.   | None. No suitable habitat present.  |
| Alameda whipsnake  | <i>Masticophis lateralis euryxanthus</i> | FT/ST/--                      | Chaparral and scrub habitats, adjacent grasslands, oak savanna and woodland habitats.   | None. No suitable habitat present.  |
| <b>Birds</b>   |  |                               |   |   |
| Burrowing owl  | <i>Athene cunicularia hypugea</i>        | --/CSC/--                     | Open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Prefers short grasses and moderate inclined hills.  | Low: Reported adjacent to the site to the east.                                     |
| Northern harrier   | <i>Circus cyaneus</i>                    | --/CSC/--                     | Meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands.  | Present. Has been documented in the grasslands and Meeker Slough.                   |
| White-tailed kite  | <i>Elanus leucurus</i>                   | --/SFP/--                     | Low rolling foothills and valley margins with scattered oaks and river bottom-lands or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows and marshes for foraging close to isolated, dense-topped trees for nesting and perching. | High. Observed at Meeker Slough at least once.                                      |
| Willow flycatcher  | <i>Empidonax traillii</i>                | --/SE/--                      | Wet meadow and montane riparian habitats at elevations of 2000-8000 feet. Spring and fall migrant at lower elevations.  | High. Observed at Meeker Slough at least once. Potential to occur during migration. |
| American peregrine falcon  | <i>Falco peregrinus anatum</i>           | --/SFP/--                     | Migrants occur along the coast in spring and fall. Breeds mostly in woodland, forest, and coast habitats near bodies of water with cliffs and canyons nearby for cover and nesting.   | High. Observed at Meeker Slough at least once. Potential to occur during migration. |

**Table 4.3-1  
Special Status Species That Could Occur at the RBC Site**

| <b>Common Name</b>                  | <b>Scientific Name</b>                             | <b>Federal/State/<br/>CNPS Status</b> | <b>Habitat</b>  | <b>Likelihood of<br/>Occurrence /<br/>Notes</b>   |
|-------------------------------------|--|---------------------------------------|---|---|
| Saltmarsh<br>common<br>yellowthroat | <i>Geothlypis<br/>trichas sinuosa</i>              | --/CSC/--                             | Nests in fresh and salt marshes in tall<br>grasses, tule patches and willows.<br>Prefers thick cover for foraging and<br>dense vegetation for nesting.                      | Present. Observed<br>in Western Stege<br>Marsh.   |
| Loggerhead shrike                   | <i>Lanius<br/>ludovicianus</i>                     | --/CSC/--                             | Open habitats with scattered shrubs,<br>trees, posts, fences, utility lines, or<br>other perches.   | Present. Has been<br>documented in the<br>grasslands.   |
| California black<br>rail            | <i>Laterallus<br/>jamaicensis<br/>coturniculus</i> | --/ST, SFP/--                         | Freshwater marshes, wet meadows,<br>and shallow margins of saltwater<br>marshes bordering larger bays.  | Low. Suitable salt<br>marsh habitat<br>present. No<br>observations.                               |
| Alameda song<br>sparrow             | <i>Melospiza<br/>melodia pusilla</i>               | --/CSC/--                             | Found in tidal sloughs in the<br>Salicornia marshes. Nests in Grindelia<br>bordering slough channels.   | Present. Reported<br>from Western<br>Stege Marsh.<br>Habitat occurs in<br>Western Stege<br>Marsh. |
| Brown pelican                       | <i>Pelecanus<br/>occidentalis</i>                  | --/SFP/--                             | Feeds primarily in shallow estuaries or<br>lagoons where small fish are<br>abundant.  | Present.<br>Documented at<br>Meeker Slough at<br>least once.                                      |
| California clapper<br>rail          | <i>Rallus<br/>longirostris<br/>obsoletus</i>       | FE/SE/--                              | Salt water and brackish marshes in<br>vicinity of tidal sloughs. Associated<br>with pickleweed growth.  | Present. Has been<br>documented in<br>Western Stege<br>Marsh.                                     |
| Black skimmer                       | <i>Rynchops<br/>niger</i>                          | --/CSC/--                             | Forages in calm shallows of harbors,<br>lagoons, bays, estuaries, ponds, and<br>river channels. Nests on large areas of<br>bare earth isolated from disturbances.           | High. Observed at<br>Meeker Slough at<br>least once.  |
| Black phoebe                        | <i>Sayornis<br/>nigricans</i>                      | --/--/--                              | Nests in manmade structures on<br>ledges and in buildings. Nest made of<br>mud pellets, dry grasses, weed stems,<br>plant fibers and hair.                                  | Present. Suitable<br>habitat present in<br>buildings.   |
| Allen's<br>hummingbird              | <i>Selasphorus<br/>sasin</i>                       | --/--/--                              | Nests in wooded areas, meadows, or<br>thickets along shaded streams, on a<br>branch low down on stem, although<br>placement height varies between 10<br>inches and 90 feet. | Moderate.<br>Suitable habitat<br>present in aquatic<br>and landscaped<br>areas.                   |
| California least<br>tern            | <i>Sterna albifrons<br/>browni</i>                 | FE/SE, SFP/--                         | Feeds primarily in shallow estuaries or<br>lagoons where small fish are<br>abundant.  | High.<br>Documented at<br>Meeker Slough.  |
| Western<br>meadowlark <sup>1</sup>  | <i>Sturnella<br/>neglecta</i>                      | --/--/--                              | Nests in grasslands removed from<br>trees and shrubs. Nest is domed in<br>structure.  | Moderate.<br>Suitable grassland<br>habitat present.   |

**Table 4.3-1  
Special Status Species That Could Occur at the RBC Site**

| <b>Common Name</b>       | <b>Scientific Name</b>             | <b>Federal/State/<br/>CNPS Status</b> | <b>Habitat</b>   | <b>Likelihood of<br/>Occurrence /<br/>Notes</b>                              |
|--------------------------|------------------------------------|---------------------------------------|--|--|
| Barn owl <sup>1</sup>    | <i>Tyto alba</i>                   | --/--/--                              | Nests in tree cavities, crevices between the fronds of palm trees or small caves in cliffs or banks and in buildings. Nests are typically 10 feet above ground.  | Moderate. Suitable habitat occurs in buildings.                              |
| <b>Mammals</b>           |                                    |                                       |  |  |
| Pallid bat               | <i>Antrozous pallidus</i>          | --/CSC/--                             | Day roosts include rock outcrops, mines, caves, buildings, bridges, and hollows and cavities in a wide variety of tree species. High reliance on oak woodland habitat in many portions of its range in California.                                     | Moderate. Potentially suitable habitat present in buildings and large trees. |
| California myotis        | <i>Myotis californicus</i>         | --/--/--                              | Roosts in caves, mine tunnels, crevices in rocks and buildings, generally near forested areas. Feeds low among trees or over shrubs.   | Moderate. Potentially suitable habitat present in buildings.                 |
| Small-footed myotis      | <i>Myotis ciliolabrum</i>          | --/--/--                              | Roosts in caves, mine tunnels, crevices in rocks and buildings, generally near forested areas. Feeds around canopy, often low to the ground, higher in open habitat.   | Moderate. Potentially suitable habitat present in buildings.                 |
| Long-eared myotis        | <i>Myotis evotis</i>               | --/--/--                              | Day roosts in hollow trees under exfoliating bark, and crevices in rock outcrops. Found roosting under bark of small black oaks in northern California. Found throughout California.   | Low. Potentially suitable habitat present in buildings and trees.            |
| Fringed myotis           | <i>Myotis thysanodes</i>           | --/--/--                              | Roosts in colonies in caves, cliffs and attics of old buildings. Will also use trees as day roosts.  | Moderate. Potentially suitable habitat present in buildings and trees.       |
| Yuma myotis              | <i>Myotis yumanensis</i>           | --/--/--                              | Roosts colonially in caves, tunnels and buildings. Inhabits arid regions.  | Moderate. Potentially suitable habitat present in buildings.                 |
| Salt-marsh harvest mouse | <i>Reithrodontomys raviventris</i> | FE/SE/--                              | Prefers dense cover of native pickleweed ( <i>Salicornia virginica</i> ). Will use upper zone of peripheral halophytes (salt-tolerant plants) to escape the higher tides, and also move into the adjoining grasslands during the highest winter tides. | Low. Saltmarsh on-site may provide habitat.                                  |



**Table 4.3-1  
Special Status Species That Could Occur at the RBC Site**

| <b>Common Name</b>          | <b>Scientific Name</b>                              | <b>Federal/State/<br/>CNPS Status</b> | <b>Habitat</b>  | <b>Likelihood of<br/>Occurrence /<br/>Notes</b>   |
|-----------------------------|---|---------------------------------------|---|---|
| Brazilian free-tailed bat   | <i>Tadarida brasiliensis</i>                        | --/--/--                              | Roosts in large aggregations, primarily in buildings, caves, mines, and bridges. May remain in SF Bay Area during winter, active during dry/warm periods.   | High. Potentially suitable habitat present in buildings.  |
| Salt-marsh wandering shrew  | <i>Sorex vagrans halicoetes</i>                     | --/CSC/--                             | Occupies tidal marshes that provide dense cover, abundant food (primarily invertebrates), suitable nesting sites, and fairly continuous ground moisture. Occupies "medium high marsh," about 6 to 8 feet above sea level, and in lower-lying marsh not regularly inundated. | Low. Saltmarsh on-site may provide habitat.   |
| <b>Plants</b>               |   |                                       |   |   |
| Bent-flowered fiddleneck    | <i>Amsinckia lunaris</i>                            | --/--/1B                              | Woodlands and grasslands between 50 and 500 meters elevation.   | Low. No occurrences in project area. Not seen in surveys.   |
| Pallid manzanita            | <i>Arcostaphylos pallida</i>                        | FT/SE/1B.1                            | Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Flowers from March to June.  | Low. No occurrences in project area. Not seen in surveys.   |
| Alkali milk-vetch           | <i>Astragalus tener</i> var. <i>tener</i>           | --/--/1B                              | Low ground, alkali flats, and flooded lands; in annual grassland, playas, or vernal pools between 1 and 170 meters elevation.   | Low. Not known to occur in project area. Not seen during surveys.   |
| Round-leaved filaree        | <i>California macrophylla</i>                       | --/--/1B.1                            | Cismontane woodland, valley and foothill grassland on clay soils. Flowers from March to May.  | Low. No occurrences in project area. Not seen in surveys.   |
| Coastal bluff morning-glory | <i>Calystegia purprata</i> ssp. <i>saxicola</i>     | --/--/1B.2                            | Coastal dunes, coastal scrub, North Coast coniferous forest. Flowers from May to September  | Low. No occurrences in project area. Not seen in surveys.   |
| Point Reyes bird's-beak     | <i>Cordylanthus maritimus</i> ssp. <i>palustris</i> | --/--/1B                              | Coastal salt marsh with <i>Salicornia</i> spp., <i>Distichlis</i> spp., and <i>Spartina</i> spp. between 0 and 15 meters (49 feet) elevation.   | Low. No occurrences in project area. Not seen in surveys. Believed to be extirpated in Alameda and Contra Costa Counties. |
| Fragrant fritillary         | <i>Fritillaria liliaceae</i>                        | --/--/1B.2                            | Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Often found in serpentine soils. Flowers from February to April.  | Low. No occurrences in project area. Not seen in surveys.   |

**Table 4.3-1  
Special Status Species That Could Occur at the RBC Site**

| <b>Common Name</b>  | <b>Scientific Name</b>                 | <b>Federal/State/<br/>CNPS Status</b> | <b>Habitat</b>  | <b>Likelihood of<br/>Occurrence /<br/>Notes</b>  |
|---------------------|--|---------------------------------------|---|--|
| Santa Cruz tarplant | <i>Holocarpha macradenia</i>           | FT/SE/1B.1                            | Coastal prairie, coastal scrub, valley and foothill grassland, often on clay or sandy soils. Flowers from June to October.                        | Low. No occurrences in project area. Not seen in surveys. Believed to be extirpated in Alameda and Contra Costa Counties.          |
| Robust monardella   | <i>Monardella villosa ssp. globosa</i> | --/--/1B.2                            | Openings in broadleaf, upland forest and chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Flowers from June to July. | None. No suitable habitat present.   |
| California seablite | <i>Suaeda californica</i>              | FE/--/1B                              | Restricted to the upper intertidal zone of coastal salt marsh along the perimeter of a bay.   | Low. No occurrences in project area. Not seen in previous surveys. Believed to be extirpated in Alameda and Contra Costa Counties. |

Source: Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a; CNDDDB 2011, 2012, 2013; Loughman 1989; eBird 2014; Berthelsen No Date; CDFW 2014.

**Federal Status**

FE = Endangered. Species in danger of extinction throughout all or significant portion of its range.

FT = Threatened. Species likely to become endangered in foreseeable future throughout all or a significant portion of its range.

FPD = Proposed delisting.

**California State Status**

SE = Endangered. Species whose continued existence in California is jeopardized.

ST = Threatened. Species, although not presently threatened with extinction, that is likely to become endangered in the foreseeable future.

CNPS = California Native Plant Society

CSC = Species of Concern.

RBC = Richmond Bay Campus

SFP = State Fully Protected under Sections 3511 and 4700 of the Fish and Game Code.

SR = State Rare

CFP = California Fully Protected

**California Native Plant Society**

1A = Plants presumed extinct in California

1B = Plants that are rare or endangered in California and elsewhere.

**Migratory Bird Treaty Act**

<sup>1</sup>Most native bird species are protected by the MBTA. This table includes a selection of bird species with potential to nest at the RBC site that are protected by the MBTA but not otherwise listed as special status at the state or federal level. The species in this table are not intended to be all inclusive.

There is a low potential for saltmarsh harvest mouse to move into the upland habitat during high tides. This species could, but is unlikely, to occur at the RBC site. A saltmarsh harvest mouse survey in Western Stege Marsh in November 2001 found the potential for them to occur to be unlikely. Shellhammer noted that the marshes in the southeastern Richmond Shoreline area are historically new and that previous surveys at the neighboring Hoffman Marsh were also negative.

### **Bats**

Bats use a wide variety of natural and man-made roost sites. Natural roost sites include caves, tree hollows, rock crevices, and exfoliating tree bark. Some species roost only in caves or rock crevices, others only in trees, and others are not as selective. Buildings are important for many bat species and provide significant bat roosting habitat. Bats show high roost fidelity; older structures in particular may have provided roost habitat for decades. Bats select buildings based on a variety of factors that vary by species. Selection factors may include temperature, humidity, building design, materials, location, and proximate human activity. Buildings provide day roosting opportunities in crevices and cavities that afford protection and retain heat during night-roosting hours. Bats are affected by roost disturbance; bats roosting in buildings become habituated to noise from human activity. Typically, if the protection afforded by the roost is sheltered from wind, light, or other disturbances, bats will take up residence in large numbers in structures. More than one bat species can use a structure at one time if it is large enough, and the same structure can be used differentially either daily (i.e., day or night roost), or seasonally (i.e., overwintering [hibernacula] or dispersal roost), or by reproductive status (maternity roost). Old structures provide particularly suitable roost habitat for bats due to the construction materials, design, and often open condition of the surfaces that permit easy entry and exit. Most of the RBC site's potentially occurring bat species live in California year-round and likely change roosts seasonally from hibernacula in the winter to day roosts, night roosts, and maternity roosts in the summer (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a). Because of the variety of locations and patterns that these bats can use, bat use of buildings and trees on site cannot be ruled out for any season.

Special-status bat species with the potential to occur in the existing buildings include the Brazilian freetailed bat (*Tadarida Brasiliensis*), the most common species in the area as there is suitable building habitat on site; also the pallid bat (*Antrozous pallidus*), Townsend's big eared bat (*Corynorhinus townsendii townsendii*), California myotis (*Myotis californicus*), small footed myotis (*Myotis ciliolabrum*), fringed myotis (*Myotis thysanodes*), and Yuma myotis (*Myotis yumanensis*) (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a).

### **Critical Habitat**

Critical habitat is designated by the USFWS. Critical habitat is a specific geographic area determined to be essential for conservation of a threatened or endangered species and possibly requiring special management or protection. There is no critical habitat for any listed species in or adjacent to the RBC site (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a; USFWS 2012).

## **4.3.3 Regulatory Considerations**

### **Federal**

#### Endangered Species Act of 1973

The Endangered Species Act (ESA) (16 USC, 1531-1543) and subsequent amendments establish legal requirements for the conservation of threatened and endangered species and the ecosystems on which they depend.



ESA Section 7 requires federal agencies, in consultation with the Secretary of the Interior or the Secretary of Commerce, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or to destroy or adversely modify critical habitat for these species. The USFWS and National Marine Fisheries Service share responsibilities for administering the ESA. Section 7 regulations governing interagency cooperation are in 50 CFR, Part 402. Federal agencies are required to consult with the USFWS or National Marine Fisheries Service on actions that may affect listed species. A resulting Section 7 biological opinion may include a statement authorizing a take (i.e., to harass, harm, pursue, hunt, wound, kill) that might occur incidental to an otherwise legal activity. The LRDP is not a federal action, and is not subject to Section 7 of the ESA. Individual projects implemented under the LRDP would be subject to ESA Section 7 if they were associated with a federal action; in such cases, the federal lead agency is responsible for undertaking the Section 7 process.

Section 9 of the ESA lists prohibited actions, including “take” of listed species of fish and wildlife without special exemption. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” “Harm” includes significant habitat modification or degradation that kills or injures a listed species by significantly impairing behavioral patterns, such as breeding, feeding, or sheltering. “Harass” is defined as actions that significantly disrupt a listed species’ normal behavior patterns, including breeding, feeding, and sheltering.

Section 10 of the ESA provides a nonfederal applicant a mechanism to obtain incidental take authorization, as described in Section 1.5, for federally listed threatened or endangered species.

#### Clean Water Act

The Clean Water Act (33 USC, 1251-1376) establishes legal requirements for restoring and maintaining the chemical, physical, and biological integrity of the nation’s waters.

Section 401 requires an applicant for a federal permit to discharge into waters of the United States to first obtain state certification that the discharge would comply with other Clean Water Act provisions. The RWQCBs administer the certification program in California.

Section 404 establishes a permit program, administered by the USACE, regulating dredge or fill material discharge into waters of the US, including wetlands. Under Clean Water Act Section 404, a wetland is determined by hydric soils, hydrophytic vegetation, and wetland hydrology.

The USACE’s Section 404 implementing regulations are in 33 CFR, Parts 320-330. Implementation guidelines, referred to as the Section 404(b)(1) Guidelines, were developed by the EPA and the USACE (40 CFR, Part 230). The guidelines allow the discharge of dredged or fill material into an aquatic system only if there is no practicable alternative that would have less adverse impact.

To be protected under Sections 404 and 401 of the Clean Water Act, wetlands and other waters of the US must be one of the following:

- Traditional navigable waters;
- Wetlands next to traditional navigable waters;
- Nonnavigable tributaries of traditional navigable waters that are relatively permanent, where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); or

- Wetlands that directly abut the tributaries described in the previous bullet (USACE 2008).

The USACE would decide jurisdiction over the following waters, based on a fact-specific analysis, to determine whether they have a significant nexus with a traditional navigable water:

- Nonnavigable tributaries that are not relatively permanent;
- Wetlands next to nonnavigable tributaries that are not relatively permanent; or
- Wetlands next to but that do not directly abut a relatively permanent nonnavigable tributary.

#### *Migratory Bird Treaty Act*

The MBTA (16 USC, 703-711) is a treaty signed by the United States, Canada, Mexico, and Japan that makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season. The MBTA makes it unlawful in the United States to take these species, their nests, their eggs, or their young.

#### *Noxious Weed Act of 1974*

This act provides for the control and management of nonindigenous weeds injurious or potentially injurious to agricultural and commercial interests, wildlife resources, or the public health. Under this act, the Secretary of Agriculture has the authority to designate plants as noxious weeds and to inspect, seize, and destroy products and to quarantine areas, if necessary, to prevent the spread of such weeds.

#### *Fish and Wildlife Conservation Act, 16 USC 2901*

This Act encourages all federal departments and agencies to use their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities, to conserve and promote conservation of nongame fish and wildlife and their habitats.

#### *Executive Order 13112 – Invasive Species*

Federal agencies are directed to use their authorities to prevent, detect, eradicate, and control invasive species in a cost effective and environmentally sound manner. Agencies should not authorize or fund activities that would introduce and spread invasive species in the US unless the activity benefits would clearly outweigh the harm and all feasible and prudent measures to minimize the harm would be taken.

#### *Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds*

Federal agencies whose actions are likely to negatively impact migratory bird populations are directed to develop and implement with USFWS, within two years, a memorandum of understanding that promotes migratory bird populations. To support the migratory bird conventions, federal agencies should:

- Integrate bird conservation principles, measures, and practices into agency activities;
- Avoid or minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions; and
- Restore and enhance migratory bird habitat.

## **State**

### **California Environmental Quality Act**

CEQA (PRC. 21000 et seq.) was enacted in 1970 to fully disclose environmental impacts prior to state and local public agency discretionary action such as project approval or permit issuance. With regard to biological resources, CEQA considers other plants to be “sensitive” (or “special status”), in addition to federally or state listed species (14 CCR, Chapter 3, Article 20), Section 15280). Sensitive species include plants on the CNPS List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for state listing), or List 2 (rare, threatened, or endangered in California but more common elsewhere; eligible for state listing). To be conservative, CNPS List 3 (plants for which more information is needed) and List 4 (plants of limited distribution) are also considered sensitive in some jurisdictions. Sensitive wildlife species include federally or state listed species as well as CDFW-listed wildlife species of special concern.

### **California Endangered Species Act**

The California Endangered Species Act (CESA) (Fish and Game Code 2050 et seq.) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available. There are no state agency consultation procedures under CESA. For projects that affect a species listed under both CESA and the federal ESA, compliance with the federal ESA would satisfy CESA if the CDFW were to determine that the federal incidental take authorization is consistent with CESA under Fish and Game Code Section 2080.1. For projects that would result in a take of only a state listed species, the applicant must apply for a take permit under Section 2081(b).

### **Native Plant Protection Act**

California’s Native Plant Protection Act (Fish and Game Code, 1900-1913) requires all state agencies to use their authorities to conserve endangered and rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require a land owner to notify the CDFW at least 10 days in advance of any change in land use where the CDFW has notified the land owner of the presence of rare or endangered plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed. The applicant is required to conduct botanical inventories and consult with the CDFW, as appropriate, during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

### **Streambed Alteration Agreements, Fish and Game Code, Sections 1600-1616**

Under the Fish and Game Code, CDFW jurisdiction occurs in any natural river, stream, or lake water body. The term stream, including creeks and rivers, is defined in Title 14, California Code of Regulations (CCR), Section 1.72. An applicant is required to notify CDFW before constructing any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review typically occur during the environmental process. When a fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project.

### **Fish and Game Code, Sections 3511, 4700, 5515, and 5050**

The Fish and Game Code states that fully protected species “...may not be taken or possessed at any time and no provision of this code or any other law would 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 “fully protected” designation was 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 the CDFW to authorize take resulting from recovery activities for state-listed species.

*Fish and Game Code, Sections 3503 and 3513*

Section 3503 prohibits the take and possession of any bird egg or nest, except as otherwise provided by this code or subsequent regulations. Section 3513 provides for the adoption of the MBTA’s provisions. As with the MBTA, this state code offers no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of nongame migratory birds. The administering agency for these sections is the CDFW.

***Local***

The proposed RBC site is University-owned property where work within the University’s mission is performed on land owned or controlled by The Regents. As a state entity, the University is exempt under the state constitution from compliance with local land use regulations, including general plans and zoning. However, the University seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts to the extent feasible. The RBC site is in the city of Richmond. The following sections summarize objectives and policies from the City of Richmond General Plan and the Eastshore State Park General Plan as they relate to biological resources.

*City of Richmond 2030 General Plan*

The City of Richmond 2030 General Plan – Conservation, Natural Resources and Open Space (City of Richmond 2012) contains the following goals, policies, and actions related to biological resources:

**GOAL CN1: Preserved and Restored Natural Habitat and Biodiversity.** Continue to preserve and restore natural habitat and associated plants and wildlife including wetlands, baylands, riparian areas, oak woodlands and other sensitive biological resources. Take restoration efforts such as controlling invasive species, re-establishing natives, daylighting creeks and reclaiming priority conservation areas to maintaining critical habitat and biodiversity. Carefully balance natural lands, habitat and protection of multiple species with the need to accommodate development.

The following policies (more detail is available in the plan) are outlined in relation to Goal CN1:

- **Policy CN1.1 – Habitat and Biological Resources Protection and Restoration.** Natural habitat is essential to ensuring biodiversity and protecting sensitive biological resources.
- **Policy CN1.2 – Local Native Plant Species.** Promote the use of locally propagated native plant and tree species and remove and control the spread of invasive exotic plant species.
- **Policy CN1.3 – Urban Creek Restoration.** Encourage the restoration of urban creeks and coordinate with property owners and local interest groups in the restoration efforts.

The following actions (more detail is available in the plan) are outlined in relation to this Goal CN1:

- **Action CN1.A – Habitat Conservation.** Work closely with Contra Costa County, the East Bay Chapter of the CNPS, and the East Bay Regional Park district to develop habitat conservation plans.
- **Action CN1.B – Priority Conservation Areas.** The City will identify areas of the City with significant natural habitat, open space and recreation resources and promote conservation, preservation and environmental rehabilitation.
- **Action CN1.C – Creek Access Easement.** Identify and create access easements, where practical, for creek maintenance and public access to creekside amenities.
- **Action CN1.D – Creek Corridor Performance Standards.** Establish performance standards for creek corridors.
- **Action CN1.E – Habitat Restoration.** Work with other jurisdictions, public and private property owners to restore sensitive habitat that has been degraded, but has potential for rehabilitation including brownfield and contaminated sites.
- **Action CN1.F – Special Status Species Protection Methods.** Implement the special status survey methods of the CDFW, USFWS, Contra Costa County Department of Agriculture and CEQA requirements.
- **Action CN1.G – Landscape Design Guidelines.** Update and implement the City's Landscape Design and Development Guidelines to conform to bay friendly landscape standards.
- **Action CN1.H – Urban Creek Restoration.** Where feasible, restore creek corridors in urban areas. Creeks currently diverted in culverts or hardened channels should be restored to their natural state.

**GOAL CN2: Conserved Open Space.** Conserve open space to ensure that Richmond's expansive shoreline, network of parklands, trails, hillsides and undeveloped natural areas remain viable in supporting biological communities and providing sanctuary for future generations. Conserve open space, expand public access to open space, where appropriate, and acquire additional lands where feasible. Continue to protect surrounding hills and viewsheds as character-defining features that provide scenic backdrops and publicly accessible trails and vistas.

The following policies (more detail is available in the plan) are outlined in relation to Goal CN2:

- **Policy CN2.1 – Open Space and Conservation Areas.** Preserve open space areas along the shoreline, creeks, and in the hills to protect natural habitat and maintain the integrity of hillsides, creeks and wetlands.
- **Policy CN2.2 – Richmond Shoreline.** Conserve, protect and enhance natural and cultural resources along the Richmond shoreline.
- **Policy CN2.3 – Natural Topography and Hillside Protection.** Protect natural topography to preserve and enhance Richmond's natural beauty and require developers to concentrate residential development below the 400 foot elevation.
- **Policy CN2.4 – Agricultural Lands.** Preserve agricultural lands for sustained crop production, grazing and farming.
- **Policy CN2.5 – Access to Large-Scale Natural Areas.** Improve access to large-scale natural areas in the City including regional parks along the shoreline and in the hills.

- **Policy CN2.6 – Protect Soil and Reduce Erosion.** Minimize soil depletion and erosion. Prevent erosion caused by construction activities. Retain natural vegetation and topography and minimize grading of hillsides.
- **Policy CN2.7 – Parkland Preservation.** Maintain high quality parklands and play areas to serve current and future residents. Require new development and redevelopment projects to provide additional parkland or funding to purchase and maintain parklands.
- **Policy CN2.8 – Mineral Resources.** Preserve mineral resources in undeveloped areas that have been classified by the State Mining and Geology Board as having statewide or regional significance for possible future extraction.

The following actions (more detail is available in the plan) are outlined in relation to Goal CN2:

- **Action CN2.A – Transfer of Development Rights Program.** Develop a program that targets areas for Transfer of Development Rights (TDR) which exchange development privileges from natural areas to parts of the City with infill or redevelopment potential.
- **Action CN2.B – Open Space Easements.** Consider opportunities for establishing open space easements where natural resources may be protected or accessed on private property.
- **Action CN2.C – Parkland Dedication Ordinance.** Update the parkland dedication ordinance that requires new development and redevelopment projects to provide adequate park and recreation opportunities to maintain the 3.0 acres per 1,000 population standard in applicable planning areas through a combination of park types as defined in the Parks and Recreation Element (to be updated and refined in the parks master plan).
- **Action CN2.D – Open Space Plan.** Develop and implement an open space plan to enhance public open space in the City.

The remainder of the goals, policies, and actions in the plan that could indirectly affect biological resources include Goal CN3 – Improved Water Quality, Goal CN4 – Improved Air Quality, Goal CN5 – Environmental Sustainability, and Goal CN6 – A Healthy Urban Environment.

The 2030 General Plan EIR determined that biological resources impacts from future development pursuant to the General Plan would be less than significant. Future development would not significantly impact special status species either directly or through habitat modification. It would not significantly interfere with the movement of native resident or migratory fish or wildlife species or have a significant adverse effect on wetlands, riparian habitat, or other sensitive natural communities. It would not conflict with any local policies or ordinances protecting biological resources. No mitigation measures would be required. Cumulative impacts would be less than significant.

#### Eastshore State Park General Plan

The Eastshore State Park General Plan was adopted to guide future efforts to balance recreation and conservation, protect and enhance the natural resource base, and expand opportunities for public enjoyment of the shoreline setting of the park. Policies that apply to the South Richmond shoreline portion of the state park are:

- **PI/SR-7:** Removal of invasive exotic plant species and re-vegetation with native plant species in Hoffman Marsh and along South Richmond shoreline.
- **PI/SR-8:** Coordinate with the owners of the adjacent tidal marsh, mudflat, subtidal, and upland habitat areas to ensure adequate protection of this valuable natural area.



- **PI/SR-9:** Explore the possibility of adding one or two new vista point seating areas along the Bay Trail north of Point Isabel.
- **PI/SR-10:** Incorporate interpretive panels into the vista points and other key points along the Bay Trail that explore the natural, cultural and social history of this portion of the park project.
- **PI/SR-11:** Provide fencing along the Bay Trail where necessary to protect tidal marshes, tidal mudflats, and water birds from disturbance.

#### 4.3.4 Impacts and Mitigation Measures

##### ***Standards of Significance***

The impacts on biological resources from campus development under the 2014 LRDP would be considered significant if they would exceed the following Standards of Significance, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- 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 the California Department of Fish and Wildlife or US Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service;
- 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; or
- 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 applicable policies protecting biological resources.

##### ***CEQA Checklist Items Adequately Addressed in the Initial Study***

The analysis in the Initial Study prepared for the project and circulated with the NOP concluded that further analysis of the following issue was not required in the EIR:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan.

The RBC site and its vicinity is not known to be subject to or designated for any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. Further analysis is not required.

##### ***Analytical Methods***

Methods used to evaluate biological resources impacts included CNDDDB searches (CNDDDB 2012), several biological reports documenting surveys and assessments conducted at the RFS, both specifically for this project and for previous projects. These include the RFS Habitat Assessment Report and RFS Constraints Analysis (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a, 2012), the RFS Remediation Project IS (URS 2003), UC Richmond Field Station's Remnant Coastal Terrace Prairie (Amme 2005), the RFS Grasslands constraints Analysis (Wildlife Research Associates and Jane Valerius Environmental

Consulting 2013a), URS (2007) Botanical Survey Report, The Watershed Project (2007) Remediation and Restoration Progress Report, Lidicker et al (2003) compendium of flowering plants at the Richmond Field Station, the Manual of California Vegetation (Sawyer et al. 2009), and Richmond Field Station Remediation Project Biological Assessment Report (Blasland, Bouck, and Lee, Inc. 2003). Methods included consultation with experts on California grasslands at UC Berkeley. Tetra Tech conducted a general biological survey (Tetra Tech 2013a) in January 2013. This survey assessed the current conditions of the southeastern portion of the RBC site existing habitats, and included identification of potential wetland areas. Tetra Tech conducted a wetland delineation survey in February 2013 to identify potential wetland boundaries in the same area (Tetra Tech 2013b).

### **RBC 2014 LRDP Policies**

The RBC 2014 LRDP policies related to biological resources include the following:

- LU1 – Land Use Policy on Development Capacity: Provide for development of up to 5,400,000 square feet of facilities.
  - Maximize density to reduce overall building footprints, conserve open space, and share attractive views.
- OSL1 – Open Space and Landscape Policy on Primacy of Landscape: The landscape of the Richmond Bay Campus, its unique location at the edge of San Francisco Bay, and the coastal prairie grasslands will be protected and featured in the daily experience of the campus.
  - Feature ornamental landscaping at the public realm and entry points to create a more welcoming and vibrant campus; the palette will be selected for non-invasives and with sensitivity to protection of natural open spaces.
  - Implement feasible means to effectively remove and stop the spread of invasive species from sensitive marsh and grasslands.
  - Establish buffers, setbacks, and procedures to review new plantings to protect and enhance coastal plant communities and wildlife habitat on the site.
  - Provide visual connections to the bay, surrounding hills, and natural features of the site and incorporate interpretive elements, public art, and signs into the open space areas to create educational opportunities.
  - Refer to the site’s natural features and employ ecologically-sensitive native plantings in the site’s landscape design.
- OSL3 – Open Space and Landscape Policy on Sustainability: New landscapes will be consistent with “Bay-friendly” design.
  - Design landscaping that does not rely on irrigation from potable water after an initial establishment period. Specify native species where practical and foster biodiversity which supports and enhances local ecosystems. Coordinate landscape design and maintenance efforts with the surrounding community where possible.
- S9 – Sustainability Policy on Health and Wellness: Richmond Bay Campus development will promote health and wellness of the community, including employees, visitors, and ecosystems associated with the site.

- Provide walkways with signs interpreting the ecological value of the grassland and marsh areas.

### ***LRDP Impacts and Mitigation Measures***

**LRDP Impact BIO-1:**      **Development under the 2014 LRDP would not have a substantial adverse effect on special-status plant species. (*Less than Significant*)**

The RBC site includes natural areas such as the Western Stege Marsh and coastal grasslands (Figure 4-8). While these areas provide potential habitat for some special-status plant species (Table 4.3-1), no special-status plants have been observed in these habitats during site surveys.

As shown in Figure 4-8, the proposed 2014 LRDP designates approximately 25 acres of the RBC site as Natural Open Space. This designation encompasses those areas the University plans to protect from development and restore and/or maintain in their natural condition. Disturbance of these natural areas would be limited under the LRDP. Minor disturbance from maintenance, research, and educational activities would be expected on occasion. Improvements in these zones would be limited to minor access roads for maintenance vehicles and interpretive boardwalks or pathways, consistent with conservation goals.

Because no special-status plant species have been documented on the site during extensive botanical surveys (such as Amme 1993, Lidicker et al. 2003, URS 2007) or reported to the CNDDDB, it is unlikely that protected species are present. Because the areas with the most suitable habitat for special-status plant species would be protected from development and no special-status species have been documented, impacts on special-status plant species are not likely to occur from LRDP implementation. Effects on sensitive natural communities are described under LRDP Impact BIO-5.

**Mitigation Measure:** No mitigation measure is required; nonetheless LRDP MM BIO-5 would reduce any potential impact.

**LRDP Impact BIO-2:**      **Development under the 2014 LRDP could adversely affect special-status bird species protected under the MBTA, ESA, and/or CESA and result in nest abandonment and reproductive failure. (*Potentially Significant; Less than Significant with Mitigation*)**

The RBC site includes natural areas such as the Western Stege Marsh, Meeker Slough, coastal grasslands, eucalyptus groves, and numerous older, wooden buildings that provide roosting, foraging, and cover habitat for birds (Figure 4-8). These areas also provide potential nesting habitat for a portion of the special-status bird species that could occur at the RBC site, as described in Section 4.3.2. There is a high potential for nesting passerines, protected by the MBTA, to occur in multiple RBC site habitats. These include saltmarsh common yellowthroat and Alameda song sparrow in Western Stege Marsh; black phoebe on man-made structures; and western meadowlark in grasslands. California clapper rail, listed as endangered under the ESA and CESA, has been documented in Western Stege Marsh. Burrowing owl, a state species of special concern, and California black rail, a state threatened species, have not been documented on-site, but the site does contain potential owl (grasslands) and clapper rail (marsh) habitat (Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a; CNDDDB 2013; Loughman 1989; eBird 2014; Berthelsen No Date). Raptors, protected by the MBTA and California Code Sections 3503 and 3503.5, are likely present as described in Section 4.3.2.

Because the RBC site provides suitable nesting habitat for MBTA, ESA, and/or CESA-protected birds, loud noise within 100 feet of nests during the nesting period (approximately February 1 through August 31) could result in nest abandonment and “take” of young. Such noise could be from building demolition and construction, site preparation, utilities rerouting, and tree removal during construction. These potential impacts would be minimized with the implementation of LRDP MM BIO-2.

The construction footprint would be outside of clapper rail habitat and thus minimize potential noise impacts. Nevertheless, noise and other human disturbance—especially related to construction and demolition activities—near the marsh could affect avian use and result in flushing, avoidance, or nest abandonment. This potential would be minimized through compliance with ESA and CESA and with the implementation of LRDP MM BIO-2. More specific mitigation measures and design features, developed during consultation under the ESA, would be implemented as required.

The projected campus population increase from 300 to 10,000 by 2050 could cause indirect impacts on nesting birds. This population increase would have the potential to result in long-term adverse impacts on special status species birds from operations. More people on the site would increase the probability of humans and pets walking into or near sensitive habitats such as Western Stege Marsh and coastal terrace prairie grasslands, which could alter bird behavior. Disturbance of nesting birds, including the endangered California clapper rail, could decrease reproductive success. Also indirect disturbance from nearby operational noise sources could occur, which would be minimized to the extent practicable with implementation of LRDP MM BIO-2.

Because campus facilities would not be located within the Natural Open Space areas, there are not likely to be direct, adverse effects, such as habitat loss or modification, on Western Stege Marsh or Meeker Slough. Impacts on the marsh and slough from sedimentation and pollution, which could adversely affect special status birds, associated with projects implemented under the LRDP would be minimized by compliance with several policies and guidelines described in Section 4.8, Hydrology and Water Quality. These include Policy CN3.1 - Stormwater Management, Policy CN3.2 - Water Quality, City of Richmond Landscape Design and Development Guidelines, RBC 2014 LRDP Policy UI2 – Utilities and Infrastructure Policy on Sustainability, preparation and implementation of a stormwater pollution prevention plan (SWPPP) for each project, and implementation of project-specific BMPs. As described in Section 4.8, implementation of the LRDP is not expected to result in contaminants reaching receiving waters, would not substantially deplete groundwater, would maintain existing drainage patterns, and would not result in substantial additional sources of polluted runoff. Additional measures may be implemented based on consultation with USFWS or CDFW. As a result, these contaminants are not expected to affect bird species using the marsh and slough.

No grassland habitat loss within the Natural Open Space would occur, and the quality of the habitat itself for special-status grassland birds would be maintained and possibly improved in the long-term as described under LRDP MM BIO-5. However, the quantity of grassland habitat available to special status species birds that use grasslands would be reduced at the RBC site. No ESA-listed species or critical habitat occur in the grasslands, and with implementation of LRDP MM BIO-2, impacts on other special status bird species would be reduced, and take of individuals, as defined in the applicable federal and state laws, would be avoided.

The USFWS (2002) estimates that birds colliding with structures results in 100 million to 1 billion bird deaths annually in North America. Because San Francisco Bay is urban, has diverse habitats, and is on the Pacific Flyway, this problem is particularly of concern. The University in

implementing projects under the LRDP would take steps to minimize this potential adverse impact by use of bird-friendly building design standards, which are included in the Physical Design Framework, which each individual project would follow. This measure is included in LRDP MM BIO-2.

Predatory birds and mammals can be a threat to nesting special status bird species with small, threatened populations. Urban environments can result in availability of trash to human-adapted animal species that exploit trash as a food source. These species also tend to eat bird eggs when available. Thus an increase in trash can threaten special status bird species. Raccoons, skunks, and gulls are examples. These and similar species are already present at the RBC site and are not expected to increase. The campus would be primarily an institutional workplace and not a recreational area. Most dining would likely occur indoors at a cafeteria facility. Outdoor dining would occur, weather permitting, but the culture of the RBC would be similar to that among the professional and scientific staff already at the UC Berkeley and LBNL main campuses, where recycling and environmentalism are the norms and leaving garbage behind and/or littering is generally not tolerated. Facilities would be modern and kept very clean, and dumpsters and other trash collecting receptacles would be equipped with closing lids and wildlife-proof structures.

Lighting has the potential to have adverse impacts on birds causing navigational confusion that can result in fatal collisions with buildings and can interfere with breeding behavior (Kempnaers et al. 2010). Projects under the LRDP would not introduce lighting where there is none as lighting already exists on the site and adjacent properties. Lighting would be aimed away from Natural Open Space. Lighting levels, design, and practices at the RBC site would be similar to lighting employed at the LBNL main site where the campus is lit at night with restrained building lights and muted outdoor lighting. Thus any adverse impacts from lighting on special status species birds are expected to be negligible.

The American Bird Conservancy has developed “Bird-friendly Building Design standards.” The RBC 2014 LRDP (LRDP Implementation Policy 2) requires compliance with the Physical Design Framework, which, as proposed in March 2014, includes reference to these design standards.

Implementing LRDP MM BIO-2 would reduce potential impacts on special-status birds from construction and operations to less than significant.

**LRDP MM BIO-2:**

Avoid construction, demolition, or renovation activities in areas adjacent or nearby to marshland nesting bird habitat during the nesting season (February 1 – August 31) and specify that construction schedules make efforts to further reduce noise and vibration during known nesting periods.

If construction, demolition, or renovation were proposed to occur during the nesting season, a nesting bird survey shall be performed by a qualified biologist up to approximately 7 days prior to work commencing, up to 100 feet beyond the project boundary. If no birds or evidence of birds are found, no further action is required, provided work commences within approximately 1 week of the survey to prevent “take” of individual birds that may have begun nesting after the survey.

If active nests or young are observed during the pre-construction surveys, construction, demolition, or renovation in the affected project area shall not commence within 100 feet of the occupied nest until after the young have fledged.

Engage in ESA Section 7 or Section 10 consultation (formal or informal, as appropriate) with the USFWS for implementation level LRDP components (depending on whether those components constitute a federal or state action, e.g., approvals or funding) to address any potential impacts on California clapper rail. Develop appropriate measures with USFWS and implement them.

Establish a 150-foot-wide temporary “no disturbance” buffer around the wetland/upland boundary of Western Stege Marsh/Meeker Slough when construction occurs during the breeding season (mid-March to July). This buffer would protect and buffer potential California clapper rail habitat and nesting areas during construction by prohibiting entry into this area.

To prevent take of individuals, as required under the MBTA, ESA, CESA, and California Fish and Game Code, which includes harm and harassment under the ESA, a buffer zone of an appropriate size to prevent substantial adverse effects from construction would be established through consultation with the USFWS.

Post interpretative California clapper rail signs in and near Western Stege Marsh/Meeker Slough. Signs should include seasonal use restrictions (e.g., stay on designated trails, pets on leash), to reduce disturbance potential during construction and operations.

**LRDP Impact BIO-3:** **During the bat breeding season, tree and building removal and other construction activity associated with development under the proposed 2014 LRDP could result in a substantial adverse effect on bats. (*Potentially Significant; Less than Significant with Mitigation*)**

Several bat species may occur at the RBC site (Table 4.3-1). Brazilian free-tailed bat is the most likely to occur. No bat species federally or state-listed as threatened or endangered are likely to occur. One species, pallid bat, is a California species of concern. Bats may inhabit abandoned RBC buildings or exfoliating tree bark crevices or hollow tree cavities. This would most likely occur in the site’s perimeter areas. Tree and building removal could result in direct bat mortality. Construction noise and human disturbance could cause maternity roost abandonment and subsequent death of young. With implementation of LRDP MM BIO-3, the proposed project would not result in a substantial adverse effect on bats, and the effect would be reduced to less than significant. This measure would apply to all project sites containing trees and buildings suitable for bat roosts.

**LRDP MM BIO-3:** 2014 LRDP implementation projects shall avoid disturbance to special-status bats’ maternity roosts during the breeding season in accordance with the following procedures for Pre-Construction Special-Status Bat Surveys and Subsequent Actions. No more than 2 weeks prior to commencement of any concrete breaking or similarly noisy construction/demolition activity during the breeding season (March 1 through August 31), a qualified bat biologist shall conduct pre-demolition surveys of all potential special-status bat breeding habitat in the disturbance vicinity. Depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on breeding special-status bats:



1. If active roosts are identified during pre-construction surveys, a no-disturbance buffer shall be created by the qualified bat biologist, in consultation with the CDFW, around active roosts during the breeding season. The size of the buffer shall take into account factors such as:
  - a. Noise and human disturbance levels at the project site and the roost site at the time of the survey and the noise and disturbance expected during the construction,
  - b. Distance and amount of vegetation or other screening between the project site and the roost, and
  - c. Sensitivity of individual nesting species and the behaviors of the bats.
2. If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required.
3. Pre-construction surveys are not required for demolition or construction scheduled to occur during the non-breeding season (September 1 through February 28).
4. Noisy demolition or construction as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any bats taking up roosts would be acclimated to project-related activities already under way). However, if trees are to be removed during the breeding season, the trees shall be surveyed for roosts prior to their removal, according to the survey and protective action guidelines 1a through 1c, above.
5. Bat roosts initiated during demolition or construction are presumed to be unaffected by the activity and a buffer is not necessary.
6. Destruction of roosts of special-status bats and overt interference with roosting activities of special-status bats shall be prohibited.
7. The noise control procedures for maximum noise, equipment, and operations identified in Section 4.10, Noise, shall be implemented.

**LRDP Impact BIO-4: Development under the 2014 LRDP would not have a substantial adverse effect on monarch butterfly. (*Less than Significant*)**

The monarch butterfly is not listed as threatened or endangered under either the ESA or CESA, but it is considered by the state of California to be either restricted in its distribution, declining throughout its range, or associated with declining habitats in California. This butterfly has been documented at the RBC site and occupies the eucalyptus stands and the developed, horticultural landscaped areas (Figure 4-8). This species uses the eucalyptus trees during the winter months for cover and thermal regulation. Eucalyptus tree removal would reduce the available habitat for monarch butterflies. As described earlier (Section 4.3.3, Eucalyptus Stands subsection), eucalyptus creates habitat that attracts monarchs, but that habitat may act as a “sink” -

attracting monarchs to a habitat that can be harmful to the species. Therefore, eucalyptus removal would have a mixed effect that is neither exclusively adverse nor beneficial. The LRDP's impacts on the monarch butterfly would not be considered substantial adverse effects on the monarch butterfly because it is not a special-status species. LRDP ENVIRONMENTAL PROTECTION PRACTICE BIO-4 could be implemented to further reduce the magnitude of these effects.

#### **LRDP ENVIRONMENTAL PROTECTION PRACTICE BIO-4:**

The University could develop and implement a successional tree planting plan that would maintain the availability of monarch butterfly wintering habitat at the RBC site.

**Mitigation Measure:** No mitigation measure is required.

**LRDP Impact BIO-5:**      **Development under the 2014 LRDP could have a substantial adverse effect on sensitive natural communities. (*Potentially Significant; Less than Significant with Mitigation*)**

Campus development under the 2014 LRDP could have adverse effects on the RBC site coastal-terrace prairie grassland habitat. Construction and operational activities and a campus population increase would potentially increase risk of adverse impacts on the high quality grasslands. Direct impacts, such as soil compaction, could occur from people driving vehicles through the grasslands. Indirect impacts include increased potential weed intrusion due to construction-related soil perturbation and unintentional seed distribution from the increased numbers of people and vehicles. This potential effect is addressed below.

There are 22 acres of high quality grassland habitat, considered a sensitive natural community, at the RBC site. These are within the Big Meadow, Northwest Meadow, West Meadow, and EPA Meadow North (Wildlife Research Associates and Jane Valerius Environmental Consulting 2013a). In 15 of the 22 high quality grassland acres, comprising the majority of the area within the Big, West, and EPA North Meadows, direct, adverse impacts from the LRDP would be minimal, as these acres would be part of the 25-acre Natural Open Space area. The purpose of this open space would be to retain these resources in their natural condition. The activities that would occur in protected coastal terrace prairie grassland habitat would be limited to maintenance, field research, and education. Improvements in this zone would be limited to minor access roads and structures, and boardwalks or pathways to facilitate maintenance, field research, and education. There would be a buffer between grasslands and new buildings (see Figures 3-3 and 3-4).

As noted, the LRDP designates 15 of 22 high quality grassland acres as part of the 25.2-acre Natural Open Space. Approximately seven acres of high quality grassland, including the Northwest Meadow and outside edges of the Big Meadow, would be within the Research, Education and Support Area as indicated on Figure 4-8. Thus the total area of high quality grassland could be reduced if ultimately developed. This adverse impact would be mitigated via a variety of measures, as presented below in LRDP MM BIO-5.

The Northwest Meadow is newly identified as "high quality" as the result of a recent study (Wildlife Research Associates and Jane Valerius Environmental Consulting 2013a). This study found that, "Only four of the seven listed plant species were Rank A or B so this area did not meet the URS criteria for defining high quality grassland habitat. However, since 2007 the presence of California oatgrass and purple needlegrass has increased in this area making it a high quality grassland habitat based on the membership rules as defined by the Manual of California Vegetation (Sawyer et al. 2009)." The Northwest Meadow and the additional high quality

grassland habitat acreage within the Research, Education and Support area may be developed as defined in the LRDP for the Research, Education and Support land use designation. Campus researchers have noted that the coastal terrace prairie on the RFS site is today threatened by invasives (Sousa and Suding 2013). Invasive plants and Harding grass in particular have been spreading rapidly. In 1984 exotic annuals comprised 22 percent of the standing crop, and a 2007 report concluded that Harding grass covered over 40 percent of the grassland (RFS 2012 Restoration Report, ESPM 187).

Lark Drive, an existing street located in the designated Natural Open Space area, would be slightly realigned and improved, but would remain as a minor street with primary traffic flow directed around the perimeter of the RBC site.

Potential impacts of sedimentation and runoff on the Western Stege Marsh and Meeker Slough from removal of grasslands would be minimized by a variety of measures included in Section 4.8, Hydrology and Water Quality, and summarized above in LRDP Impact BIO-2.

Implementation of the 2014 LRDP and the mitigation measures below would result in a net benefit to the quality and continuing preservation of the sensitive natural coastal terrace prairie community at the project site, over existing conditions.

#### **LRDP ENVIRONMENTAL PROTECTION PRACTICE BIO-5**

Currently, and continuing if the LRDP is adopted, the University would mow open space areas consistent with the 2008 report, Richmond Field Station Remediation and Restoration Project Habitat Restoration Progress Report 2003 – 2007, Appendix 2 “Guidelines for Mowing Harding Grass Within and Adjacent to Coastal Terrace Prairie Habitat at the University of California, Richmond Field Station.”

With implementation of the LRDP, including the mitigation measures described below, indirect impacts from individual construction projects and operations on high quality grasslands would be less than significant. Direct impacts on high quality grasslands would also be less than significant.

**LRDP MM BIO-5:** Mitigation for LRDP-related impacts on grasslands will expand as the campus grows.

a) Once the RBC LRDP is approved for implementation, UC Berkeley shall commence initial phase implementation of a Coastal Terrace Prairie Management Plan that addresses exotics removal, tree and *Baccharis* (a genus in the Aster family) removal, weed management, and programs for native plant stock preservation to aid in preservation and enhancement of the grassland portion of the Natural Open Space area. See Appendix G for the 2014 Richmond Bay Campus Coastal Terrace Prairie Management Plan.

b) As initial projects under the LRDP are implemented, proactive (not passive) measures to improve the quality of the native grasslands in the Natural Open Space area shall be funded and undertaken. This may take the form of support for research and education into effective restoration. Possible fund sources include the UC Berkeley Capital Renewal Program, which assesses a four percent fee on all capital budgets (UC Berkeley 2013).

c) Once a project is proposed that may alter high quality grassland within the Natural Open Space land use zone by constructing minor access roads, structures, or boardwalks, the University shall update its Coastal Terrace Prairie Management Plan to guide conservation and enhancement efforts, as well as the siting of boardwalks and minor access roads and structures in a resource-sensitive manner. The plan shall include weed management actions, annual monitoring and reporting, and adaptive management sufficient to maintain or improve the quality of the grasslands preserved in the designated Natural Open Space. The effectiveness of the plan shall be continually evaluated and the plan adjusted as needed.

d) Prior to approving any action to develop the Northwest Meadow or to develop on other high, medium, or low quality grasslands outside of the Natural Open Space land use zone, the University shall conduct a site-specific native plant survey. All survey results would be published to the University environmental website for the RBC. The University would apply the results of such surveys to implement a program that would use the native plant stock from such area to aid enhancement and restoration in Natural Open Space grassland areas, and to develop or restore meadow acreage elsewhere. Possible locations include formal landscaped open areas of the RBC, rooftops of buildings at the RBC, demonstration meadows at UC Berkeley or in the city of Richmond that help explain the former extent of regional coastal terrace prairie grasslands.

**LRDP Impact BIO-6: Development under the 2014 LRDP could have a substantial adverse effect on federally protected wetlands. (*Potentially Significant; Less than Significant with Mitigation*)**

Campus development under the 2014 LRDP could result in adverse impacts on potentially jurisdictional RBC site waters, including drainages and wetlands (Figure 4-8). Wetlands and potential wetlands are described in Section 4.3.2. Most development projected under the 2014 LRDP would have no potential to impact jurisdictional waters. However, some specific development could fill in or create a potential for accidental discharges to jurisdictional waters. Any campus development project resulting in permanent or temporary fill of jurisdictional waters would most likely be subject to provisions of Sections 401 and 404 of the Clean Water Act, Sections 1600 through 1616 of the California Fish and Game Code, and the Porter Cologne Act. Such projects may qualify for a nationwide permit (NWP) issued by the USACE. The most likely applicable NWP for RBC projects would be NWP 39, *Residential, Commercial, and Institutional Developments*. Although nationwide permit specifications vary, NWP 39 typically applies where jurisdictional waters are less than 0.5 acre in area and no more than 300 linear feet of intermittent or perennial stream are to be filled. Even if these limitations are met, the USACE has discretion under certain circumstances to require a more stringent individual permit.

Any project requiring USACE authorization also must obtain a Section 401 RWQCB certification or waiver of certification. These must be obtained prior to project implementation and would stipulate approval conditions designed to minimize adverse effects on wetland resources. Acquisition of these permits is a regulatory requirement and is not considered mitigation for loss of waters of the US. However, the processes for obtaining any state or federal wetlands permits involve the development of compensatory actions similar to CEQA-derived mitigation in scope and intent. In addition to the acquisition of necessary permits, implementation of the mitigation

measure LRDP MM BIO-6 would reduce potential impacts on jurisdictional waters to less than significant levels.

With respect to other wetlands within or near the RBC site, including the Western Stege Marsh and Meeker Slough, no development is planned in the marsh or the slough, so there would be no direct impacts. Indirect impacts on wetlands in these areas would be minimized with measures described in LRDP MM BIO-6.

**LRDP MM BIO-6:**

**BIO-6a:** 2014 LRDP development projects shall avoid, to the extent feasible, the filling of or discharging to potentially jurisdictional waters. Therefore, during the design phase of any future development project that may affect potentially jurisdictional waters, a preliminary evaluation of the project site shall be made by a qualified biologist to determine if the site is proximate to potentially jurisdictional waters and, if deemed necessary by the biologist, a wetlands delineation shall be prepared and submitted to the USACE for verification.

Because the USACE's preferred mitigation for impacts to jurisdictional waters is avoidance, 2014 LRDP development shall be located to avoid the filling of or discharging to jurisdictional waters to the extent practicable.

**BIO-6b:** Any unavoidable loss of jurisdictional waters shall be compensated for through the development and implementation of a project-specific wetland mitigation plan.

If a 2014 LRDP development project were to potentially impact jurisdictional waters, impact compensation would be based on the USACE-verified wetlands delineation identified in Mitigation Measure BIO-6a. During the permit application process for specific development projects that would impact jurisdictional waters, the University would consult with the USACE, CDFW, and San Francisco Bay RWQCB. The consultation would be to identify the most appropriate assessment and mitigation methods to adequately address losses to wetland function that could occur from the development projects. A project-specific wetland mitigation plan would be developed prior to project implementation and submitted to permitting agencies for their approval. The plan may include on-site or off-site restoration or creation or purchasing of credits from a wetland mitigation bank.

All mitigation work proposed in existing wetlands on- or off-site shall be authorized by applicable permits.

**BIO-6c:** To the extent feasible, construction projects that might affect jurisdictional drainages or wetlands shall be scheduled for dry-weather months. Avoiding ground-disturbing activities during the rainy season would further decrease the potential risk of construction-related discharges to jurisdictional waters.

**LRDP Impact BIO-7: Development under the 2014 LRDP would not have a substantial adverse effect on fish and wildlife movement, migratory corridors, or nursery sites. (*Less than Significant*)**

The primary RBC site wildlife movement corridors are the Western Stege Marsh to the south, Meeker Slough along the western border, and the grassy meadows on the western portion of the site (Figure 4-8). The eucalyptus stands also provide movement corridors for those species that require more cover, such as wild turkey, brown towhee, and raccoon. The existing developed areas provide less cover and fewer foraging opportunities, so they have limited value as wildlife movement corridors. Common species that frequent human-altered landscapes, such as raccoons, skunks, opossums, and some songbird species, may move through these areas.

In the short-term, wildlife movement at the RBC site, may be affected by noise, dust, and the presence of people and machinery during construction. Most of these types of impacts would occur in the site's already developed areas and would affect species that are the least sensitive to human activity, such as raccoons, skunks, opossums, and some common songbird species. These effects would primarily be changes in movement patterns. Birds might flush due to noises and movements and temporarily avoid using the area.

More sensitive species and habitats occur in the marsh and slough and in the high quality coastal-terrace grasslands that are outside the development footprint, and in areas that would be designated as Natural Open Space. Thus, in the short-term, these areas would not be directly affected during construction. Noise, dust, and movement associated with construction activities adjacent to the Natural Open Space, could have minor short-term effects by altering behavior during construction.

In the long-term, there would be minor adverse effects on wildlife movement corridors due to the presence of additional people and vehicles on the RBC site. Common wildlife species that frequent human-altered habitats would continue to use the developed portions of the site for movement, potentially in fewer numbers due to increased density of buildings. Wildlife movement through the grasslands and marsh that would be part of the Natural Open Space would continue. The frequency of wildlife being disturbed from human presence in these areas would likely increase slightly due to more people being present. Measures described previously, including lighting aimed away from Natural Open Space and interpretative signs, would help minimize disturbance of wildlife movements.

Effects on wildlife movement at the RBC site would not be substantial because the primary corridors would remain intact, although narrowed due to the potential development of the Northwest Meadow, and be protected via the Natural Open Space designation. Most of the construction and activity from operations would occur in areas that would primarily affect species adapted to human landscapes. For these reasons, impacts on wildlife movement would be less than significant.

**Mitigation Measure:** No mitigation measure is required.

**LRDP Impact BIO-8: Development under the 2014 LRDP would not conflict with any local applicable policies protecting biological resources. (*Less than Significant*)**

2014 LRDP campus development projects would not conflict with Richmond 2030 General Plan policies related to biological resources protection. While not specifically implementing these



General Plan measures, the LRDP is consistent with GOAL CN1: Preserved and Restored Natural Habitat and Biodiversity and the following policies and actions:

- Policy CN1.1 – Habitat and Biological Resources Protection and Restoration. Natural habitat is essential to ensuring biodiversity and protecting sensitive biological resources.
- Policy CN1.2 – Local Native Plant Species. Promote the use of locally propagated native plant and tree species and remove and control the spread of invasive exotic plant species.
- Action CN1.B – Priority Conservation Areas. The City will identify areas of the City with significant natural habitat, open space and recreation resources and promote conservation, preservation and environmental rehabilitation.

The LRDP is also consistent with Richmond 2030 General Plan GOAL CN2: Conserved Open Space and the following policy:

- Policy CN2.1 – Open Space and Conservation Areas. Preserve open space areas along the shoreline, creeks, and in the hills to protect natural habitat and maintain the integrity of hillsides, creeks and wetlands.

The impact would be less than significant.

**Mitigation Measure:** No mitigation measure is required.

### ***Cumulative Impacts and Mitigation Measures***

**LRDP Cumulative Impact BIO-1:** **Development under the 2014 LRDP together with cumulative development in the region would not result in significant cumulative impacts on biological resources. (*Less than Significant*)**

This section evaluates whether development under the 2014 LRDP, in combination with other past, present, and reasonably foreseeable future LBNL, UC Berkeley, and non-UC projects, would result in significant cumulative biological resources impacts. In addition, this analysis includes cumulative growth impacts potentially resulting from City of Richmond General Plan 2030 implementation. Future plans and projects include the South Shoreline Specific Plan, Bio Rad Laboratories Office/R&D Lab Upgrade Project, Marina Bay Ferry Terminal, Marina Bay/Trails Landscaping, Officer Bradley A. Moody Memorial Underpass, Fort Building Rehabilitation Project, and the Terminal One Development Project.

The cumulative setting, or region of influence, for biological resource analysis, includes the 134-acre RBC site and the City of Richmond Southern Shoreline Planning Area.

This analysis evaluates whether the proposed LRDP impacts, together with cumulative development impacts, would be significant (based on the significance criteria at the beginning of the biological resources section). For any significant cumulative impacts identified, the analysis assesses whether the LRDP contribution would be considerable. Both conditions—significant cumulative impact and considerable LRDP contribution—must apply for the project’s cumulative impacts to be considered significant (Title 14, CCR, Article 5, Section 15064).

Development of projects under the 2014 LRDP and Richmond 2030 General Plan residential development in the region of influence outlined above would collectively reduce open space and available habitat for both common and special-status wildlife and plants. However, open space currently comprises a large portion of the region of influence. Future projects would combine

new development with some created open space. Most of the RBC site's ecologically sensitive habitats would be retained and protected as open space. Loss of any high quality grassland areas under the LRDP would represent a loss of a sensitive community; however, loss of the community is occurring with existing passive management strategies and may be inevitable without proactive management techniques.

Cumulative effects of development on biological resources are measured largely against the extent to which those resources are protected in plans and during specific project implementation. The City of Richmond 2030 General Plan and other plans listed above (not including the LRDP), contain policies and guidelines for protecting natural resources, including special-status species, sensitive natural communities, and jurisdictional waters. Development would be subject to federal, state, and local laws that require avoiding and minimizing impacts to special-status species, sensitive natural communities, jurisdictional waters, and wildlife migratory corridors and nurseries through a variety of means including resource-specific management planning and mitigation requirements. Mitigation measures and BMPs applied to specific projects would minimize the potential for substantial adverse impacts on biological resources from other projects. Therefore, cumulative impacts on biological resources resulting from the proposed LRDP and the other projects considered in this section would be less than significant.

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