

UNIVERSITY OF CALIFORNIA AT SANTA BARBARA

**NORTH CAMPUS OPEN SPACE
RESTORATION PROJECT**

DRAFT ENVIRONMENTAL ASSESSMENT

Prepared by

Rodriguez Consulting, Inc.,
under contract to U.C. Santa Barbara

For

**U.S. FISH AND WILDLIFE SERVICE
Wildlife and Sport Fish Restoration Program**

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NORTH CAMPUS OPEN SPACE RESTORATION PROJECT

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1.0 SUMMARY

The California State Coastal Conservancy (SCC) has applied for, and was selected to receive, National Coastal Wetland Conservation grants from the U.S. Fish and Wildlife Service (USFWS), Wildlife and Sport Fish Restoration (WSFR) program, to help fund the implementation of the University of California at Santa Barbara's (UCSB) North Campus Open Space (NCOS) Restoration Project (Project). The NCOS Restoration Project has been proposed by UCSB to restore and enhance tidal and freshwater wetlands and associated upland habitats that are characteristic of the historic Devereux Slough ecosystem. The purpose of the Project is to restore the tidal connection and establish estuarine and freshwater wetlands with an associated mosaic of upland coastal habitats, all of which were eliminated by the borrow and fill operations conducted for the construction of the Ocean Meadows Golf Course in 1965. Implementation of the Project will help to meet the goals of the Coastal Wetland Conservation Act (16 USC 59A §3954) while satisfying UCSB's desire to provide permanent restoration of coastal tidal and freshwater wetlands, upland habitats; provide research opportunities for UCSB faculty and students; and provide public access for recreation. The Project is located on the 1,056-acre UCSB Campus, which is located in an unincorporated area of Santa Barbara County, California (Figure 1).

While restoration aspects of the project are receiving federal funds through the National Coastal Wetlands Restoration Program, the public access and trails component is being financed with Local Transportation Assistance Funds granted by the Federal Highways Administration through the California Department of Transportation (Caltrans). The public access component for recreation includes a system of trails and bridges around the restored open space lands to allow viewing of the restored upland and wetland coastal habitat.

The grant periods currently extend through 2019. The grants from WSFR provide \$3 million in federal monies from National Coastal Wetlands Conservation Grant Program funds; and a matching funds program established to assist the States with the acquisition and restoration of coastal wetlands. The grant from Caltrans provides funding to assist in the development of the trails and bridges that would be constructed on the NCOS project site. Additional non-federal funds for the implementation of the NCOS Restoration Project come from other agencies and organizations, including the California State Coastal Conservancy, California Natural Resources Agency (Urban Greening Program), California Department of Transportation, California Department of Fish and Wildlife, California Department of Water Resources, and the Santa Barbara County Flood Control Department.

Implementation of the NCOS Restoration Project will require excavation and placement of fill in waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers

(USACE). USACE will issue an individual Section 404 permit for these fill activities on approximately 13 acres of jurisdictional wetlands.

The federal grant awards and issuance of federal permits require that compliance with environmental laws is completed prior to final obligation and use of the grant funds and prior to the start of Project-related construction. This Environmental Assessment (EA) has been prepared to fulfill the USFWS's obligations under the National Environmental Policy Act (NEPA) prior to releasing funding for the Project. Caltrans and USACE will conduct separate NEPA compliance to support their decision-making processes. In the interest of analyzing the breadth of the NCOS project, this EA will identify and consider the full range of effects associated with this project, recognizing that a subset of those effects will also be evaluated by Caltrans and USACE.

2.0 PROJECT LOCATION

The NCOS Restoration Project site is located on the 238-acre UCSB North Campus, which is generally bordered by the City of Goleta to the east, west and north; and the UCSB West Campus to the south. The NCOS Restoration Project includes three parcels: the South Parcel (68.9 acres), Whittier Parcel (3.70 acres) and the former Ocean Meadows Golf Course (63.8 acres). The three parcels that comprise the NCOS Restoration Project site are depicted on Figure 2. Land uses adjacent to the project site include the UCSB Ocean Walk faculty housing project and the University Village residential neighborhood in the City of Goleta to the north; the UCSB Sierra Madre and West Campus Apartments to the east; the Coal Oil Point Reserve, Devereux Slough and the former Ellwood Marine Terminal to the south; and the Ellwood Mesa open space area to the west. Land uses adjacent to the NCOS Restoration Project site are also depicted on Figure 2. The project site is located at the downstream end of a 3.5-square mile watershed that includes Devereux Creek, Phelps Creek (also known as El Encanto Creek north of the project site) and several unnamed tributaries.

3.0 BACKGROUND

The Ocean Meadows Golf Course was created in 1965 when approximately 500,000 cubic yards of soil was removed from the South Parcel and other adjacent lands and used to fill the historic northern extent of the Devereux Slough, leaving a ditch-like Devereux Creek channel to convey drainage through the site. The borrow and fill operation essentially denuded the South Parcel and eliminated the native habitat and tidal wetlands north of Venoco Road (not a public road). The golf course was closed in 2013 after the parcel was purchased by the Trust for Public Land, who then donated the property to UCSB with the obligation that it be maintained as permanent open space; that the site provide passive recreation, coastal wetland and wildlife

habitat; that the University implement conservation and restoration programs on the site; and that the site be used for research and environmental activities.

The NCOS Restoration Project would restore portions of the historic northern extent of the Devereux Slough primarily on the former golf course property, and would also restore portions of the South Parcel. The restored former slough and uplands would reflect ecological functions consistent with historic conditions modified to accommodate existing opportunities and constraints and the future effects of climate change. Proposed restoration efforts would expand slough, wetland and transitional and upland habitats; provide public access and passive recreation amenities; and promote educational opportunities. Restored areas would be revegetated with native species to re-create a diverse range of habitats that would connect to and expand important native habitats of the existing lower Devereux Slough and the neighboring Coal Oil Point Reserve.

Restoration of the former upper portion of the Devereux Slough would be accomplished by excavating approximately 350,000 cubic yards of soil primarily from the golf course property, and by placing the excavated soil primarily on the South Parcel. The proposed soil movement would, at least partially, reverse the excavation and fill actions that were conducted to develop the golf course. To re-establish a functional hydrologic connection between the restored estuary habitats on the project site and the lower Devereux Slough, the Project would remove a sheet pile water control structure (sill) and associated armoring from Devereux Creek. This sill is located north of and adjacent to the Devereux Creek bridge, which is located near the southeastern corner of the project site. Venoco Road is located along the southern boundary of the project site and provides access to the recently decommissioned Ellwood Marine Terminal.

4.0 PURPOSE OF THE PROPOSED ACTION

The primary purpose of the Project is to restore the NCOS, which is an area approximately 136 acres in size that is comprised of the former Ocean Meadows Golf Course, Whittier and South Parcel properties, to a geomorphic configuration, hydrologic regime and habitat mosaic that resembles conditions that existed on the project site prior to the construction of the Ocean Meadows Golf Course. The objectives of the overall restoration efforts are to restore soil and hydrologic conditions capable of supporting a suite of declining wetland types lost to the site due to prior uses. On the largest scale, this includes more than 35 acres of estuarine and palustrine habitat within the historic upper arms of Devereux Slough, as well as the diversity of habitats once found on the adjacent borrow sites, including vernal pool complexes. To provide the public access, and guide them in the appropriate uses of the restored NCOS project site, a trail and bridge system is to be established that will facilitate controlled public access and guided circulation. This project will also implement the site restoration policies of the UCSB 2010 Long Range Development Plan (LRDP).

5.0 NEED FOR THE PROPOSED ACTION

Southern California's coastal wetland resources support complex relationships between ecologic and hydrologic functions. It is estimated that in the mid-1800's the Southern California coast between Point Conception to the U.S. Mexico border supported over 48,000 acres of estuarine habitats. Approximately 40 percent of this area was vegetated wetlands (e.g., saltmarsh), 25 percent was unvegetated wetlands (e.g., salt flat and mudflat), and the remaining 35 percent was subtidal water. Since the mid-1800's there has been an overall loss of approximately 23,000 acres, or 48 percent, of the historical estuarine habitat on the Southern California coast. Estuarine vegetated wetlands have experienced the greatest loss in terms of absolute area (over 14,370 acres), while estuarine unvegetated wetlands have experienced the greatest proportional loss of 78 percent of historical extent (SCCWRP, 2014).

The Devereux Slough is a seasonally tidal estuary that includes saltmarsh, salt flat, mudflat and other sensitive habitats that support an abundance and diversity of species. The slough is approximately 50 acres in area but its size has been substantially reduced from historical conditions. The surface area was reduced by approximately 68 acres between 1871 and 1929 by the development of an access road that cut off most the upper portions of the estuary to tidal flow. Between 1929 and 2003, the slough was further reduced in size and it is currently about 38 percent of its size in 1871.

A major reduction in the size of the slough occurred in 1965 when approximately 500,000 cubic yards of soil was removed from the South Parcel, the Whittier Parcel, and other adjacent lands, and was used to fill the remaining northern extent of the Devereux Slough to create the Ocean Meadows Golf Course. Construction of the golf course left a ditch-like Devereux Creek channel to convey storm water drainage through the site. The golf course was closed in 2013 and vegetation on the site is now dominated by remnant grasses, small weedy shrubs, bushes and ornamental landscape trees. Devereux Creek on the golf course property supports dense patches of eutrophic freshwater marsh and riparian scrub habitats.

The project site is now extensively used for a variety of passive and active recreation uses, included walking and hiking, dog-walking, bicycle riding, motorcycle riding, and other uses. The use of bicycles and motorcycles on the site has resulted in the creation of numerous trails and barren areas that are eroding and contributing to downstream sedimentation impacts to the Devereux Slough.

Implementation of the Project will implement policies established by the 2010 Long Range Development Plan (LRDP) to provide permanent open space for recreation (trails), restoration of coastal wetland and upland habitats, and research opportunities for UCSB faculty and students. The LRDP is a land use plan for the development of future campus facilities, and the stewardship of the campus environment. The LRDP also addresses the requirements of the

California Coastal Act of 1976, which regulates development on California's coast. The LRDP is certified by the Coastal Commission and includes Coastal Commission-approved policies that commit the University to restoring the former Ocean Meadows Golf Course property. For example, Policy OS-4 states: "*Such restoration shall include habitat restoration, coastal access parking and trails, and potentially a visitor or interpretive center. The restoration shall be initiated prior to occupancy of the first campus housing project Notice of Impending Development approved subsequent to the 2010 LRDP and shall be fully installed by 2030, and monitored and maintained until successful.*"

6.0 SCOPING AND PUBLIC PARTICIPATION

Scoping. The NCOS Restoration Project is a collaborative effort being led by UCSB. The University has reached out to coordinate Project review and identify issues and concerns for local, state, and federal regulatory agencies.

- Representatives from UCSB met with Caltrans staff on September 28, 2015 and February 18, 2016 to review the Project and Caltrans environmental review requirements.
- Representatives from the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), Coastal Commission, Santa Barbara County Public Works Department, Santa Barbara County Flood Control Agency, and State Coastal Conservancy met with UCSB staff to review the proposed Project on January 15, 2016 and at several earlier meetings in 2012.
- Follow up project site tour and discussions with CDFW occurred on March 15th with a follow up phone call (April 8th).
- The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) provided information on May 19, 2016 regarding the evaluation of project effects on Essential Fish Habitat.

Public Participation. Planning efforts to solicit public input regarding the design of the NCOS Restoration Project included three public workshops and five design charrettes conducted in 2013. Three alternative restoration concept plans for the project site were presented to the public in 2014 and a questionnaire was circulated to receive feedback from the community regarding proposed design concepts and to identify community priorities related to the restoration of the project site. A neighborhood meeting was conducted on February 23, 2016 to present the proposed design of the Project and to answer questions about how the Project would be constructed and maintained.

In response to scoping and public participation efforts, this EA evaluates a range of environmental issue areas, including:

- Aesthetics
- Agriculture and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Service Systems

7.0 ALTERNATIVES

7.1 Alternatives Eliminated From Further Analysis

The primary purpose of the Project is to restore the NCOS, which is an area approximately 136 acres in size that is comprised of the Ocean Meadows Golf Course, Whittier and South Parcel properties, to a geomorphic configuration, hydrologic regime and habitat mosaic that resembles conditions that existed on the project site prior to the construction of the Ocean Meadows Golf Course. The primary purpose of the project would not be achieved if an alternative project site were selected for implementation. Therefore, an Alternative Project Site was not evaluated.

7.2 No Action

Under the No Action Alternative, the USFWS would not provide grant funding for the NCOS Restoration Project. Without the grant funding contribution the feasibility of implementing the Project would be reduced and the project site would remain in its existing condition.

If the No Action Alternative were to be implemented, no habitat restoration activities would be conducted on the project site, the project site would remain in its existing condition, and the non-native and invasive plants that cover much of the site would remain. Existing drainage patterns on the project site would be retained, which are resulting in erosion impacts, primarily on the South Parcel portion of the project site. Existing erosion-related impacts have resulted in the creation of drainage gullies and sedimentation of the Devereux Slough. The project site would continue to be used by the public for a variety of recreation uses, and the existing network of former golf course paths and informal trails that have been developed on the site would remain. The existing golf course paths are deteriorating and the trail network is

resulting in adverse erosion-related impacts. Due to poor drainage conditions, some of the on-site trails become inundated after moderate rains, and when this occurs trail users create new paths in areas that are not inundated, which exacerbates erosion-related impacts. Existing recreation uses of the project site also result in unconstrained access throughout the site, which can result in impacts to wildlife and their habitat.

7.3 Proposed Action

Project Design Concepts. The NCOS Restoration Project would seek to recreate more natural conditions and greater ecological functionality within a 136.4-acre project area, which has been disturbed and significantly altered by human use and development for many decades. Major aspects of the NCOS Restoration Project include the excavation of approximately 350,000 cubic yards of soil primarily from the Ocean Meadows Golf Course property to restore subtidal estuarine habitat to portions of the historic estuary footprint of the upper Devereux Slough; the removal of the sheet pile grade control (sill) structure located in Devereux Creek north of Venoco Road to restore hydrologic connectivity between the lower Devereux Slough and the former upper slough area that is now occupied by the former Ocean Meadows Golf Course; and planting appropriate native species to restore a diversity of wetland habitats characteristic of the Devereux Slough system.

The restoration activities proposed for the Ocean Meadows Golf Course, Whittier and South Parcel properties would restore the upper slough and adjacent South Parcel mesa to a geomorphic configuration, hydrologic regime and habitat mosaic that resembles conditions that existed on the project site prior to the construction of the Ocean Meadows Golf Course. The Project would enhance and establish a variety of habitat types, including estuarine, seasonal wetland, riparian, vernal pool, and native upland habitats. The habitat areas that would be created by the Project are conceptually depicted on Figure 3.

The diverse range of habitat areas proposed for the project site would have the potential to support a variety of special status plant and animal species, including southern tarplant, tidewater goby, Belding's savannah sparrow and western snowy plover. The enhanced and created habitat areas would provide connections to the 652-acre Ellwood-Devereux Coast Open Space. Public access and educational opportunities would also be provided on the project site, including trails, interpretive signage, and viewing stations. The project would also provide connections to regional trails, such as the Anza and California Coastal trail.

Grading And Topography. Approximately 350,000 cubic yards of soil that was used to fill the upper portion of the Devereux Slough would be excavated and placed on the South Parcel mesa. The Project grading has been designed to mimic topography similar to the natural range

of topographic variation observed at nearby reference sites, while also providing opportunities for public access and maintaining existing levels of flood protection.

Areas of the project site along the segment of Devereux Creek that extend between its confluence with Phelps Creek and the Devereux Creek Bridge, and along the unnamed drainage channel on the eastern portion of the project site that is a tributary to Devereux Creek, would be recontoured to create a subtidal slough channel, including mudflats and marsh plain (vegetated salt marsh and unvegetated sediments) terraces, and gradual transitional areas (high marsh to upland habitats). These areas would have varied topography with slopes gradients ranging from 10:1 to 200:1 (h:v), and ground surface elevations in the restored wetland areas would generally vary between five and ten feet NAVD¹. The deepest sections of the slough channels would be graded to an elevation of 3.5 feet NAVD.

An upland transition area would be created around the eastern and northern perimeters of the project site, with elevations rising from elevation 10 feet NAVD at the edge of the restored wetland to elevation 15 feet NAVD along the proposed primary trail, with slopes gradients varying from 3:1 to 10:1. The area along the northern perimeter of the project site would include bioswales and low (two to three feet) landscape berms. Proposed grading in the northwestern portion of the project site would generally lower existing ground elevation approximately two to three feet and would pull back the banks and avoid the core of the existing Devereux Channel except for removing culvert sections and old golf-cart crossing paths located along the segment of Devereux Creek that extends between the western project site boundary and its confluence with Phelps Creek. Grading in an area north of the reconfigured Devereux Creek channel would lower the existing ground surface approximately three to seven feet to create a new seasonal pond (0.9 acre) and salt marsh habitat.

Grading at and near the Phelps Creek confluence with Devereux Creek would create a pond that would connect Phelps Creek to the restored estuary. The pond would provide freshwater/brackish wetland habitat and may also provide habitat and a side area refugia out of the main flow channel suitable for tidewater goby. The pond would have a depth of about two feet. High water flows in Phelps Creek would be directed southward through the pond and a new grade control structure at the southern end of the pond. Two channel bottom-elevation ungrouted rip rap grade control structures would be constructed above and below the pond to minimize the potential for erosion-related impacts and would provide for a gradual step down from 8 foot elevation creek bottom to 5 foot elevation channel bottom in the estuary.

¹ The North American Vertical Datum of 1988 (NAVD 88) is the vertical control datum of orthometric height established for vertical control surveying in the United States of America based upon the General Adjustment of the North American Datum of 1988.

Grading proposed to occur on the Whittier Parcel would include modifications to the banks of the drainage channel that carries runoff from residential areas to the north. The channel would be widened to create a fresh/brackish wetland that would serve as a transitional connection to the restored estuary. Existing vernal pools on the Whittier Parcel would also be enhanced by increasing their depth, which would improve their hydrologic function.

Soil removed from the golf course and from the channel on the Whittier Parcel would be transported to the South Parcel and used to create slopes and upland areas that are similar to topographic conditions in natural areas near the project site. The proposed grading plan for the South Parcel would create areas with soil characteristics and topography designed to facilitate the creation of several types of upland habitat, including: backdune/woodland scrub, coastal sage scrub, sandy unvegetated areas potentially suitable for use by snowy plover, and clay-rich areas supporting native perennial grasses and vernal pools.. The South Parcel topography would rise from elevation 10 feet NAVD at the wetland edge on the northern portion of the parcel up to elevation 45 feet NAVD to match existing grades along Venoco Road. The configuration of slopes to be created on the South Parcel would vary. The majority of the South Parcel would have slopes typically varying in gradient between 5:1 and 50:1 or shallower, while the steepest slopes would have small portions with slope gradients of 3:1.

All proposed excavation and fill operations on the project site would comply with applicable UCSB Long Range Development Plan policy and LRDP Final EIR mitigation measure requirements, including water quality policies that serve to eliminate or minimize the potential for short- and long-term erosion and sedimentation impacts to coastal water resources and sensitive habitat areas. The Project would also comply with applicable federal and state regulations, including but not limited to the requirements of the State Construction General Permit (State Water Resources Control Board Order 2012-0006-DWQ) which includes measures to eliminate or reduce pollutant discharges through the implementation of a Storm Water Pollution Prevention Plan.

Devereux Slough Hydrology. The project site and the lower Devereux Slough experience a seasonal cycle of inundation controlled by the local freshwater hydrology, slough mouth dynamics, and the long-term changes to the topography of the project site resulting from the construction of the Ocean Meadows Golf Course. Evaluations of existing hydrologic conditions determined that water levels in the lower Devereux Slough vary from month to month and between years, ranging between heights of eight to 10 feet NAVD in the winter months prior to mouth breach events, and lows of four to six feet during the late summer and fall after beach, storage and evaporation deplete water trapped behind the beach berm at the slough mouth (UCSB, 2015).

The NCOS Restoration Project would restore tidal flow to the former upper portion of the Devereux Slough that is now occupied by the golf course. Evaluations of proposed hydrologic conditions within a restored slough indicate that without considering the effects of sea level rise, Project-related changes to conditions at the slough mouth would have the following major hydrological effects:

- The duration of open slough mouth conditions in the lower slough would be slightly extended as added intertidal volume would lead to stronger currents and a corresponding increase in scour at the slough mouth.
- Slough mouth breaching would be delayed in wet years and prevented in some dry years because the added slough volume would require more runoff to reach levels that would cause the slough mouth to breach. This increases the likelihood of winter water levels reaching roughly eight feet NAVD and occasionally up to 10 feet NAVD.
- The Project would have more influence in prolonging mouth closures than in extending open-mouth tidal conditions.
- Overall, the expected range of water levels in the slough would be similar in wetter and drier years, but mean levels would be slightly higher during dry years due to fewer breach events. Water levels in the slough would most often be in the range from 5.5-7.5 ft. NAVD for both wet and dry years.

In summary, the Project would result in fewer breaches of the slough mouth, which would result in higher water levels in the slough and more frequent mudflat inundation, which would increase habitat value for migratory shore birds. With the Project it is expected that mudflats would be inundated 20 percent of the time, and without the Project mudflats are inundated 15 percent of the time.

The effects of future sea level rise were also considered in the Project's design. The main effect of sea level rise related to the Project would be to shift tides upward relative to the site topography so that typical tides will drown existing mudflat and salt flat areas more frequently if marsh accretion cannot keep pace with the rise in water levels. Marsh accretion is the process of gradual rise in the elevation of a marsh plain caused by deposition of sediment and/or growth of organic material over time. Currently, oceanic high tide levels are below most of the salt flats in the lower Slough, and are blocked by the sill at the Devereux Creek Bridge. With sea level rise of three 3 feet by 2100, the intertidal volume of the project site is expected to increase by roughly 100 to 350 percent (double to quadruple the existing volume), more frequently drowning the salt flats and the project site upstream of the sill. The larger intertidal volume would lead to longer open-mouth conditions after mouth breaches occurred, but larger inflows would be needed for breaches to occur because the site would hold more runoff.

Future seal level condition effects on the Project's design were considered using a "Quantified Conceptual Model" (QCM). In this analysis it was assumed that the beach would shift upward at a pace equal to sea level rise. With three feet of sea level rise and zero feet of accretion, prolonged periods of open-mouth tidal conditions and prolonged mouth closures are expected in the lower Slough. Prolonged closures are expected in dry years because of the larger volume of the slough below the higher beach berm, which would mean more water is required to fill the slough to a breach elevation. In wet years, the QCM predicted that breaches would occur despite the larger volume of the slough, and the large intertidal volume would maintain an open mouth for several months at a time (compared to less than 20 days at a time at present). With one to two feet of marsh accretion, the relative increase in slough volume with sea level rise is reduced by the loss of volume associated with the accretion. With one foot of accretion, the slough mouth behavior is similar to the no-accretion case. With two feet of accretion, the effect of three feet of sea level rise on mouth conditions is largely eliminated, and the slough remains primarily closed, similar to existing conditions.

Habitats. The majority of the project site has been disturbed, primarily as a result of previous excavation and fill operations that were conducted to construct the Ocean Meadows Golf Course. However, there are sensitive habitats located throughout the South Parcel and to a lesser extent within the golf course and Whittier Parcel. Examples of sensitive habitat areas that occur on the project site include freshwater marsh within Devereux Creek through the golf course, and within the unnamed Devereux Creek tributary located on the eastern portion of golf course, and within the channel and ditch on the Whittier Parcel. Low grade vernal pool wetlands have also been identified on the Whittier Parcel. The function and value of existing sensitive habitat areas on the project site varies substantially.

Implementation of the Project would result in direct (removal) impacts to some of the sensitive habitat areas located on the project site. The removed habitat, however, would be replaced with expanded estuarine, riparian, vernal pool, and native upland habitats. Table 1 provides a summary of the types and area of habitats that would be impacted, preserved, and created by the Project. As shown on Table 1, the Project would impact approximately 12.4 acres of existing sensitive habitat, including 9.5 acres of freshwater/brackish marsh; and approximately 6.0 acres of on-site sensitive habitat would be preserved. Most of the preserved habitat includes isolated areas on the South Parcel with southern riparian scrub, native grassland, and coastal sage scrub. Vernal pool habitat located on the Whittier Parcel would also be retained and enhanced.

Table 1
Existing and Proposed Project Site Habitat Types

| Habitat Type | Existing Habitat Area | Acres Impacted | Acres Created | Acres Preserved | Total Acres With Project |
|-----------------------------|-----------------------|----------------|---------------|-----------------|--------------------------|
| Subtidal/Aquatic | 0.0 | 0.0 | 5.5 | 0.0 | 5.5 |
| Mudflat/Salt Flat | 0.0 | 0.0 | 9.5 | 0.0 | 9.5 |
| Marsh Plain | 0.9 | 0.0 | 17.4 | 0.9 | 18.3 |
| Freshwater/Brackish Wetland | 9.5 | 9.5 | 0.5 | 0.0 | 0.5 |
| High Marsh/Transition | 0.0 | 0.0 | 13.1 | 0.0 | 13.1 |
| Southern Riparian Scrub | 3.1 | 0.4 | 4.1 | 2.7 | 6.8 |
| Native grassland | 0.9 | 0.4 | 29.7 | 0.5 | 30.2 |
| Vernal Pool/Native Grass | 0.7 | 0.0 | 4.1 | 0.7 | 4.8 |
| Coastal Sage Scrub | 2.7 | 1.5 | 14.9 | 1.2 | 16.1 |
| Seasonal Wetland | 0.4 | 0.4 | 0.9 | 0.0 | 0.9 |
| Semi-Perennial Wetland | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 |
| Sandy Dunes | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 |
| TOTAL | 18.4 | 12.4 | 100.0 | 6.0 | 106.0 |

Source: UCSB, 2015

It is anticipated that the project would improve habitat for a wide range of plant and animal species, including five federally listed species known to occur in the project vicinity, including: the federally endangered tidewater goby, California least tern, Ventura marsh milk-vetch, and the federally threatened western snowy plover and the California red-legged frog; as well as two state listed endangered species, Belding’s savannah sparrow and peregrine falcon.

Public Access. A network of trails is proposed for the project site, and the types and locations of the on-site trails are depicted on Figure 4. Proposed trails and bridges are described below.

- Primary Trail: 1.2 miles of 10- to 12-foot wide trail surfaced with a soil/gravel road base material.
- Secondary Trails: 1.25 miles of six-foot wide trails, including a trail along the south side of North Campus Housing trail surfaced with Class 2 rock base, and a six-foot wide trail in the southwestern portion of the site surfaced with native soils.
- Tertiary Trails: 0.15 of a mile of four-foot wide trails surfaced with native soils.
- Bridge A: This structure would be located near the Sierra Madre Housing project and would follow a former roadway across the unnamed tributary to Devereux Creek. This bridge would be a paved crossing over a culvert and would be approximately 100 feet long by 12 feet wide.

- **Bridge B:** This structure would be a boardwalk located on the northeastern portion of the golf course parcel and would cross several small channels that drain from the Whittier Parcel. The timber boardwalk would be approximately 100 feet long by 12 feet wide and no vehicle loads would be placed on the structure.
- **Bridge C:** This structure would be constructed of steel, would be located on the eastern portion of the project site, and would cross the unnamed tributary to Devereux Creek. The bridge would be approximately 300 feet long by 12 feet wide, and supported by concrete piles cast in drilled holes placed at approximately 100-foot intervals. The bridge would be above flood water elevation and able to support a maximum weight vehicle of 5,000 pounds. To minimize costs, the bridge length may be shortened to approximately 200 feet by using lengthened soil earth embankment approaches.
- **Bridge D:** This structure would be constructed of steel and would cross Phelps Creek on the northern portion of the project. The bridge would be approximately 100 feet long by 12 feet wide, and supported by concrete piles cast in drilled holes placed at approximately 100-foot intervals. The bridge could be inundated during larger storms and would be able to support a maximum weight vehicle of 5,000 pounds.
- **Pier and Viewing Platform:** This structure would be constructed of timber and located on the northern portion of the project site with access from the proposed primary trail. The pier would be 100 feet long by 12-ft wide, with a 25- by 25-foot end platform. The pier and platform would be supported on timber piles placed at approximately 20-foot intervals. The structure would have a maximum elevation of approximately seven feet above surrounding grade, would be located above flood elevations, and no vehicle loads would be placed on the structure. Construction of the pier and viewing platform would be subject to adequate funding. If not constructed, an on-grade viewing area would be provided at this location.
- **Rehabilitation of the former golf course parking lot** to provide approximately 30 vehicle parking spaces.
- **Gathering Area:** Informal area with benches and interpretive signs located adjacent to the rehabilitated parking lot.

All bridges would be designed and constructed using commonly accepted design requirements, such as those specified by the US Army Corps of Engineers, Caltrans and/or local public works standards.

Project Implementation. Implementation of the NCOS Restoration Project would consist of three general phases: 1) pre-construction collection and propagation of plants; 2) construction of the project; and 3) maintenance and monitoring of the Project. Details for each of the Project implementation phases are provided below.

Pre-Construction Collection and Propagation of Plants. Seeds, rooted cuttings, and container plants to be planted on the project site would be obtained on or near the project site to the extent feasible. Native plants that can be salvaged from the project site, such as salt grass (*Distichlis spicata*) would be collected and prepared for replanting. These plants, as well as any plants not available from the project site, would be collected and grown by CCBER and/or a contract grower with qualifications and experience in the propagation of native plants.

Seeds and cuttings would be collected during the appropriate seasons, and propagated or stored for later installation on the project site. Live cuttings for wattles and pole plantings in riparian areas would be collected immediately prior to installation. The timing of collection and preparation of plants to be salvaged will be determined based on detailed construction plans and by cultural requirements of each species. Seed will be collected from as many on-site species and as many individuals as feasible. Seed from individual species will be cleaned and stored separately until planting. Purchased seed, if any, will be from local or similar genetic sources, or sterile grasses for use in erosion control.

Construction. Construction of the Project would include mobilization, site preparation, bulk earthwork and fine grading, installation of grade control/scour protection, improvements to storm water drainage, installation of public access features, and revegetation. Each of these Project construction components are described below.

Mobilization. This element of the construction project includes preparation and implementation of a stormwater pollution prevention plan (SWPPP); establishment of vehicle access, equipment and material staging, and stockpile areas on the project site, which includes the installation of erosion control measures identified by the SWPPP; establishment of survey control and any necessary pre-construction topographic surveys; and implementation of habitat protection measures.

Access to the project site by construction vehicles would be from Whittier Drive and Venoco Road. Soil excavated from the golf course and the Whittier Parcel would be transported to the South Parcel by trucks using temporary haul roads located on the project site. Temporary haul roads would cross on-site creeks at locations where existing culverts are in place, including two crossings over the unnamed tributary to Devereux; a Devereux Creek crossing on the western portion of the project site; and a crossing over Phelps Creek. Another Devereux Creek crossing would be provided by installing a new culvert at a location that is southwest of the unnamed tributary/Devereux Creek confluence. This culvert would be removed from the creek prior to the start of the rainy season.

The primary staging areas for the Project would be located north of and adjacent to Venoco Road on the South Parcel; and on the Whittier Parcel and former golf course parking lot. All staging would be located a minimum of 100 feet from residential areas. At the conclusion of

soil-hauling and construction operations, all temporary haul roads and staging areas would be removed and revegetated consistent with surrounding restored habitat areas.

Habitat protection measures to be implemented during construction include the installation of temporary fencing to exclude sensitive wildlife species from entering the project site and to protect existing wetland and riparian habitats that are to be preserved on and adjacent to the site. Prior to the commencement of site preparation and earthwork, the construction boundary adjacent to existing habitats to be preserved will be clearly marked with fencing and flagged to prevent accidental equipment operation in those areas. Such fencing and flagging would extend a minimum of 15 feet outside the edge of habitat. Fencing around the riparian habitat on Phelps Creek and South Parcel would be installed 15 feet outside the dripline of riparian trees. Native plants to be salvaged from the project site will be identified and marked off for protection prior to removal and relocation to an on-site growing ground or planting site.

Construction equipment, debris, building materials, excess soil, and employee or other vehicles will not be parked or stored within 15 feet of any protected area. Construction plans and specifications will include requirement to impose fines to ensure that no damage is done to the habitat to be preserved on and adjacent to the project site.

Site Preparation. In conjunction with bulk earthwork, existing golf course infrastructure would be demolished and removed. Existing infrastructure includes items such as cart paths, irrigation system components and the clubhouse. Culverts along Devereux Creek that were installed to construct golf course paths would be removed, and plant material to be salvaged would be collected.

Prior to grading operations within a specified area the surface vegetation would be removed. Native vegetation would be salvaged to the extent possible. Herbaceous vegetation that is removed may be buried on the project site, and woody vegetation would be chipped and composted on site for use as mulch and/or salvaged and stored on site for use as habitat features on site. Except in situations where public safety or flood protection concerns prohibit, dead or dying trees may be retained in place as they serve important habitat functions in providing nesting and breeding habitat areas for wildlife.

A Goleta Sanitary District sewer trunk line extends east to west across the northern portion of the project site. The alignment of the sewer line would be staked in the field prior to the start of grading. No modifications to the sewer line are proposed.

Bulk Earthwork and Fine Grading. Proposed grading operations would be conducted in two phases. The first grading phase would occur between August and October 2016, and the second grading phase would be conducted between April and October 2017. Weather-related

and/or other delays that could occur in 2016 and 2017 could require grading in a third year of construction. A description of the proposed grading phases is provided below.

The Phase 1 grading area starts at the northern and eastern project boundaries and extends past the planned primary trail corridor, to the edge of the regulatory floodway (Figure 5). The upland areas located between the north project boundary and the proposed primary trail and between the eastern project boundary and the proposed primary trail would be graded to finish elevations, including fine grading of landscape mounds and bioswales and installation of culverts to convey site drainage from the residential area north of the project site into the restored slough. The Phase 1 grading areas would be planted with native species to create high marsh/transitional, native grassland and coastal sage scrub habitats and bioswale wetlands. Planting would be conducted as soon after grading as is practicable, and may be initiated where grading has been completed and while grading is still occurring in other areas.

Phase 1 grading includes the enhancement of the drainage channel on the Whittier Parcel. The existing steep channel banks would be graded to more gradual slopes, and re-planted with native wetland and riparian plant species. Willow wattles or other biotechnical measures would be used to stabilize the newly graded banks. Phase 1 also includes preliminary grading on the area inside the north and east primary trail corridor, including areas surrounding the eastern Devereux Creek unnamed tributary, that are outside of the regulatory floodway. Grading within this area would consist primarily of excavations that generate borrow material for the primary trail alignment and mounds adjacent to residences north of and adjacent to the project site. An area of the South Parcel shown on Figure 5 has been designated as the receiver site for excess fill material generated during the Phase 1 grading.

The Phase 1 grading plan has been developed to minimize grading in areas that may require special water management techniques, and to avoid modifications within the floodway. Erosion control measures would be used in all areas where the ground is disturbed to stabilize the site during the rainy season between the first and second construction phases.

Phase 1 includes the construction and use of two temporary creek crossings, which may include limited fill placement in the Devereux and Phelps Creek channels. The creek crossings would incorporate culverts and/or temporary bridges of sufficient size to pass construction period (August through October) stream flows. These crossings would have the potential to reduce the flow capacity of the existing channels, therefore, they would be designed so as to either 1) not reduce the conveyance of the creek channel (e.g. a temporary bridge that spans the existing channel) or 2) be removable within 2-days' notice in the event that a major rain event is forecast during the construction period.

All fill material would be removed from the creek channels following the end of the Phase 1 construction period. The placement and subsequent removal of fill material from the creeks may cause some local sediment mobilization. This sediment is not expected to travel beyond the project limits, as Devereux Creek is generally hydrologically disconnected from the downstream Devereux Slough in the dry season by the sheet-pile sill located at the Venoco Road Bridge. The sill is not overtopped during the summers and will function as a sediment trap during the Phase 1 construction.

Grading volumes during Phase 1 would include the excavation of approximately 61,750 cubic yards, and the placement of 12,200 cubic yards of fill on the former golf course parcel and 49,600 cubic yards on the South Parcel.

Phase 2 grading would include grading portions of the project site for the restoration of the upper Devereux Slough. Construction access and staging areas established in Phase 1 would be used again in Phase 2 grading, and temporary creek crossings would be reconstructed to facilitate grading access. Access and staging facilities would be removed, restored to finish project grades, and revegetated after they are no longer needed.

Soil that is excavated during Phase 2 would be placed onto the South Parcel to re-form the mesa to topography similar to natural landforms in the project area. Fill would be placed in lifts and recompact, with topsoils placed in the final lift. Erosion control measures and best management practices (BMPs) will be implemented to stabilize finished fill slopes. These measures may include hydroseeding with native or sterile non-native seed mix, and/or application of biotechnical materials containing no plastics, such as jute or coir fabric or wattles. The proposed Phase 2 grading plan is provided in Figure 6.

Revegetation efforts would begin during Phase 2 after final grades are achieved and confirmed by survey. Areas designated for mudflat and aquatic habitat would not be planted. Planting will follow grading as soon as is practicable, and may be initiated on portions of the site where grading has been completed, while grading is still ongoing in others.

Phase 2 grading includes excavations below groundwater levels and work within existing ephemeral and perennial creek channels. This grading is likely to involve excavation in saturated soils, and standing water may be encountered within the work area despite predominantly the dry conditions anticipated during the construction season. It is anticipated that excavation below elevation eight feet NAVD will require control of groundwater and management of surface flows to limit runoff and sediment mobilization.

Channel grading would be conducted in segments of 200 to 500 feet in length, beginning at the upstream ends of the upper Devereux Creek and the unnamed tributary on the eastern project site, and progressing downstream toward Phelps Creek and the lower Devereux Creek

channel, respectively. Construction in segments will allow for the control of sediment and water on the site, which will minimize potential downstream impacts. The installation of temporary coffer dams would be used on the upstream and downstream ends of each channel segment to prevent the mobilization of disturbed sediments into downstream reaches of the channels and/or into the lower Devereux Slough. Depending on prevailing hydrologic conditions during construction, it may be necessary to bypass flow around some or all of these segments while active grading is occurring. Flow bypass would be achieved using a temporary pump and pipe system or by constructing a temporary bypass channel.

Longer-term use of coffer dam and flow bypass systems may be required at the locations of the proposed bridges that would be constructed to span Phelps Creek (Bridge D) and the eastern slough arm (Bridge C). De-watering may also be needed for the installation of planned grade control structures on Phelps Creek. Water diversion, but not dewatering, is anticipated to occur at the location of the sill when it is removed to limit potential water quality impacts downstream in the Devereux Slough. This would be accomplished by placing scour protection underwater, and using silt curtains to control sediment.

A temporary sediment basin would be constructed at the downstream limit of Devereux Creek on the project site, immediately upstream of the sill at the Venoco Road Bridge, unless subsequent design indicates it isn't necessary. Creek flows and groundwater encountered during the construction period would be routed into this basin to allow for sediment removal prior to discharge into the lower slough. Additionally appropriate best management practices will be implemented throughout the project site to ensure that sedimentation and increased turbidity are minimized or avoided during project construction to minimize the transport of fine sediments onto the Coal Oil Point Reserve.

The channel network passing through the project site provides conveyance that provides flood protection to areas near the project site. Consequently, construction within the regulatory floodway must be completed before the onset of winter rains. In addition, planting, hydro seeding and other erosion control measures shall be implemented where appropriate following the completion of grading to minimize the mobilization of recently disturbed sediments from the construction area. Because it is not appropriate to plant some areas of the project site, including areas designated for mudflat and channel habitat, a certain amount of unavoidable sediment transport is expected following construction, however, it is expected that sediment transport from the site will decrease over time as the project area adjusts to post-construction hydraulic conditions.

The following grading volumes have been estimated for the completed Project and include earthwork during both Phase 1 and Phase 2 grading.

| <u>Project Area</u> | <u>Excavation (cubic yards)</u> | <u>Fill (cubic yards)</u> |
|--|--|----------------------------------|
| Ocean Meadows Golf Course and South Parcel | 344,250 | 12,600 |
| South Parcel | 5,750 | 337,400 |
| TOTAL | 350,000 | 350,000 |

Stormwater Drainage Improvements. A shallow drainage swale exists along the north-eastern boundary of the project site, adjacent to the residential development that borders the site. Bioswales and landscape mounds would be created in this area to provide stormwater drainage, and to also improve habitat and aesthetic conditions. Nine culverts would be installed in this area to facilitate drainage under the public access trail and to convey runoff to the restored slough.

Revegetation. The habitat concept plan presented on Figure 3 is based upon plant species composition and distribution observed in local habitats exhibiting similar conditions to those that would be established as part of the proposed reconfiguration and restoration of the Upper Devereux Slough and South Parcel mesa. The restoration area would be planted with native species appropriate for the creation of marsh plain salt marsh, high marsh-transition, riparian, fresh-brackish wetland /seasonal wetland, coastal sage scrub, native grassland, vernal pool and sand dune habitats. Subtidal and mudflat/salt flat elevation terraces would remain unplanted, as those habitats are unvegetated in natural conditions.

Sensitive Species Impact Avoidance and Minimization. The federal endangered tidewater goby (*Eucyclogobius newberryi*) was observed in the Devereux Slough but not on the project site during one survey conducted in 2014. Surveys in 2013 and 2015 did not find the tidewater goby in Devereux Slough or the project site. The federal threatened California red-legged frog (*Rana draytonii*; CRLF) has not been observed within the project site but has been recorded as occurring in coastal creeks in the vicinity of the project site. To minimize the potential for impacts to these species, the Project would prepare and implement an Impact Avoidance and Minimization Plan. At minimum, measures to be described by the Plan and that will be implemented before and during project site construction include:

- Pre-construction project site surveys by a FWS-approved biologist to determine if tidewater goby or CRLF are present at the project site. Surveys are to be conducted prior to the start of construction operations each construction season.

- Pre-construction worker training regarding the potential presence of tidewater goby and CRLF on the project site.
- Monitoring of tidewater goby and CRLF habitat areas during initial ground disturbance in potential habitat areas.

If monitoring during initial ground disturbance surveys determines that tidewater goby or CRLF are present on the project site, the following additional measures would be implemented:

- Minimization of short-term de-watering impacts during project construction.
- If detected, relocation of tidewater gobies or CRLFs from on-site disturbance areas prior to the start of construction activities.
- Minimization of construction-related impacts such as but not limited to: on-site vehicle traffic, short- and long-term erosion and sedimentation, herbicide use, and the accidental release of construction-related fluids and materials.

Southern tarplant, which has a CNPS Rare Plant Ranking of 1B.1, has been observed in the vernal pool area of the Whittier Parcel, but has not been observed elsewhere on the project site since surveys were conducted as far back as 2006. A project-specific Tarplant Restoration Plan will be prepared and implemented to create additional tarplant habitat areas on the project site. At minimum, the Tarplant Restoration Plan will describe mitigation and conservation measures, including seedbank retention, and plan implementation and success criteria. UCSB has successfully implemented tarplant restoration plans at other campus locations.

The project site provides trees and other habitat areas that have the potential to support nesting birds. On-site trees scheduled for removal would be removed during the fall as part of the Project's first phase of construction, which would reduce the potentials for impacting active nests. Should it be necessary to remove a tree or disturb grassland during the nesting season, the Project would conduct pre-construction surveys to identify active bird nests, and if necessary disturbance of nests will be avoided until after the young have fledged from the nest.

In addition, a Habitat Restoration and Monitoring Plan is to be prepared for the Project prior to construction that will include monitoring and adaptive management measures. The Plan will also include requirements specified by the Project's environmental review, conditions required by the Project's permitting and or grant funding agencies, and project-specific monitoring protocols and project performance/success criteria. On-going monitoring would be performed to evaluate vegetation establishment, wildlife utilization, physical processes, and site conditions related to potential development of hazards such as slope stability and flood capacity. The monitoring plan would include the following elements:

- Recording of as-built conditions
- Establishment of permanent monitoring stations (e.g. cross-sections, photo points, transects)
- Monitoring schedule
- Monitoring protocols (standardized for consistency in data collection and documentation)
- Reporting requirements
- Success criteria
- Corrective /adaptive management measures or process

Maintenance. Periodic maintenance will be required during the establishment of the restoration area. Maintenance would be performed by qualified personnel having experience in maintenance of natural habitat areas and of native revegetation projects. At minimum, maintenance visits would consist of a thorough walk-through of the entire restoration site; inspection of the condition of all plantings and seeded areas; irrigation system function checks and checks for proper irrigation coverage; weed control; and if necessary replanting. Maintenance personnel will communicate directly with the project monitor to ensure prompt and appropriate response to problems or unanticipated conditions.

Plantings. Unsuccessful plantings would be replaced as needed to bring the restoration site into compliance with prescribed minimum success criteria. The species planted within the restoration area would not be fertilized or pruned, unless pruning is required for safety purposes.

Maintenance visits would be performed weekly for the first three months of the establishment period; and every two weeks thereafter for the first year. The maintenance schedule for the remainder of the establishment period would be determined in coordination with the project monitor, based upon the level of success achieved after completion of the first year. At a minimum, maintenance will be performed monthly for the second year and quarterly thereafter, for the duration of a five-year monitoring period.

Irrigation. Periodic maintenance will be required to inspect and repair problems with the irrigation system and its components. Irrigation system checks will consist of separate operation of each valve and verification of functioning condition of each irrigation head and emitter. Measures to correct irrigation system malfunctions will be performed immediately upon detection.

Weed Control. Construction and site modifications will create open areas that are prime sites for opportunistic weedy plants. Some of these weeds would be naturally suppressed as native plants mature. Others, however, can out-compete the desired native species if allowed to become established. Given the location of nearby urban areas and constant exposure to exotic

seed sources, complete eradication of weeds is not realistic. For these reasons, to re-establish a native plant community on the project site, non-natives will be completely removed from the site prior to the planting phase of construction. Non-native weeds may then be kept in check with periodic maintenance throughout the establishment period. Native plants within the restoration area will be protected during weed eradication efforts.

Of particular concern in the restoration area are yellow fennel, wild mustard, and pampas grass. The restoration area will be monitored for the presence of these and other invasive species. These weedy plants would be removed by hand or mechanical means, and if necessary, with minimum effective amounts of appropriate herbicides. A Habitat Restoration and Monitoring Plan to be prepared for the Project will include a detailed Exotics Eradication Plan prescribing specific methods, timing, number of applications, and precautions for protection of native vegetation.

Monitoring and Adaptive Management. Regular monitoring, as identified in the Habitat Restoration and Monitoring Plan, would be conducted following the completion of construction to document the evolution of ecological and geomorphic conditions at the project site. Monitoring results will inform the adaptive management of the project site, which may include actions such as additional planting or alterations to the original planting and irrigation plan, control of invasive plant species, installation or removal of temporary erosion control measures, maintenance of public access infrastructure, and public outreach efforts.

As indicated above, project-specific performance/success criteria would be developed in consultation with permitting and granting agencies, such as but not limited to, the ACOE, USFWS, CDFW, California Coastal Commission, and the SCC. The development of success criteria may be tailored to specific habitat types to be established on the project site. At minimum, however, project-related success criteria will be consistent with the following general requirements. All plantings shall have a minimum of 75 percent of the desired total cover after three years and 90 percent of the desired cover after five years for the life of the project. If the survival and cover criteria have not been met, CCBER will be responsible for replacing planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for five years after planting.

Construction Schedule. It is anticipated that construction of the Restoration Project would occur over two summers with the option for a third year if necessary. The start date for construction would depend on the timing of permit approvals and receipt of grant funding, however, it is anticipated that construction would begin in August of 2016 and extend through October, and that an April through October construction season would occur for the second and optional third years.

The construction season may vary due to adverse weather (start/end of winter rains) and the presence of protected species, primarily migratory fish and nesting birds. Both of these factors could reduce the window available for construction.

Construction would occur primarily during the dry summer season, which extends from April into October. Construction in riparian and wetland areas would only occur when the slough mouth is closed, which typically occurs within a few weeks of the year's last major rain event. Construction in creek channels would require the relocation of any tidewater gobies that may be present, and work would be scheduled to avoid the peak spawning season in April and May. Protected nesting birds, including white-tailed kites, may be present during the summer months and would require a biologist on site to establish an appropriate buffer between nest sites and construction activities.

Project implementation would require integrated phasing of water control, mass grading, construction of public access features, and revegetation efforts. Initial work would involve the establishment of access and haul routes for earthwork, including installation of temporary creek crossings, and the installation of temporary water control structures to manage water levels and minimize impacts to water quality.

7.4 Increased Restoration Alternative

The Increased Restoration Alternative would restore a total of 110 acres compared to 106 acres that would be restored by the Proposed Action, and would result in the creation of more subtidal/aquatic and mudflat/salt flat (unvegetated habitats) and less fresh to brackish wetland habitat when compared to the Proposed Action. Implementation of the Increased Restoration Alternative would require the excavation of approximately 550,000 cubic yards of soil from the Ocean Meadows Golf Course property, while the Proposed Action would result in approximately 350,000 cubic yards of excavation.

Preliminary design concepts for the Increased Restoration Alternative determined that it would restore approximately 27.2 acres of subtidal/aquatic and mudflat/salt flat habitat compared to the 15 acres that would be restored by the Proposed Action. The Increased Restoration Alternative would restore 26.6 acres of marsh plain, freshwater/brackish marsh and high marsh transition compared to 31.9 acres that would be restored by the Proposed Action. The Increased Restoration Alternative would result in other changes to the types and acreages of restored habitats provided on the project site when compared to the Proposed Action, however, the overall project implementation and public access characteristics of the Increased Restoration Alternative would be similar to the Proposed Action.

7.5 Alternative Selection

The NCOS Restoration Project Committee and Science Advisory Board considered both the Proposed Action and the Increased Restoration Alternatives and determined that both would be consistent with the overall purpose and need for the Project. Considerations that led to the identification of the Proposed Action are summarized below.

Resilience. The Proposed Action has greater potential habitat resiliency due to its provision of a larger area for migration of estuarine wetland habitat in response to sea level rise.

Cost. The Proposed Action requires 350,000 cubic yards of excavation, while Increased Restoration Alternative would result in 550,000 cubic yards of excavation. The decreased earth moving required to implement the Proposed Action would result in lower construction costs.

Impact. The reduced earthwork volume associated with the Proposed Action results in a slightly reduced area of impact (approximately 2.0 acres) to existing habitats on the project site, resulting primarily from a reduced fill footprint on the South Parcel. In addition, the Proposed Action was configured with reduced excavation in the northwest Devereux Slough arm to avoid lowering groundwater levels and soil moisture that sustain wetlands.

Diversity. By reducing the extent of excavation, the Proposed Action allows more space for transitional area and fresh-brackish and seasonal wetland. The reduced excavation also allows space for habitat creation opportunities targeted toward snowy plover and bird foraging.

8.0 AFFECTED ENVIRONMENT

The project site consists of three parcels, each owned by UCSB. Each of the project site parcels are depicted on Figure 2 and are briefly described below.

Ocean Meadows Golf Course Parcel. The 63.8-acre golf course parcel is the site of the former Ocean Meadows Golf Course, which was constructed in 1965 by filling the northern extent of the Devereux Slough. To obtain soil to fill the estuary and construct the golf course, soil was removed from adjacent lands, including the property directly to the south, which is referred to as the South Parcel. When the golf course construction was complete, the ground surface of the former estuary had been raised from between six to 10 feet.

The excavation of soil from areas surrounding the golf course parcel resulted in the degradation of the borrow sites, particularly the South Parcel, and sedimentation resulting from

erosion of the graded areas has reduced the capacity of the lower Devereux Slough by 50 percent (UCSB, 2015). Operation of the golf course also resulted in impacts to the lower portions of the Devereux Slough, as nutrients in irrigation runoff adversely affected the water quality of the slough.

The golf course was closed in 2013 and current management of the property consists of occasional irrigation with recycled water and annual mowing. Vegetation consists primarily of non-native turf grasses, with non-native landscape trees, annual non-native weeds, native wetland and riparian plants, and bare ground. Devereux Creek traverses the western arm of the golf course property and connects to Devereux Slough (the lower Slough) at the southern golf course property boundary. This reach of Devereux Creek exhibits a well-defined channel, with steeply sloped banks and dense patches of freshwater marsh and riparian scrub vegetation. The hydrologic connection between Devereux Creek and the lower Slough is limited by a sheet pile sill located just upstream of the Devereux Creek Bridge crossing.

Development on the golf course parcel is limited and consists of a small clubhouse structure and a parking lot located south of Whittier Drive in the northeast corner of the parcel. A small golf cart storage building burned in a fire in 2014. A network of trails and paths cross the golf course and include former golf cart paths and informal use trails that have been worn into the landscape. Since the golf course parcel was acquired by UCSB and made open space it has been extensively used by local residents, students and the public for walking, cycling and dog-walking.

South Parcel. The 68.9-acre South Parcel is located on the southern portion of the North Campus, and is southwest of and adjacent to the golf course parcel. The Coal Oil Point Reserve (COPR) and the now decommissioned 17-acre Ellwood Marine Terminal are south of and adjacent to the South Parcel, and the Ellwood Mesa and undeveloped property in the City of Goleta are located to the west. Soils on the South Parcel are composed of fine sandy loams that have been altered by former agricultural operations and/or the removal of topsoil to provide fill for the construction of the Ocean Meadows Golf Course. The South Parcel property has been used for many years by hikers and cyclists, particularly by mountain bike and dirt-bike users, who have created an extensive network of trails and jumps that have removed vegetation and contribute to the erosion issues on the site and on-going disturbance of wildlife.

Four east-west trending man-made drainage swales confined by long earthen berms traverse the site and direct storm water to the eastern edge of the property and eventually to Devereux Slough. Vegetation on the South Parcel is dominated by non-native grassland that has been extensively invaded by non-native fennel and mustard plants. The parcel does support however, a variety of sensitive habitat areas, including seasonal wetlands and vernal pools,

southern riparian scrub, native grassland, and coastal sage scrub. A north-south trending eucalyptus windrow is present along the western boundary of the South Parcel.

Venoco Road, which is not open to public traffic, extends along the southern edge of the South Parcel and provides access to the now decommissioned Venoco Ellwood Marine Terminal. Venoco Road is heavily used for pedestrian and bicycle access to the open space areas on the project site and in the vicinity of the site, and the road is also designated as a segment of the Juan Bautista de Anza Trail (Anza Trail) and the California Coastal Trail (Coastal Trail). The Anza trail is a segment of the National Historic Trail System administered by the National Park Service (NPS). The Coastal Trail provides a network of publicly accessible trails for walkers, bikers, equestrians, wheelchair riders, and other users along the California coast, and is intended to provide a trail that links state parks, federal recreation areas, and other areas of significance in coastal areas. When the Ellwood Marine Terminal is fully demolished and the site restored Venoco Road will be a dedicated bicycle and pedestrian path. Only emergency vehicle access will be allowed.

Whittier Parcel. The 3.7-acre Whittier Parcel is located at the northeast corner of the project site and is south of and adjacent to Whittier Drive. The property is generally flat with two shallow, low-functioning vernal pools, except where it is bisected by a small drainage channel that flows southwesterly through the property. The drainage supports marginal quality freshwater wetland.

Project Site Hydrology and Flooding. Devereux Creek and Phelps Creek are the main sources of freshwater flow on the project site. Devereux Creek extends from west to east over a distance of approximately 1.3 miles, starting near the Santa Barbara Shores property in Goleta and ending at the Devereux Slough. Water flow in Devereux Creek is ephemeral and normally lasts no more than a few days beyond any particular rainfall event, however, some runoff, presumably from upstream landscaping, may occur throughout much of the year. Ponding occurs in the few depressions that exist in the relatively level creek bed, but otherwise standing water is normally not present in the creek. The creek may contain water as late as spring or early summer during years of normal rainfall.

Phelps Creek originates in the foothill areas north of the City of Goleta. On the project site, the creek drains to the eastern end of Devereux Creek on the golf course parcel. This segment of the Phelps Creek is a shallow, straight channel with a defined bed and bank that supports freshwater marsh.

Storm water runoff from residential areas adjacent to the project site is also a source of freshwater on the golf course parcel. Runoff from residential areas to the north flows under Whittier Road and across the Whittier Parcel in a channel that terminates at an isolated depression on the northern margin of golf course. Storm water runoff from the Storke Ranch

neighborhood, which is east of the project site, flows beneath Storke Road and into an unnamed channel that is a tributary to Devereux Creek.

The entire South Parcel drains southeasterly to a sill and under the Devereux Creek bridge and into the Devereux Slough. The soils of the South Parcel are generally fine textured sandy substrate exposed by grading activities to create the Ocean Meadows Golf Course. These low-permeability soils have become highly eroded and isolated areas are almost devoid of vegetation. Subsequent to the construction of the golf course, a series of diversion ditches were constructed to channel runoff to the Devereux Slough, however, the ditches quickly eroded into deeper gullies with bare vertical slopes. A debris basin was built, but quickly filled with sediment and now supports a dense thicket of willows.

Flooding conditions on the project site are influenced by storm water runoff and whether the Devereux Slough mouth is open or closed to the ocean. Flooding is exacerbated when the slough mouth is closed by accumulated sand, which blocks outflows to the ocean. When water within the slough rises sufficiently to open the slough mouth, flooding conditions are abated as flood water is able to drain to the ocean. Flooding on the project site may occur during winter and spring months and is generally in response to high rainfall events when freshwater runoff may exceed the capacity of Devereux Creek. Much of the lower portion of the Devereux Creek watershed is developed with urban uses, therefore, rainstorms lead to rapid flooding that quickly subsides to low flows.

The Flood Insurance Rate Maps (FEMA, 2012) that depict the project site indicate that most of the Ocean Meadows Golf Course and Whittier Parcels are located within the designated 100-year floodplain. Most of the South Parcel is located outside of the 100-year floodplain.

A climate change-related rise in sea level will alter the existing hydrologic conditions at the Devereux Slough and at the project site. In response to a rise in sea level, tide levels will increase relative to site topography if marsh accretion does not keep pace with the rise in water levels. Marsh accretion is the process of gradual rise in the elevation of a marsh plain caused by deposition of sediment and/or growth of organic material over time. Currently, high tide levels are below most of the salt flats in the lower Slough, and tidal flow is blocked from entering the project site by the sill at the Devereux Creek Bridge. With a sea level rise of three feet by 2100, the intertidal volume of water in the slough is expected to increase by roughly 100 to 350 percent (double to quadruple the existing volume), more frequently drowning the salt flats around the slough, and the project site upstream of the sill north of the Devereux Creek Bridge. The range in intertidal volume estimates incorporates uncertainty associated with variable marsh accretion rates, which would partially mitigate the increased intertidal volume with sea level rise. The larger intertidal volume would lead to longer open-mouth conditions after mouth breaches

occur, but larger inflows would be needed for breaches to occur because the site would hold more runoff.

Plant Communities. The plant communities on the project site are generally described by the assemblages of observed plant species that occur together in the same area forming habitat types. Plant community descriptions are generally based on *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). Plant names used in this report follow *The Jepson Manual, Vascular Plants of California, Second Edition Thoroughly Revised and Expanded* (Baldwin et al. 2012). The following describes the plant communities and habitat characteristics observed within the study area. The project site supports nine plant communities as follows: 1) disturbed non-native annual grassland including non-native turf; 2) small areas mapped as native grassland; 3) coastal sage scrub; 4) coastal freshwater marsh; 5) coastal salt marsh; 6) southern riparian scrub; 7) seasonal wetland; 8) southern vernal pool; and 9) eucalyptus stands (raptor nesting and monarch butterfly ESHA). Figure 7 provides a habitat map of the project area and Table 2 presents the acreage of each habitat type located on the entirety of the three project parcels.

Table 2
Habitat Type Acreages within the Biological Study Area

| Habitat Type | Acres |
|--|--------------|
| disturbed non-native annual grassland (includes Coastal Act one-parameter wetlands in abandoned fairways) | 116.74 |
| native grassland | 1.12 |
| coastal sage scrub | 4.64 |
| coastal freshwater marsh | 9.14 |
| coastal salt marsh | 1.17 |
| southern riparian scrub | 4.16 |
| seasonal wetland | 0.32 |
| southern vernal pool | 0.78 |
| eucalyptus stands | 4.87 |

Disturbed Non-Native Annual Grassland. The disturbed non-native annual grassland habitat is the most prominent plant community on the project site and is dominated by non-native annual grasses and herbaceous broadleaf plant species that have become a naturalized habitat type throughout California. Disturbed non-native annual grassland habitat occurs as the dominant habitat type on the South Parcel characterized by oats (*Avena* sp.), ripgut grass (*Bromus diandrus*), barley (*Hordeum* spp.), and fescue (*Vulpia* sp.), filarees (*Erodium* spp.), sand spurrey (*Spergularia villosa*), sow thistle (*Sonchus oleraceus*), mustards (*Brassica/Hirschfeldia*), and smooth cat's ear (*Hypochoeris glabra*). Within the South Parcel non-native annual grassland are large patches of non-native fennel (*Foeniculum vulgare*) and non-native mustards (*Brassica nigra*) and scattered pampas grass (*Cortaderia jubata*).

The former Ocean Meadow Golf Course fairways that have been periodically irrigated and mowed since the golf course was closed are dominated by non-native rhizomatous grasses, presumably planted and maintained for the golf course, including Bermuda grass (*Cynodon dactylon*), Kikuyu grass (*Pennisetum clandestinum*), and salt grass (*Distichlis spicata*). The salt grass may well be a relic of the former extent of slough that became part of the mowed turf grass mix as it has a very similar growth form of the Bermuda grass. The dense well established mats of salt grass suggest being a part of the fairway turf as opposed to recent growth since the golf course was closed. The irrigated yet unmaintained fairways (except of occasional weed suppression mowing) have manifested large expressions of buck-horn plantain (*Plantago coronopus*). While the origin of the buck-horn plantain is unknown, the expressions are likely a result of the ongoing irrigation and not natural hydrology. Limited research suggests the non-native buck-horn plantain seeds are cultivated for salad greens and may have been inadvertently included in golf course grass seed mixes from contaminated pastures. The California Invasive Plant Council (Cal IPC) has included the buck-horn plantain on their invasive species watch list as it has been reported spreading in California. Other non-native weedy plants showing up in the former fairways are yard knotweed (*Polygonum aviculare*), and variable sized scattered patches of Australian saltbush (*Atriplex semibaccata*) and non-native bristly ox-tongue (*Picris echioides*). Native salt marsh plants pickleweed (*Salicornia pacifica*) and alkali sea-heath (*Frankenia salina*) are predominant along the drainages and were planted during a 2003 restoration of the site conducted by County Flood Control when the channels were excavated of accumulated sediment. These species are also scattered in the former golf course fairways.

Native Grassland. Small areas of native grassland are present in the northwestern and southwestern portions of the South Parcel, and an area in the northwest portion of golf course property. The native grassland areas observed on the project site are composed primarily of purple needlegrass (*Stipa pulchra*) with other native grasses including meadow barley (*Hordeum brachyantherum*), California brome (*Bromus carinatus*), creeping wild rye, *Leymus multiflorus*, and blue wild rye (*Elymus glaucus*). Native and non-native annual grasses and forbs intergrade with the native perennials, often exceeding the native grasses in cover.

Coastal Sage Scrub. Intermixed with the expanse of non-native annual grassland habitat are patches of coastal scrub species predominantly coyote brush (*Baccharis pilularis*) and California sage brush (*Artemisia californica*) shrubs. The patches of these two species are not typical of an intact coastal sage scrub habitat with more plant species diversity and are more of just a scattered shrub element among the disturbed non-native annual grassland.

Coastal Freshwater Marsh. Devereux Creek, Phelps Creek, and the unnamed drainages that cross the project site that are seasonally or permanently flooded are dominated by perennial, robust emergent monocots. Dominant coastal freshwater marsh plants mostly confined to within the drainage channels include bulrush (*Schoenoplectus californicus*) and cattail (*Typha latifolia*). Herbaceous plants in and along the channels include umbrella sedge (*Cyperus eragrostis*), dallis grass (*Paspalum dilatatum*), rabbitsfoot grass (*Polypogon monspeliensis*), stinging nettle (*Urtica dioica*), and cocklebur (*Xanthium strumarium*). Several patches of willows (*Salix* sp.) are scattered along the channels as well but not in enough density to be considered a separate riparian habitat, except at the north end of Phelps Creek.

Coastal Salt Marsh. Salt marsh habitat occurs mostly as a fringe along the banks above the channels of Devereux Creek, Phelps Creek, and the unnamed drainages that cross the project site. Dominant species include pickleweed (*Salicornia pacifica*), saltgrass (*Distichilis spicata*), alkali sea-heath (*Frankenia salina*), and big saltbush (*Atriplex lentiformis*). This expression of a fringe of coastal salt marsh plants is the result of a restoration effort in 2003 conducted as mitigation for excavation of creek sediment and vegetation for flood control reasons and likely persist due to tolerance of high salt content soils and abandonment of golf course mowing and turf management close to the channels. This suite of plants are also scattered around the former golf course fairways but not in enough density to be considered salt marsh habitat. There is a patch of 'remnant' salt marsh at the northern end of Devereux Creek in the study area as well. The fringe of salt marsh plants is not subject to typical regular tidal influence as that has been shut off by the sheet pile sill at Venoco Road. Tidal influence and/or flooding above the incised channel banks may still occur on occasion but would be during extreme rain events combined with and without high tides.

Southern Riparian Scrub. Willows (*Salix* spp.) constitute the southern riparian scrub habitat on the project site and occur at the north end of Phelps Creek, a few patches around former golf course drainage ways, and patches along the ditches and erosional features on the South Parcel. The South Parcel willows are not in a typical riparian (creek) situation but likely are taking advantage of the moisture generated in the ditches and erosion gullies.

Seasonal Wetland. Several narrow linear low-lying areas along the berms and ditches created on the South Parcel manifested a seasonal wetland plant community represented by creeping spikerush (*Eleocharis macrostachya*), curly dock (*Rumex crispus*), Mediterranean barley

(*Hordeum marinum* ssp. *gussoneanum*), bristly ox-tongue (*Picris echioides*), rabbitsfoot grass (*Polypogon monspeliensis*), and English plantain (*Plantago lanceolata*).

Southern Vernal Pool. A study conducted for the adjacent faculty and student housing projects mapped two vernal pools on the Whittier Parcel. Other vernal pools are located on the western portion of the South Parcel. Vernal pools on the project site are generally small in area, only a few inches deep, and are dominated by seasonal wetland plants common spikerush (*Eleocharis macrostachya*), lowland cudweed (*Gnaphalium palustre*), southern tarplant (*Hemizonia parryi* ssp. *australis*), curly dock (*Rumex crispus*), toad rush (*Juncus bufonius* var. *bufonius*), loosestrife (*Lythrum hyssopifolia*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass (*Lolium multiflorum*), and rabbitsfoot grass (*Polypogon monspeliensis*). Vernal pools beyond the western edge of the project site are outside of the proposed restoration area and are being created, restored and enhanced by CCBER.

Eucalyptus Stands/Non-Native Trees. Eucalyptus stands occur along the western edge of the project site and are composed of blue gum eucalyptus (*Eucalyptus globulus*). Due to the build-up of eucalyptus bark and leaf matter, the dense shade created by the eucalyptus canopy, and the chemicals produced by the bark and leaf matter, understory vegetation is mostly absent. Several other varieties of eucalyptus trees run along the northern project boundary screening the residential development.

Approximately 235 non-native pine trees, non-native palm trees, and other trees (178 live and 57 dead) are widely scattered around the former golf course area. Approximately 65 trees (62 living) are on the South Parcel. There are two oaks and three sycamores among these that while technically are native trees were planted as landscape trees.

Wildlife. During the 50-year operational period of the golf course, wildlife values were substantially diminished by active turf and vegetation management, which has limited the suitability of the site for wildlife to forage or seek cover. The golf course fairways are now dominated by weedy non-native herbaceous plants that provide limited wildlife values. However, due to the proximity of the project site to higher quality habitat of the Ellwood Mesa open space, COPR, and Devereux Slough some wildlife movement and use of the project site occurs. The narrow band of freshwater marsh with the coastal salt marsh fringe along the drainages do provide some habitat for birds such as the marsh wren, Bewick's wren, red-wing and Brewer's blackbirds, black phoebe, egrets and herons. The Pacific chorus frog and the western pond turtle have been observed in the onsite drainages. Devereux and Phelps creeks are known to support fish species including the California killifish, topsmelt, and non-native mosquitofish. The endangered tidewater goby has also been observed in the on-site creeks (2007-2012).

The upland grassland areas with scattered trees and shrubs of the former golf course, South Parcel, and Whittier Parcel provide habitat for resident and migratory birds, and other

wildlife commonly found in the region including the California towhee, northern mockingbird, American crow, Say's phoebe, western kingbird, goldfinches, sparrows, and warblers. Wide ranging raptors are commonly observed foraging and nesting/roosting on or nearby the project site include the turkey vulture, white-tailed kite, red-tailed hawk, American kestrel, barn owl, great horned owl, and Cooper's hawk. Common reptiles using the project site upland habitats include the western fence lizard, southern alligator lizard, California kingsnake, gopher snake, and garter snake. Representative common mammal species known to occur throughout the project area that are generally accustomed to the urban interface include coyote, bobcat, red and gray fox, Virginia opossum, brush rabbit, striped skunk, raccoon, Botta's pocket gopher, new and old world mice and rats, California ground squirrel, as well as domestic dogs and cats.

Special-Status Species. Special-status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the United States Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) under the federal Endangered Species Act (FESA); those considered "species of concern" by the USFWS; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act (CESA); animals designated as "Species of Special Concern" by the CDFW; and plants with California Native Plant Society (CNPS) rare plant rankings 1B, 2, and 4 of the CNPS *Inventory of Rare and Endangered Vascular Plants of California*. Natural Communities of Special Concern are habitat types considered rare and worthy of tracking in the California Natural Diversity Database (CNDDDB) by the CNPS and CDFW because of their limited distribution or historic loss over time.

The analysis of special-status species is based on field surveys conducted by Sage Institute, Inc. (SII) in 2015-2016 establishing existing conditions and review of numerous studies from general upland/wetland habitat mapping surveys, as well as focused special-status plant and wildlife species surveys conducted over the project site as part of anticipated restoration activities as well as development of surrounding parcels under the LRDP. Except as noted below, the long-term golf course operation and weedy transition since closure, and the highly disturbed South Parcel do not support suitable habitat for special-status plant or wildlife species known from the region.

Special-Status Plants. The only special-status plant species that has been observed on the project site is the southern tarplant (*Centromadia parryi* ssp. *australis*), which was observed in the vernal pool area of the Whittier Parcel. The southern tarplant has not been observed elsewhere on the project site since surveys were conducted as far back as 2006 (Morro Group/SWCA 2009). The project site represents the northern limits of the range of southern tarplant, which extends in coastal and inland areas down to San Diego County. The southern tarplant has a CNPS Rare Plant Ranking of 1B.1, which includes rare, threatened, or endangered plants in California and elsewhere that are seriously endangered in California. The Project

proposes to enhance the existing vernal pools where this species has been observed. The former golf course and disturbed uplands and seasonal wetlands of the South Parcel do not support suitable habitat for special-status plants recorded in the CNDDDB such as the Contra Costa goldfields (*Lasthenia conjugens*) or Coulter's goldfields (*Lasthenia glabrata*). Coastal dune/bluff systems are not present on the project site to support Coulter's saltbrush (*Atriplex coulteri*) or Davidson's saltscale (*Atriplex serenana*). Further, with the exception of the southern tarplant occurrence on the Whittier Parcel, no special-status plant species have been observed during focused rare plant surveys and general biological and wetland resources field surveys as far back as 2006.

There is a documented occurrence of an outplanted population of Ventura marsh milkvetch (*Astragalus pycnostachys* var. *lanoisissimus*) off-site in the upper fringes of Devereux Slough on the Coal Oil Point Reserve lands that would not be affected by the project. The project site does not support suitable salt marsh fringe habitat for the Ventura marsh milkvetch and it has not been observed within the project area during any wetland or plant. Similarly, the project site does not have regular tidal influenced salt marsh habitat that would support salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*). In addition, Gambel's watercress (*Rorippa gambellii*) marsh sandwort (*Arenaria paludicola*) plants have not been observed on the project site.

Special-Status Wildlife. Special-status aquatic wildlife known to use the project site include the tidewater goby and the western pond turtle.

The federal endangered tidewater goby (*Eucyclogobius newberryi*) has been observed within the project site restricted to the on-site creeks and drainages. The tidewater goby can occur in the onsite creeks and drainages following large tide and rainfall events that flood the sheet pile sill at Devereux Creek and Venoco Road. They could persist as long as there is sufficient aquatic habitat within the creeks and drainages and may migrate downstream through the low-flow culvert at the sill. However, they do not likely occur upstream of the sill permanently. Surveys conducted in 2014 found the tidewater goby in lower Devereux Slough outside the Project area. Surveys in 2013, 2015 and 2016 did not find the tidewater goby in Devereux Slough or the project area.

The federal threatened California red-legged frog (*Rana draytonii*; CRLF) is recorded in coastal creeks in the vicinity of the project site, however, there are no documented occurrence on the Project site. Two daytime and four nighttime CRLF focused surveys have been conducted by the CCBER and permitted biologists that identified six open water ponded areas as suitable CRLF habitat that were accessible for the visual surveys. The aquatic habitats of the creeks and drainages do provide suitable habitat for the California red-legged frog for at least some part of

the year depending on rainfall and remaining pockets of deep pools with permanent ponding. No CRLF were observed during the CRLF protocol surveys.

Three special-status raptors, the Cooper's hawk (CDFW species of concern), Red-shouldered hawk and white-tailed kite (CDFW fully protected), are known to nest on or nearby the project site. The raptor and monarch butterfly habitat of the eucalyptus windrow along the Ellwood Mesa are outside of the proposed restoration area. The yellow warbler and burrowing owl have been observed within the project area but not documented as nesting, and are likely non-breeding movement occurrences through the region.

There is not any true tidally influenced salt marsh on the project site to support Belding's savannah sparrow, light-footed clapper rail, or brackish water snail. Suitable habitat is not present on the project site for the beach and dune obligate snowy plover, globose dune beetle, or sandy beach tiger beetle. No other special-status wildlife has been recorded on the project site or is expected to occur. As described above, the project site was an active golf course or was severely disturbed and denuded by grading activities to obtain soil for fill material to construct the golf course. Previous grading on the project site has substantially reduced the upland and wetland habitat suitability for both special-status and common wildlife.

Waters of the U.S./State and Wetlands. A wetland delineation and jurisdictional determination was prepared for the project site that evaluated existing conditions following golf course closure and incorporating several other prior wetland studies (Sage Institute, Inc. 2015).

The mapped areas of one-parameter wetlands are mostly monocultures with little taxa richness as compared to an intact salt marsh. Further, the mostly flat areas have no capacity (or basin topography) to hold surface water to support aquatic macroinvertebrates or other aquatic fauna. As such, there is no functional aquatic habitat or aquatic biological integrity associated with the patches of one-parameter wetlands mapped within the former golf course fairways. At best, it is more of an upland patchwork of vegetative cover over the remnant level lands filled for the golf course, subject to artificial irrigation and lacking any natural/regular ongoing tidal influence. Further, except for the salt grass, the patches of non-native invasive weedy species with a "facultative" wetland indicator status have the same likelihood to occur in uplands as they do in wetlands.

The Coastal Act one parameter wetlands on the project site are a result of changes caused by modifications to the site over the past 50 years as the site has been substantially modified from any natural tidally influenced salt marsh habitat. The one-parameter wetlands do not support any ongoing wetland functions as they are a result of placement of fill from golf course construction, 50 years of golf course vegetation management, and golf course closure with continued occasional irrigation and mowing. The one-parameter wetlands do not store surface water to provide any biochemical water quality benefits. Finally, they do not provide any

physical wetland habitat to support aquatic fauna or represent a species rich and structurally diverse wetland habitat.

Based on the above methodology and jurisdictional definitions, a list of jurisdictional waters of the U.S./State and wetlands delineated on the project site is provided on Table 3. Figure 8 provides a map of the waters of the U.S./State and wetlands on the project site. The full details of the jurisdictional determination methods and results are in the May 20, 2016 Sage Institute, Inc., *North Campus Opens Space Restoration Project Jurisdictional Determination*, report.

Table 3
Wetland Types and Jurisdictional Acreage

| Wetland Type | Federal Wetlands (acres) | CDFW Wetlands (acres) | California Coastal Act Wetlands (acres) |
|--|--------------------------|-----------------------|---|
| Creeks and Drainages | 10.31 | 10.31 | 10.31 |
| <i>Distichlis</i> (salt grass) FAC | 0 | 0 | 10.64 |
| <i>Frankenia</i> (alkali sea-heath) FACW | 0 | 0 | 0.22 |
| <i>Leymus</i> (creeping wild rye) FAC | 0 | 0 | 0.06 |
| <i>Paspalum</i> (golden-crown grass) FAC | 0 | 0 | 0.15 |
| <i>Plantago</i> (buck-horn plantain) FAC | 0 | 0 | 2.55 |
| <i>Polygonum</i> (yard knotweed) FACW | 0 | 0 | 0.18 |
| <i>Salicornia</i> (pickleweed) OBL | 0 | 0 | 0.19 |
| <i>Salix</i> (willow) FACW | 0 | 0 | 4.22 |
| Seasonal Wetland | 0 | 0 | 0.34 |
| Vernal Pools | 0.78 | 0 | 0.78 |
| Total | 11.09 | 10.31 | 29.64 |

Project Site Cultural Resources. Four archaeological sites (CA-SBA-1194, 1195, -1327, -1688) are located in the uplands area along the western and southwestern periphery of the project site. All four sites are outside the area of grading proposed for the Project and no other Project-related activities are planned at any of the four sites. The California Native American Heritage Commission has stated that a records search of the Sacred Lands File did not indicate the presence of Native American traditional sites/places in the immediate project area.

Existing Infrastructure. Storm water outfalls enter Phelps Creek from the east and west, just upstream of its confluence with Devereux Creek on the golf course. The outfall on the west side of the creek discharges storm water from the North Campus housing project (Ocean Walk), and the outfall on the east side of the creek discharges runoff from residential areas

located to the north and east of the project site. A storm drain that conveys runoff from the western end of Scripps Crescent Street discharges to Devereux Creek on the project site. A storm drain that conveys runoff from the eastern end of Scripps Crescent Street, and another drain that conveys runoff from Whittier Drive both discharge to an isolated wetland in the northeastern portion of the golf course. A culvert under Whittier Drive also delivers storm flows to this wetland via an open ditch. Stormflows from West Campus Married Student Housing flow in a storm drain to an outlet on the southeast wingwall of the Devereux Creek Bridge, directly into Devereux Slough south of the project site.

A Goleta Sanitary District sewer main line traverses the northern portion of the golf course property for most of its length before extending under Storke Road. Golf course facilities include a small clubhouse, cart storage building, parking lot, cart paths, and culverts/footbridges at several Devereux Creek crossings. Overhead power lines and buried natural gas lines provide utility service to the clubhouse.

Two oil well test holes were drilled on the golf course property in 1964 and 1965. The State of California Division of Gas and Geothermal Resources (DOGGR) determined that no additional well abandonment work was necessary for the proposed open space land use. The depth of the well casings has been verified in the field and testing of soils adjacent to the well heads did not encounter contamination that requires the implementation of remediation actions. In addition, proposed grading above the well heads has been modified to provide at least five feet of soil cover. A water production well was also drilled on the golf course parcel in 1981 but may not have been placed into service. The well is located on the southeast corner of the project site adjacent to the West Campus Apartments.

9.0 ENVIRONMENTAL CONSEQUENCES

The environmental consequences of the Proposed Action, Increased Restoration Alternative, and the No Action Alternative are evaluated in Table 4. The conclusions of the evaluation are summarized below.

Proposed Action. The Proposed Action would meet the stated purpose and need of the Project and the grant application. The Proposed Action would have beneficial long-term habitat restoration effects, and short-term construction-related impacts to tidewater goby and CRLF, if present on the project site, would not be significant with the implementation of proposed avoidance and minimization measures. The Project would have other beneficial effects related to: the elimination of existing erosion and sedimentation sources on the South Parcel that are impacting the Devereux Slough; increased tidal circulation on the project site, which would increase dissolved oxygen levels and reduce fecal coliform concentrations; and carbon sequestration effects resulting from restoration planting that would be conducted on the project site.

Increased Restoration Alternative. The Increased Restoration Alternative would meet the stated purpose and need of the Project and the grant application. This alternative would have habitat restoration effects and other beneficial environmental effects that are similar to those of the Proposed Action. This alternative, however, would have increased short-term air emissions when compared to the Proposed Action because additional grading would be required to implement the alternative. The Increased Restoration Alternative would provide more mudflat and salt flat habitat than the Proposed Action, which would be inundated more frequently due to predicted climate change induced increases in sea level. As a result, this alternative would be less adaptive to climate change-related impacts.

No Action Alternative. The No Action Alternative would result in the project site being retained in its existing condition and would not meet the stated purpose and need of the Project and the grant application. This Alternative would avoid the short-term, construction-related impacts of the Proposed Action but would not have the beneficial habitat, water quality and climate change effects that would result from the implementation of the Project. This Alternative would also be inconsistent with requirements of the UCSB 2010 Long Range Development Plan, which includes policies that require the University to restore the project site.

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|----------------------------------|-------------------------------------|--|--|---|--|
| Aesthetics | | The project site is a generally level open space area that was formerly operated as a golf course or was extensively graded in the 1960's to construct the golf course. The majority of the site is covered with non-native vegetation, although some native vegetation is present along the Devereux Creek channel and other portions of the site. Public views of the site are provided from adjacent roads, on-site trails, and from residential areas adjacent to the site. Views of the Santa Ynez Mountains are provided from locations throughout the project site. | The project site would remain open space and non-native vegetation would be replaced with native habitats. Topography of the site would be modified to create subtidal channels similar to what existed on the site before the golf course was constructed. Low, gently sloping hills would be created on the South Parcel portion of the project site. No structures would be developed that would interfere with views of the Santa Ynez Mountains. The visual character of the project site would not be substantially changed. | Changes to the visual character of the project site that would result from this alternative would be similar to the changes that would result from the implementation of the Project. | The project site would remain open space that receives only minimal maintenance. Existing non-native vegetation would remain and no changes to the topography of the site would be made. |
| Agriculture and Forest Resources | | There are no agriculture or forest resources located on or near the project site. | The Project would not affect any agriculture or forest resources. | The Increased Restoration Alternative would not affect any agriculture or forest resources. | The project site would remain in its current condition and would not affect any agriculture or forest resources. |
| Air Quality | | The Project region (Santa Barbara County) is designated "unclassified/attainment" for the federal eight-hour ozone standard, and does not meet the state one-hour or eight-hour ozone standards. The County is "unclassifiable/attainment" for the federal standards for particulate matter less than 2.5 microns in diameter (PM _{2.5}) and is unclassified for the state PM _{2.5} standard. The County is a nonattainment area for | Project construction (grading) would result in short-term emission of dust and ozone precursors (ROG and NO _x). These emissions would not exceed local thresholds adopted by the Santa Barbara County Air Pollution Control District (UCSB, 2016). The Project would implement emission reduction best management practices during construction to reduce emissions to the extent feasible. | The Increased Restoration Alternative would result in more project-related grading and a corresponding increase in short-term dust and ozone precursor emissions. Long-term emission would likely be similar to the impacts of the Project. | No construction-related emissions would occur. Existing emissions resulting from the public's use of the site would continue. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|----------------------|-------------------------------------|---|--|--|---|
| | | <p>the state PM₁₀ standards. The County is an attainment area for all other federal and state air quality standards.</p> <p>The project site is not currently a substantial source of air emissions.</p> | <p>The long-term emissions from the Project would result primarily from persons driving to the project site for recreation-related purposes. These emissions would not exceed local thresholds adopted by the Air Pollution Control District (UCSB, 2016).</p> | | |
| Biological Resources | Habitat Communities | <p>Nine plant communities have been identified on the project site: disturbed non-native grassland (116.74 ac), native grassland (1.12 ac), coastal sage scrub (4.64 ac), coastal freshwater marsh (9.14), coastal salt marsh (1.17 ac), southern riparian scrub (4.16 ac), seasonal wetland (0.32 ac), southern vernal pool (0.78 ac), and eucalyptus stands/non-native trees (4.87 ac). In general, the project site supports a highly disturbed and altered mosaic of plant communities dominated by non-native weedy grassland and invasive plant species. The on-site creeks and drainages have been mostly isolated from regular tidal influence for over 50 years, and have been channelized to narrow corridors with in-channel freshwater emergent vegetation that is maintained (mowed) annually for flood conveyance with a narrow fringe of salt marsh type plants.</p> | <p>The Project would create/restore the following habitat communities on the project site: subtidal/aquatic (5.5 ac), mudflat/salt flat (9.5 ac), marsh plain (18.3 ac), freshwater/brackish wetland (0.5 ac), high marsh/transition (13.1 ac), southern riparian scrub (6.8 ac), native grassland (30.2 ac), vernal pool/native grassland (4.8 ac), coastal sage scrub (16.1 ac), seasonal wetland (0.9 ac), and sandy dunes (0.3 ac). The Project would create/restore tidal influenced habitat, restore and expand freshwater aquatic and emergent marsh habitat, create and restore vernal pool and other seasonal wetland habitats, and restore upland buffer areas with appropriate native habitats. The Project would temporarily impact the varied degraded upland and wetland habitats on the project site, however, the proposed wetland and upland habitat functions would far exceed the existing functions of the abandoned golf course, confined</p> | <p>The Increased Restoration Alternative would result in habitat restoration activities on the project site similar to those of the Project. However, this alternative would result in the creation of approximately 12 additional acres of subtidal and mudflat/salt flat habitat, and approximately 5 fewer acres of marsh plain, fresh/brackish and high marsh transition habitat when compared to the Project. This alternative would be less adaptive to future sea level rise conditions and result in an increased amount of flooded mudflat habitat in the future.</p> | <p>No habitat restoration would occur on the project site. Existing conditions on the project site would be retained, which generally consist of a disturbed and altered mosaic of plant communities dominated mostly by non-native weedy grassland and invasive plant species.</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|-------------------------------------|--|--|--|--|
| | | | <p>narrow drainage ways, and previously disturbed uplands that support mostly non-native and invasive plant species. The Project would have an overall beneficial effect on tidal wetlands and mud flats, freshwater wetlands and aquatic habitats, riparian habitat and uplands.</p> | | |
| | <p>Wetlands</p> | <p>A wetland delineation and jurisdictional determination was prepared for the project site (Sage Institute, 2015) that provided the location and extent of potential federal jurisdictional wetlands on the project site. 10.31 acres of creeks and drainages, and 0.78 acres of vernal pools were identified on the project site. The jurisdictional waters on the project site have been highly modified and managed due to the construction and operation of the former golf course.</p> | <p>The Project would permanently impact 9.05 acres of jurisdictional creek and drainage wetlands, and would restore/create a total of 52.6 acres of wetland habitat, consisting of: subtidal/aquatic (5.5 ac), mudflat/salt flat (9.5 ac), marsh plain (18.3 ac), freshwater/brackish wetland (0.5 ac), high marsh/transition (13.1 ac), vernal pool/native grassland (4.8 ac.), and seasonal wetland (0.9 ac). Therefore, the Project would have a beneficial long-term effect on the quantity, quality and functional complexity of waters of the U.S.</p> <p>The Project would have the potential to result in short-term impacts to restored and/or created wetlands resulting from grading and potential erosion/sedimentation impacts. The implementation of Federal and State water quality regulations, as well as water quality impact reduction policy requirements of the UCSB Long Range Development Plan,</p> | <p>The Increased Restoration Alternative would result in wetland restoration activities similar to those of the Project. However, it would result in the creation of approximately 12 additional acres of subtidal and mudflat/salt flat habitat, and approximately 5 fewer acres of marsh plain, fresh/brackish and high marsh transition habitat when compared to the Project.</p> <p>Impacts resulting from the removal of existing mostly degraded wetlands, and potential short-term erosion-related impacts would also be similar to the</p> | <p>No wetland creation/restoration would occur on the project site. Potential short-term erosion-related impacts to wetlands would be avoided, however, existing erosion condition on the project site that are impacting the Devereux Slough would not be addressed and would continue to occur</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|------------------------------|---|--|--|---|
| | | | would avoid and minimize erosion-related impacts such that adverse impacts to wetlands would not be significant. | impacts of the Project. | |
| | Special-Status Plants | The only special-status plant observed on the project site is southern tarplant (<i>Centromadia parryi</i> ssp. <i>australis</i>), which was observed in the vernal pool area of the Whittier Parcel. The project site does not support suitable habitat for special-status plants recorded in the CNDDDB such as the Contra Costa goldfields (<i>Lasthenia conjugens</i>) or Coulter’s goldfields (<i>Lasthenia glabrata</i>), Coulter’s saltbrush (<i>Atriplex coulteri</i>) or Davidson’s saltscale (<i>Atriplex serenana</i>). There is a documented occurrence of Ventura marsh milkvetch (<i>Astragalus pycnostachys</i> var. <i>lanoisissimus</i>) off-site in the upper fringes of Devereux Slough, and that area would not be affected by the project. The project site does not support suitable salt marsh fringe habitat for the Ventura marsh milkvetch, and does not have regular tidal influenced salt marsh habitat that would support Gambel’s watercress (<i>Rorippa gambellii</i>), marsh sandwort (<i>Arenairia paludicola</i>) or salt marsh bird’s-beak (<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>), and these plants have not been observed on the project site. | The Project proposes to enhance the Whittier Parcel vernal pools by excavating soil to increase their size and depth, and by revegetating the expanded pools. The excavation of topsoil to expand and deepen the vernal pools would have the potential to impact southern tarplant and seedbank that may be present at the project site. This impact would be minimized by implementing a proposed Tarplant Restoration Plan that describes mitigation and conservation measures, including seedbank retention, transplanting individual plants that may be present, and plan implementation and success criteria. | Potential impacts to tarplant that would result from the Increased Restoration Alternative would be the same as the impacts of the Project, and would also require the implementation of the proposed Tarplant Restoration Plan. | No impacts to tarplant would occur. This alternative would not expand habitat on the project site suitable to support tarplant. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|-------------------------------------|---|--|--|---|
| | Special-Status Wildlife | <p>The federal endangered tidewater goby (<i>Eucyclogobius newberryi</i>) has been observed within project site creeks and drainages. Tidewater goby can occur in the on-site creeks and drainages following large tide and rainfall events that flood the sheet pile sill at Devereux Creek and Venoco Road, and may persist as long as there is sufficient aquatic habitat within the creeks and drainages, and may migrate downstream through the low-flow culvert at the sill. They do not likely occur upstream of the sill permanently. Surveys conducted in 2014 found the tidewater goby in the Devereux Slough but not on the project site. Surveys in 2013 and 2015 did not find the tidewater goby in Devereux Slough or the project site.</p> <p>The federal threatened California red-legged frog (<i>Rana draytonii</i>; CRLF) is recorded in coastal creeks in the project but, but not on the project site. The creeks and drainages on the project site provide suitable habitat for the California red-legged frog for at least some part of the year depending on rainfall and remaining pockets of deep pools with permanent ponding. No CRLF were observed during on-site CRLF protocol surveys.</p> | <p>If tidewater goby and/or CRLF are located on the project site, the Project could result in direct short-term effects including mortality during construction, harassment from a salvage and relocation, or harm from the temporary loss of intermittently used habitat along the creeks and drainages that will be dewatered, excavated, and contoured to restore historic freshwater and tidal influence habitats. Proposed impact avoidance and minimization measures are described in Section 7.3. Potential downstream indirect effects would be minimized by implementing required water quality BMPs.</p> <p>Overall, the Project would create/restore tidal influenced channel habitat, restore and expand freshwater aquatic and emergent marsh habitat, create and restore vernal pool and other seasonal wetland habitats, and restore upland buffer areas with an expanse of regionally appropriate native grassland habitat. The Project would temporarily impact the varied degraded upland and creek/drainage habitats on the project site, however, the restored wetland and upland habitat functions would exceed the existing functions of the abandoned</p> | Potential impacts to tidewater goby and CRLF that would result from the Increased Restoration Alternative would be the same as the impacts of the Project, and would also require the implementation of the proposed impact avoidance and minimization measures. | No potential impacts to tidewater goby or CRLF would occur. This alternative would not expand habitat on the project site suitable to support tidewater goby or CRLF. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|-------------------------------------|---|---|---|---|
| | | <p>Cooper’s hawk (CDFW species of concern), and white-tailed kite (CDFW fully protected), are known to nest on or nearby the project site. The raptor and monarch butterfly habitat of the eucalyptus windrow along the Ellwood Mesa are outside of the proposed restoration area. The yellow warbler and burrowing owl have been observed within the project site but not documented as nesting.</p> <p>There is not any true tidally influenced salt marsh on the project site to support Belding’s savannah sparrow, light-footed clapper rail, or brackish water snail. Suitable habitat is not present on the project site for the beach and dune obligate snowy plover, globose dune beetle, or sandy beach tiger beetle. No other special-status wildlife has been recorded on the project site or is expected to occur.</p> | <p>golf course, confined narrow drainage ways, and previously disturbed uplands supporting mostly non-native plants. This would have a long-term beneficial effect for the tidewater goby and CRLF.</p> | | |
| | Critical habitat | <p>No critical habitat for any listed plant or animal species is designated within the project site. Critical habitat for the federal Threatened western snowy plover (<i>Charadrius nivosus nivosus</i>) has been designated along Devereux Beach but does not extend into the project site.</p> | <p>No impacts to designated critical habitat would occur.</p> | <p>No impacts to designated critical habitat would occur.</p> | <p>No impacts to designated critical habitat would occur.</p> |
| | Wildlife movement | <p>Existing conditions at the project site do not present any physical barriers to the movement of local/ resident</p> | <p>Proposed construction operations could temporarily reduce wildlife movement that does occur through</p> | <p>Potential wildlife movement impacts of the Increased</p> | <p>No impacts to wildlife movement would occur.</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--------------------|-------------------------------------|--|---|---|---|
| | | wildlife. Although the project site is adjacent to the Ellwood Mesa open space and Coal Oil Point Reserve to the west and south, its wildlife movement function is reduced by urban development along the north and east boundaries of the site, and Storke Road near to the site to the east. | the project site. However, construction would be conducted in phases, which would minimize the potential for short-term wildlife movement impacts. The proposed long-term habitat enhancements would increase habitat value and provide forage and cover that would enhance the potential for wildlife movement through the site. The sheet pile sill where Devereux Creek meets Devereux Slough at Venoco Road would be removed, facilitating increased upstream and downstream movement of the tidewater goby and other fish. | Restoration Alternative would be the same as the impacts of the Project. | |
| Cultural Resources | National Historic Preservation Act | Archaeological background research found evidence of four prehistoric archaeological sites, CA-SBA-1194, -1195, -1327, and -1688, within the project site. In addition, background research revealed that almost all of the project site has been significantly altered by grading associated with golf course construction. | Surface surveys yielded no evidence of archaeological material on the surface of CA-SBA-1194 and -1688. A sparse deposit of marine shell at CA-SBA-1195 was noted during survey, however, it is difficult to determine if the shell present is archaeological material. All three of these sites are extensively disturbed and no Project-related ground disturbance is proposed in the vicinity of these sites. A review of past studies at CA-SBA-1327 reveals that much of the upper 20 centimeters of soil at the site was disturbed during construction of the Ellwood Marine Terminal. During the Project survey, a few pieces of flaked stone were observed in disturbed context | The Increased Restoration Alternative would have no effect on cultural resources because this alternative would not result in ground disturbing operations in the vicinity of the known archaeological sites. | The No Action Alternative would have no effect on cultural resources because this alternative would not result in ground disturbing operations in the vicinity of the known archaeological sites. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|-------------------------------------|--|--|---|---|
| | | | <p>immediately north of Venoco Road, in the area that was graded during golf course construction. No Project-related ground disturbance is proposed in the vicinity of site -1327 so it would not be directly affected by the Project. The Project would not substantially increase public access to the site, therefore, potential indirect effects from vandalism and illicit collection is not likely.</p> <p>Based on the results of the Phase 1 and Extended Phase 1 surveys conducted at the project site, Applied EarthWorks (2016) recommends that the Project would have no effect to historic properties in the context of Section 106. No further archaeological study is recommended. Given the previous extensive disturbance, archaeological and Native American monitoring was not recommended.</p> | | |
| | Tribal | <p>The Native American Heritage Commission (NAHC) was contacted to request a review of the Sacred Lands File for sacred or sensitive Native American areas that may be within or near the Project site. The NAHC stated that no Native American traditional sites/places are in the immediate project area.</p> <p>Native American organizations and individuals that may have knowledge</p> | No impacts to tribal resources are expected to occur. | No impacts to tribal resources would occur. | No impacts to tribal resources would occur. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|-------------------|-------------------------------------|--|---|---|--|
| | | of cultural resources in the Project area were contacted. Four responses were received. Responses included requests for archaeological monitoring if grading would occur near known sites, while one response indicated that it was unlikely that archaeological material remained on-site due to golf course construction-related grading. | | | |
| Geology and Soils | | <p>The former golf course portion of the project site is covered with artificial fill and most of the South and the Whittier Parcels are covered with Older Alluvium. The natural topography of the project site was substantially altered by grading to construct the golf course. Eroding areas on the South Parcel are producing sediment that are infilling the northwest portion of the Devereux Slough.</p> <p>The north branch of the More Ranch fault has been mapped as trending through the central portion of the former golf course.</p> | <p>The Project would not result in development intended for human habitation. Proposed Bridge C (see Figure 4) would likely be located across or adjacent to the north branch of the More Ranch fault. In the low probability event of movement along the fault, the bridge could be damaged, however, it is unlikely that bridge damage would expose people to loss, injury or death. All structures developed on the project site would comply with applicable building regulations, such as Title 24 of the California Code of Regulations. The Project would be required to comply with applicable regulatory requirements, and potential seismic hazards would not be significant.</p> <p>Potential erosion impacts that could result from grading operations would be avoided and minimized by conducting grading operations between April and October (outside</p> | <p>Potential geology and soils impacts of the Increased Restoration Alternative would be similar to the impacts of the Project because bridges would be constructed in locations similar to the Project, and grading operations would have the potential to result in erosion and sedimentation impacts.</p> <p>This alternative would eliminate existing erosion and sedimentation impacts that are adversely affecting the Devereux Slough.</p> | <p>The No Action Alternative would avoid the potential geology and soils impacts that may result from the implementation of the Project. This alternative, however, would not address the existing erosion and sedimentation impacts that are adversely affecting the Devereux Slough.</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--------------------------|-------------------------------------|---|---|---|--|
| | | | the rainy season); implementing and maintaining erosion and sediment control BMPs as required by Federal and State regulations and UCSB policies; creating on-site slopes that have a gradient of 3:1 or less; and revegetating the site using native plants. Recontouring the project site, proposed drainage modifications, and revegetation of the site would eliminate the existing erosion and sedimentation impacts that are adversely impacting the Devereux Slough. | | |
| Greenhouse Gas Emissions | | The project site is not a substantial source of greenhouse gas emissions. Existing emission are primarily from persons driving to the site for recreation-related purposes. | The Project would not be a substantial long-term source of area or energy-related greenhouse gas emissions because it does not include the development of buildings that would use energy or require extensive regular maintenance. The Project would not result in a substantial long-term demand for water or result in the generation of a substantial amount of solid waste, which contribute to greenhouse gas emissions. The Project’s greenhouse gas emissions would be similar to existing conditions and would not be significant. The Project would result in short-term construction-related emissions, but those emissions would not result in a significant impact (UCSB, 2016). | The Increased Restoration Alternative would have long-term greenhouse gas emission impacts that are similar to those of the Project. Short-term emissions would be slightly higher than the Project’s emissions because this alternative would require more grading and associated equipment operation. Short-term emissions, however, are not expected to be significant. Long-term beneficial sequestration impacts would be similar to the impacts of the Project. | The No Action Alternative would avoid the less than significant short-term construction emissions that would result from the Project. Long-term emissions would remain similar to existing conditions. This alternative would not have the long-term beneficial sequestration impacts that would be provided by the Project. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|---------------------------------|-------------------------------------|--|--|---|--|
| | | | It is expected that the Project would have long-term beneficial carbon sequestration effects resulting from the establishment of native salt marsh and native perennial grassland habitats. | | |
| Hazards and Hazardous Materials | Hazardous Materials | Two dry-hole oil wells were developed on the project site in the 1960's. Soil testing in the vicinity of the abandoned wells has been conducted (Campbell Geo, Inc., 2016) and determined that TPH ² and BTEX ³ concentrations are below RWQCB Environmental Screening Levels. Testing for metals in soil samples determined that CCR Title 22 Total Threshold Limit Concentrations were not exceeded, and that slight exceedances of Soluble Total Threshold Limit Concentrations were detected for arsenic, barium, chromium, lead and selenium. Arsenic concentrations exceeding general investigation thresholds are not unusual in the project region, as it is a common background element. Similarly, cadmium is a common element found in marine terrace deposits such as those found on the project site. | Santa Barbara County Environmental Health Services has indicated that there are no actionable concentrations of petroleum constituents or metals in the soil samples taken from the project site wellhead areas (Campbell Geo, Inc., 2016). The UCSB Office of Environmental Health and Safety (EH&S) has also stated that no actions are required related to metal constituents detected in on-site soil samples if those soils are to remain in their present location. However, if soil from the wellhead areas that was determined to have elevated concentrations of metals is to be removed, that soil would need to be transported to an approved off-site disposal facility. | Potential hazardous material impacts of the Increased Restoration Alternative would be the same as the impacts of the Project because soil excavations would occur in the vicinity of the on-site former oil wells. | The No Action Alternative would avoid the potential hazardous material impacts that may result from the implementation of the Project. |
| | Wildfire | The UCSB Campus is not located | The Project would establish native | Potential fire hazard | The No Action |

² Total Petroleum Hydrocarbons

³ Benzene, Toluene, Ethyl-Benzene, Xylene

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|-----------------------------|-------------------------------------|---|--|---|---|
| | | <p>within a designated high fire hazard zone, however, large open space areas on the campus, such as the project site, are considered to have a moderate wildfire risk.</p> <p>The UCSB Fire Protection Division of EH&S ensures consistency between the campus and state fire regulations, including Public Resources Code Section 4291, which requires the establishment and maintenance of a 100-foot wildfire defensible space around buildings. The Fire Protection Division conducts an annual weed abatement program that includes mowing and other fuel reduction activities on the project site.</p> | <p>plant communities on the project site that have varying wildfire risk. Proposed wetland plant communities would have a relatively low wildfire risk, however, upland plant communities such as coastal sage scrub and native grasslands could have a moderate to high wildfire risk. Potential fire hazard impacts to development adjacent to the project site would not be significant because the Project would comply with State regulations related to the creation and maintenance of 100-foot wide defensible space/vegetation management areas on the project site.</p> | <p>impacts of the Increased Restoration Alternative would be similar to the impacts of the Project, as this alternative would also result in the creation of native habitats that may have a moderate to high wildfire risk.</p> | <p>Alternative would avoid the potential fire hazard impacts that may result from the implementation of the Project. This alternative, however, would not avoid the need for on-going fuel management activities on the project site.</p> |
| Hydrology and Water Quality | Short-Term Water Quality | <p>The General Construction Permit (GCP), Order No. 2012-0006-DWQ, NPDES Permit No. CAS000002, last updated by the SWRCB in July 2012, regulates storm water and non-storm water discharges associated with construction activities disturbing one acre or more. The GCP requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the Project. The SWPPP must list Best Management Practices (BMPs) the discharger will use to control sediment and other pollutants in storm water and non-storm water runoff.</p> | <p>The Project would be subject to the storm water discharge requirements of the GCP, and would be required to submit a Notice of Intent for coverage under the GCP, a SWPPP, and to comply with other requirements of the GCP prior to the commencement of soil disturbing activities. The required CPPP would be submitted to the California Coastal Commission for review and approval, and the specified erosion and sediment control measures would be implemented throughout the duration of the construction project. The SWPPP and CPPP will address potential impacts resulting</p> | <p>The Increased Restoration Alternative would have short-term water quality impacts that are similar to the impacts of the Project because the alternative would result in grading operations throughout much of the project site. This alternative would, however, result in a small (four acre) increase in the amount of ground disturbance area.</p> | <p>The No Action Alternative would avoid the potential short-term water quality impacts that may result from the implementation of the Project because no grading or construction activities would occur on the project site.</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|-------------------------------------|---|--|--|--|
| | | The Project would also be required to develop and implement a project-specific Construction Pollution Prevention Plan (CPPP) as required by LRDP Policies. The CPPP puts a high emphasis on erosion and sediment control. | from grading operations, soil stockpiles, the use of temporary stream crossings, and temporary stream channel dewatering operations. With the implementation of regulatory and policy requirements, the Project would not result in significant short-term water quality impacts. | | |
| | Post-Construction Water Quality | <p>The Project would result in the restoration of Devereux Creek and the Devereux Slough. Devereux Creek is listed on the State of California’s 303(d) List of Impaired Waterbodies for dissolved oxygen and fecal coliform.</p> <p>UCSB is a designated Phase II Small MS4 and must comply with the Phase II Small MS4 permit (Order No. 2013-0001 DWQ) issued by the State Water Resources Control Board (SWRCB). The Phase II Small MS4 Permit requires UCSB to regulate post-construction storm water runoff from certain new development and redevelopment activities. The Project, however, does not meet the definition of a Regulated Project and is not required to implement post-construction standards.</p> | The Project would not be a long-term source of substances, such as automotive, landscape maintenance products, or other hazardous materials, that would have the potential to adversely affect water quality on-site or downstream from the project site. The Project would remove the sill that reduces tidal flows onto the project site, which would increase tidal action in on-site channels and result in a reduction in stagnant water ponding, which would act to increase existing oxygen levels and reduce existing fecal coliform concentrations. | The Increased Restoration Alternative would result in the removal of the sill that now impedes tidal flows onto the project site, and the design of this Alternative would be similar to the design of the Project. Therefore, the potential long-term water quality impacts and benefits of this Alternative would be similar to the Project. | Under this Alternative, the project site would be retained in its existing condition. The sill would not be removed and the beneficial water quality effects of increased tidal flows onto the project site would not occur. |
| | Drainage | Devereux Creek and Phelps Creek | The Project would recontour and | The design of the | The No Action |

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|--|-------------------------------------|---|--|--|---|
| | | <p>are the main drainage sources of freshwater flow on the project site. Devereux Creek extends from east to west over a distance of approximately 1.3 miles, starting west of the project site in Goleta and ending at the Devereux Slough. Water flow in Devereux Creek is mostly ephemeral and normally lasts no more than a few days beyond a rainfall event. Ponding occurs in the few depressions that exist in the relatively level creek bed.</p> <p>Phelps Creek originates in the foothill areas north of the City of Goleta. On the project site, the creek drains to the eastern end of Devereux Creek on the golf course parcel.</p> <p>Storm water runoff from residential areas adjacent to the project site is also a source of freshwater on the golf course parcel. Runoff from residential areas to the north flows under Whittier Road and across the Whittier Parcel in a channel that terminates at an isolated depression on the northern margin of golf course. Storm water runoff from the Storke Ranch neighborhood east of the project site flows beneath Storke Road and into an unnamed channel that is a tributary to Devereux Creek.</p> | <p>lower the elevation of the Devereux Creek bed. The reduced creek bed elevation would result in an increase in the gradient of the segment of Phelps Creek where it joins Devereux Creek on the project site, which could increase erosion potential as it discharges into Devereux Creek. The Project proposes to construct two in-stream grade control structures at the Phelps Creek mouth to prevent head cutting up the channel from the lowered Devereux Creek channel.</p> <p>The impacts of the Project on drainage conditions in Devereux Creek were evaluated using numerical modeling, including HEC-RAS (UCSB, 2015). The HEC-RAS has modeled proposed changes to flow conditions within Devereux Creek including peak flow, water surface elevations, velocity and scour potential. The analyses showed that under proposed conditions, flow velocities and scour potential would be lowered when compared to existing conditions. Average flow velocities would be reduced from four to six feet per second during a 100-year storm event to one to three feet per second. Due to the reduced flow velocities within the creek, erosion and scour of the channel bed and</p> | <p>Increased Restoration Alternative would be similar to the design of the Project. Therefore, the potential drainage impacts of this Alternative would be similar to the Project.</p> | <p>Alternative would not result in modifications to existing drainage conditions on the project site.</p> |

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|--|-------------------------------------|-----------------------------|---|--|------------------------------|
| | | | <p>banks would not be significant.</p> <p>The Project would also result in the removal of the sheet pile sill located near the Devereux Creek Bridge. The sill reduces tidal flow onto the golf course property and captures sediment from Devereux Creek prior to discharging into Devereux Slough. The removal of the sill could potentially cause erosion or siltation within the area of the Devereux Creek Bridge, and it may be necessary to install scour protection (riprap) along the expanded channel banks and/or the creek bottom in the vicinity of the Devereux Creek Bridge to limit scour. Any required scour protection would be placed along the bridge abutments and channel bottom in the vicinity of the bridge consistent with the findings of final project design hydraulic analysis. The sizing and extent of riprap placement would be based on hydraulic and engineering analysis.</p> <p>Proposed on-site bridges would be designed and constructed to either avoid flood waters or incorporate design that can withstand temporary inundation. Any pilings for proposed Bridges C and D (Figure 4) that may be located in proposed tidal channels would be included in</p> | | |

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| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|-------------------------------------|---|--|--|--|
| | | | the Project’s final hydraulic analysis to ensure that any increases in hydraulic velocity are accounted for and localized energy dissipation impacts are minimized by scour and erosion control measures. | | |
| | Flooding | <p>Flooding conditions on the project site are influenced by storm water runoff and whether the Devereux Slough mouth is open or closed to the ocean. Flooding is exacerbated when the slough mouth is closed by accumulated sand, which blocks outflows to the ocean. When water within the slough rises sufficiently to open the slough mouth, flooding conditions are abated as flood water is able to drain to the ocean.</p> <p>The Flood Insurance Rate Maps (FEMA, 2012) that depict the project site indicate that most of the Ocean Meadows Golf Course and Whittier parcels are located within the designated 100-year floodplain. Most of the South Parcel is located outside of the 100-year floodplain. Figure 9 shows the 100-year floodplain for the project area.</p> | <p>Under existing conditions the 100-year flood results in on-site water surface elevations of 12 feet in the lower slough, 16 feet at the Devereux Creek Bridge, and 17 feet at Phelps Creek. The HEC-RAS modeling shows that the Project would lower flood levels by approximately one to two feet when compared to existing conditions. This is due to the proposed grading plan, which would lower the bed and bank profile of Devereux Creek and the tributary areas and create additional water storage capacity. Increased water storage results in corresponding lowering of the flood water levels.</p> | <p>The design of the Increased Restoration Alternative would be similar to the design of the Project although additional soil would be removed from the golf course parcel. Therefore, this Alternative may have additional beneficial flood water storage/reduced flood water elevation impacts when compared to the Project.</p> | <p>The No Action Alternative would not result in modifications to existing flooding conditions on the project site, and would not have the beneficial effect of lowering flood water elevations on the project site because no additional water storage capacity would be created.</p> |
| | Sea Level Rise | <p>An evaluation of the Project with respect to sea level rise has been conducted (UCSB, 2015). That analysis included the evaluation of the following parameters:</p> <ul style="list-style-type: none"> • A sea level rise of three feet above | <p>Three sea level rise conditions were modeled including 1) existing conditions with closed and open slough mouth conditions, 2) Project conditions with closed and open slough mouth conditions, and 3) Project conditions with sea level rise</p> | <p>The design of the Increased Restoration Alternative would be similar to the design of the Project. Therefore, this Alternative would also provide additional</p> | <p>The No Action Alternative would not have the beneficial effect of lowering future sea level elevations on the project site</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|-----------------------|-------------------------------------|---|---|--|---|
| | | <p>existing inundation levels. This represents a high sea level rise projection in the first 50 years and a medium range projection for the following 50 years through 2100. This is also consistent with the recent Coastal Commission guidance for LCP's and CDP's.</p> <ul style="list-style-type: none"> • A coastal numerical model that takes into account tidal dynamics of the Devereux Slough mouth along with tidal and fluvial influences of the slough and Devereux Creek. • A comparison of the results with the Santa Barbara County's Sea Level Rise analysis, which evaluated the project area using the most extreme sea level rise projections (five feet by 2100). | <p>with closed and open slough mouth conditions. The results of the analyses are shown in Figure 10 and indicate that the Project would increase tidal waters entering Devereux Creek within the limits of the project site. The modeling also indicates that the beach berm elevation (12 feet) would not rise consistently with the sea level rise and would likely result in inundation levels less than the County's maximum sea level projection within the project site and upstream neighborhoods. Therefore, the Project would help mitigate the potential effects of sea level rise.</p> | <p>on-site water storage capacity that would reduce future sea level rise-related water levels on and near the project site, similar to the beneficial effects of the Project</p> | <p>because no additional water storage capacity would be created.</p> |
| Land Use and Planning | | <p>The project site is located on the UCSB campus and the UCSB 2010 Long Range Development Plan (LRDP) applied an "Open Space" land use designation to the site.</p> <p>The LRDP includes land use-related policies, and Policy LU-19 requires that the project site be "<i>used for purposes of open space preservation, coastal wetland and wildlife habitat conservation and restoration, public access, passive recreation, research</i></p> | <p>The Project would be consistent with its "Open Space" land use designation and would implement policy requirements to restore the project site. Therefore, no adverse impacts related to land use and planning would occur.</p> | <p>The Increased Restoration Alternative would also be consistent with the project site's "Open Space" land use designation and would implement policy requirements to restore the site.</p> | <p>The No Action Alternative would retain the project site in its existing open space conditions, which would be consistent with the site's "Open Space" land use designation. This alternative, however, would</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|-------------------|-------------------------------------|---|--|--|---|
| | | <i>and environmental education.”</i> | | | not implement policy requirements to restore the site. |
| Mineral Resources | | There are no mineral resources or existing mineral resource recovery operations located on or near the UCSB campus. | The Project would have no impact on mineral resources. | The Increased Restoration Alternative would have no impact on mineral resources. | The No Action Alternative would have no impact on mineral resources. |
| Noise | | <p>The project site is open space that is primarily used for recreation uses such as walking, dog-walking, bicycle riding and other related uses that are not a substantial source of noise. Signage placed on the project site states that use of the site is limited to daylight hours, and that non-authorized vehicles and other specified uses are prohibited.</p> <p>Noise sensitive receptors adjacent to the project site include the UCSB North Campus Housing (Ocean Walk) project, the Sierra Madre and West Campus Apartments, and the residences north of the project site in the University Village neighborhood in the City of Goleta.</p> | <p>The Project would retain the existing open space character of the project site and noise sources associated with the Project would generally be similar to existing noise sources, which predominately consist of uses such as walking, dog-walking, bike riding and other similar recreation activities. An analysis of potential noise impacts resulting from the use of proposed on-site trails and a parking lot determined that those uses would not result in significant noise impacts (UCSB, 2016).</p> <p>The Project would result in temporary construction-related noise increases when soil is excavated from the South Parcel, Ocean Meadows Golf Course and Whittier parcels, and transported to proposed fill locations on the South Parcel. An analysis of potential construction noise impacts (UCSB, 2016) determined that construction noise from grading equipment use would approach or exceed 65 dBA at nearby sensitive receptors when</p> | The design of the Increased Restoration Alternative would be similar to the design of the Project. Therefore, this Alternative would result in long- and short-term noise impacts that are similar to the Project. | The No Action Alternative would maintain existing noise conditions on the project site that result primarily from the use of the site for recreation purposes. This Alternative would avoid short-term construction noise impacts that would result from the Project. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|------------------------|-------------------------------------|---|---|--|---|
| | | | equipment is operated within approximately 1,000 feet of a receptor. Therefore, short-term construction noise could result in a significant impact to sensitive noise receptors. This would be a short-term impact and UCSB would implement avoidance and minimization measures, including limiting the use of loud construction equipment between the hours of 8:00 am and 5:00 pm, Monday through Friday; and maintaining specified setbacks between staging areas and sensitive noise receptors. With the implementation of these measures, construction-related noise impacts would not be significant. | | |
| Population and Housing | | There are no residences located on the project site. | The Project would not result in the removal of any housing. The restoration of the project site and the development of proposed recreation trails would not foster additional population growth in the project region that would increase the demand for housing. Therefore, the Project would have no population or housing impacts. | The design of the Increased Restoration Alternative would be similar to the design of the Project. This alternative would have no population or housing impacts. | The No Action Alternative would have no population or housing impacts. |
| Public Services | | Fire protection services are provided by the Santa Barbara County Fire Department. Law enforcement is provided by the UCSB Police Department. | The Project would not result in the development of structures that would increase the demand for fire protection services. Compliance with vegetation management regulations would ensure that proposed restoration vegetation does not result in a significant wildfire | The Increased Restoration Alternative would not increase the demand for fire protection and law enforcement services. | The No Action Alternative would have no fire protection or law enforcement impacts. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|----------------------------|-------------------------------------|---|---|---|---|
| | | | <p>hazard impact.</p> <p>The Project would not increase the population of the UCSB campus or surrounding areas and would not result in an increased demand for law enforcement services.</p> | | |
| Recreation | | <p>The Project site encompasses approximately 136 acres that are used for a variety of recreation uses including but not limited to walking, running, cycling, horse-back riding, and dog walking. Trails on the project site also to connect adjacent residents to the UCSB campus, Ellwood Beach, Isla Vista School, and the Ellwood Mesa open space to the west. The South Parcel property has been used by hikers and cyclists, particularly by mountain bikers and dirt-bike users, who have created an extensive network of trails and jumps that have removed vegetation in areas that contribute to the erosion issues on the site.</p> | <p>The Project would retain the site as open space and would develop a network of on-site trails. The former golf cart paths and informal dirt paths that have been developed on the project site would be removed, including trails that are resulting in significant erosion and sedimentation impacts to on-and off-site resources. The Project would provide more than three miles of maintained trails available for public use. The proposed trails would be maintained by UCSB. Since the project site would be retained as open space and opportunities for active and passive recreation would continue to be provided, the Project's recreation impacts would not be significant.</p> | <p>The Increased Restoration Alternative would also retain the project site as open space and result in the development of a new network of on-site trails. Therefore, this alternative would not result in significant recreation impacts.</p> | <p>The No Action Alternative would retain the project site in its existing condition. The existing trail network would be retained, including trails that are contributing to on-going erosion-related impacts.</p> |
| Transportation and Traffic | | <p>Access to the project site is provided by roads located in the City of Goleta and the County of Santa Barbara. The roads and intersections in the project area operate at acceptable levels of service.</p> | <p>It is estimated that the Project would generate approximately 78 average daily vehicle trips. The amount of traffic generated by the project would be substantially less than the estimated 322 average daily trips that were generated by the operation of the former project site golf course. The addition of 78 vehicle</p> | <p>The Increased Restoration Alternative would have traffic generation characteristics similar to the Project and would not result in significant traffic generation impacts.</p> | <p>The No Action Alternative would retain the project site in its existing condition. Vehicle trips that are currently generated by people driving to the site for</p> |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|-------------------------------|-------------------------------------|---|---|--|--|
| | | | trips to the local roadway network would not result in significant traffic-related impacts (UCSB, 2016). | | recreation-related uses would continue to occur. |
| Utilities and Service Systems | | <p>Wastewater collection services for the project site are provided by the Goleta West Sanitary District (GWSD). A 24-inch sewer trunk line that is maintained by the GWSD extends along the northern portion of the project site within a 10-foot wide easement. The GWSD sends wastewater to the Goleta Wastewater Treatment Plant for treatment and disposal.</p> <p>The Goleta Water District provides potable water service for UCSB. UCSB has the right to receive up to 200 AFY of potable water service from GWD for use on the historic Bishop Ranch area. UCSB Lands within the historic Bishop Ranch include the North Campus. Approximately 77.6 acre feet of water remains available to UCSB under this entitlement.</p> <p>UCSB uses an average of 143 AFY of recycled water for approximately 90% of its irrigation needs.</p> | <p>Restroom facilities are not planned to be located on the project site at this time. Therefore, the Project would have no wastewater treatment impacts. The Project design would allow continued access to the GWSD’s sewer trunk line, and the GWSD will review final grading and construction plans to ensure that the Project does not impact its existing pipeline easement. Therefore, the Project would not result in significant wastewater collection or treatment impacts.</p> <p>Approximately 85 acres of the project site would be revegetated (mudflat and salt flat areas would not be planted) and the site would be revegetated in two phases. The Project would implement a variety of measures to reduce short-term water demand that would result from the irrigation of restoration planting, including the use of recycled water and low-volume drip irrigation where feasible, and using the minimum amount of water necessary, which would also minimize weed growth. It is estimated that the total short-term water demand for landscape</p> | The Increased Restoration Alternative would have wastewater generation and water use characteristics similar to the Project and would not result in significant utility impacts. | The No Action Alternative would have no utility-related impacts. |

Table 4: Summary of Environmental Consequences by Alternative

| | Environmental Issue Sub-Area | Affected Environment | Proposed Action | Increased Restoration Alternative | No Action Alternative |
|--|-------------------------------------|-----------------------------|---|--|------------------------------|
| | | | <p>irrigation on the project site would be approximately 34 acre feet (UCSB, 2016). Adequate supplies of recycled water are available to meet irrigation demands, and adequate supplies of potable irrigation water are available to UCSB under its existing GWD entitlement. The Project would not have a substantial long-term demand for recycled or potable water. Therefore, the Project would not result in significant water supply impacts.</p> | | |

10.0 CUMULATIVE IMPACTS

There are no other reasonably foreseeable non-federal projects proposed to occur on the project site. A known non-federal project proposed to occur adjacent to the project site is the decommissioning and remediation of the former Ellwood Marine Terminal, which is located south of and adjacent to the project site. The removal of terminal facilities and remediation of soil contamination from this disturbed site would have long-term beneficial environmental effects. Therefore, the NCOS Restoration Project would not result in or substantially contribute to cumulative effects that would adversely affect special-status plant species, tidewater goby or California red-legged frog.

The NCOS Restoration Project would not be as substantial source of short- or long-term air emissions that would result in significant cumulative air quality or greenhouse gas emission impacts. The Project would implement a variety of erosion control and other construction site best management practices and would not result in significant cumulative water quality impacts. The Project would not generate a substantial amount of traffic and would not result in significant cumulative impacts related to the operation of streets or intersections in the project area. The short- and long-term water use of the Project for irrigation purposes would not be substantial and would not result in significant cumulative water supply impacts.

11.0 REFERENCES and PREPARERS

11.1 REFERENCES

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11.2 PERSONS CONTACTED

Shari Hammond, UCSB Campus Planning and Design

Lisa Stratton, Ph.D., CCBER

11.3 PREPARERS

This Environmental Assessment was prepared by Rodriguez Consulting, Inc., under contract to U.C. Santa Barbara.

FIGURES

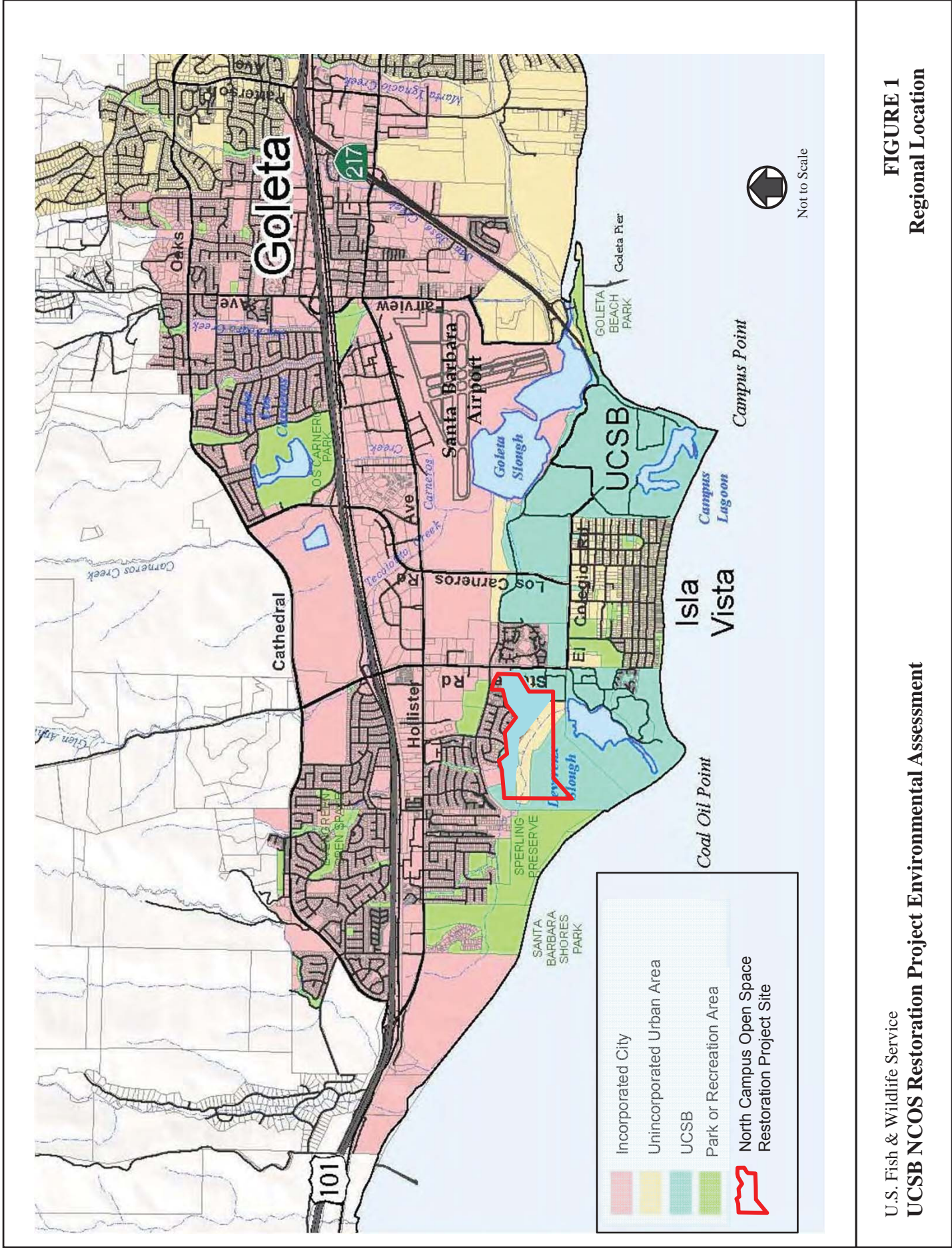
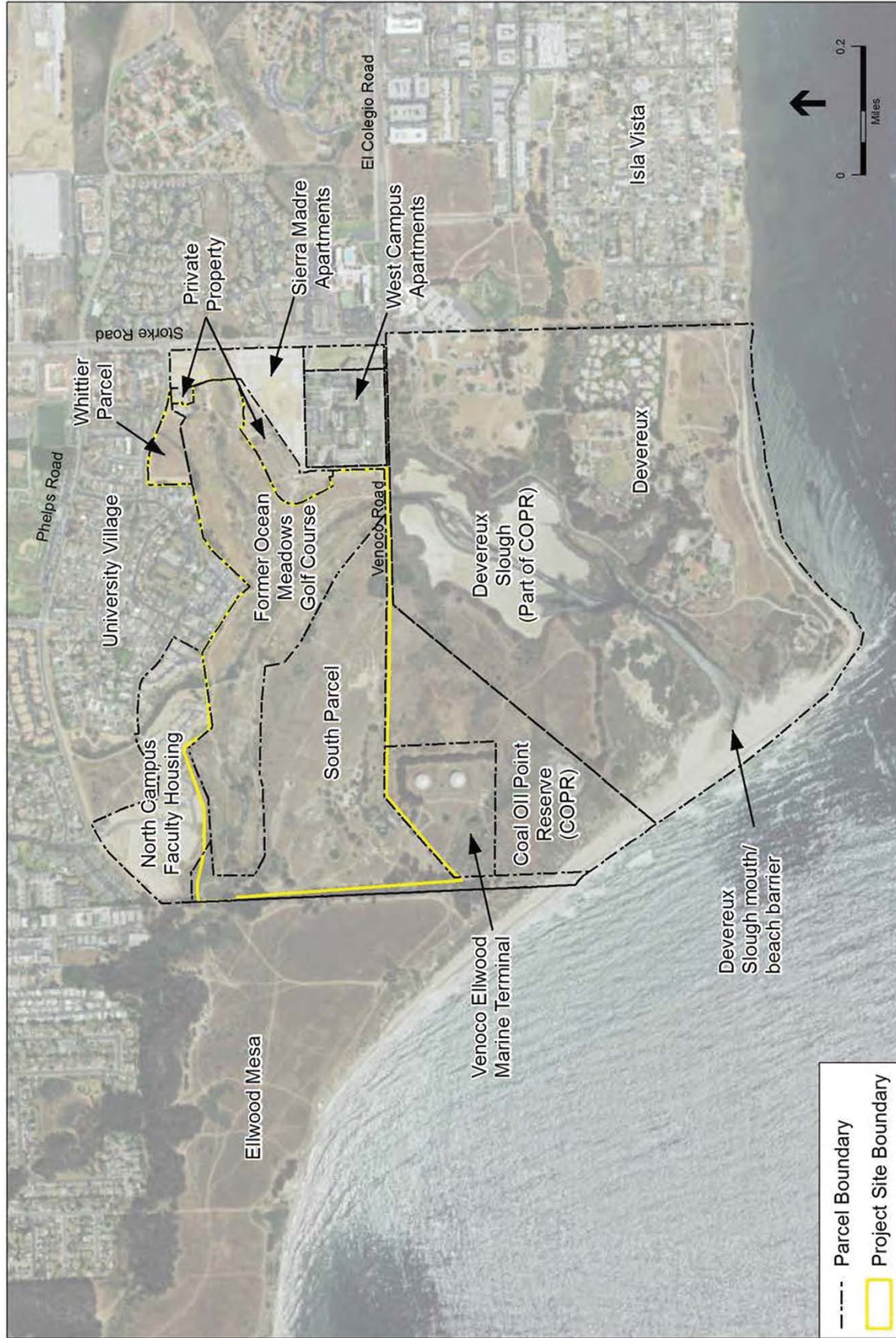


FIGURE 1
Regional Location

U.S. Fish & Wildlife Service
UCSB NCOS Restoration Project Environmental Assessment



Source: UCSB, 2015

U.S. Fish & Wildlife Service

UCSB NCOS Restoration Project Environmental Assessment

FIGURE 2
Project Site and Surrounding Land Uses

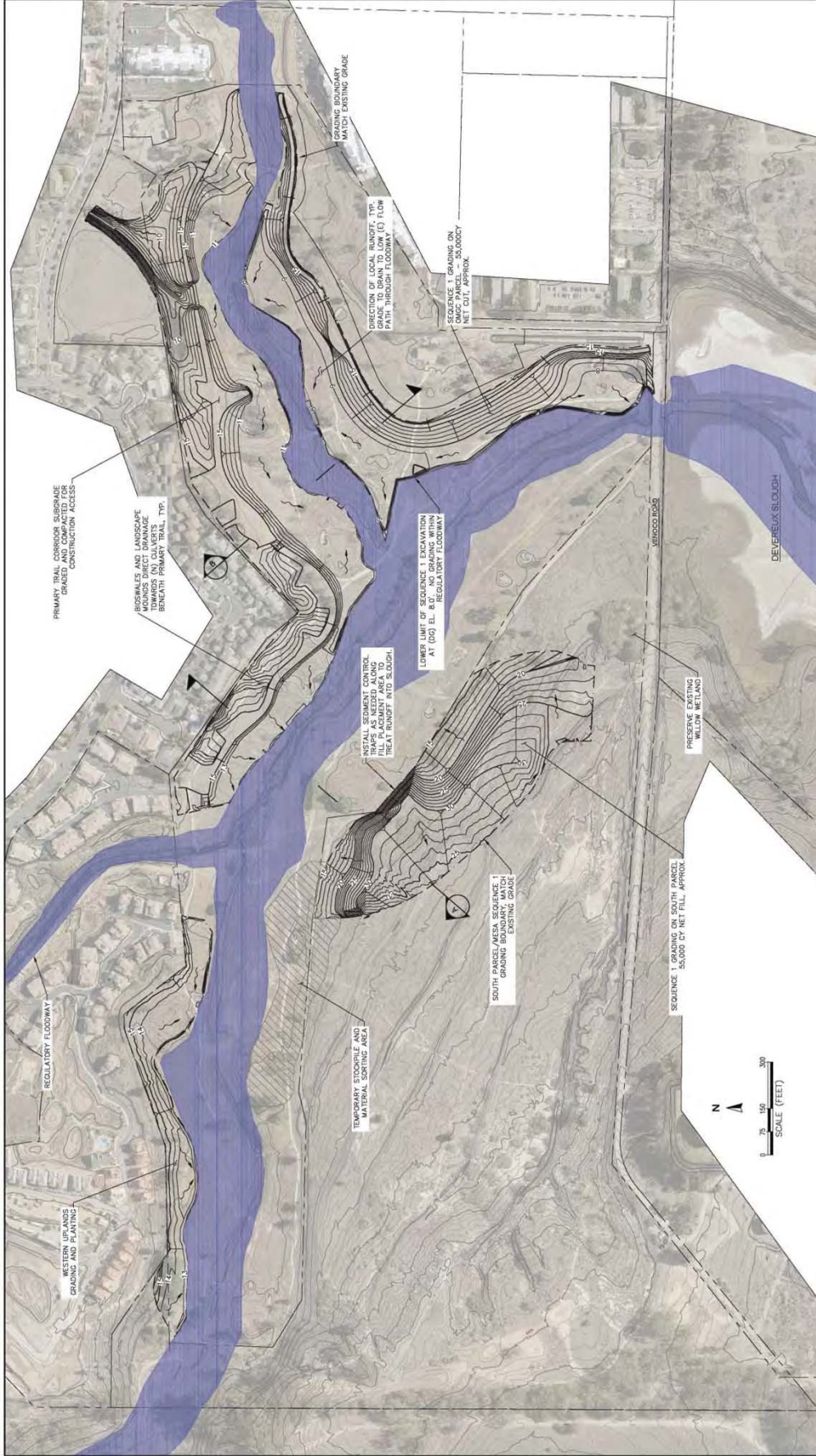


Source: ESA, 2016

U.S. Fish & Wildlife Service

UCSB NCOS Restoration Project Environmental Assessment

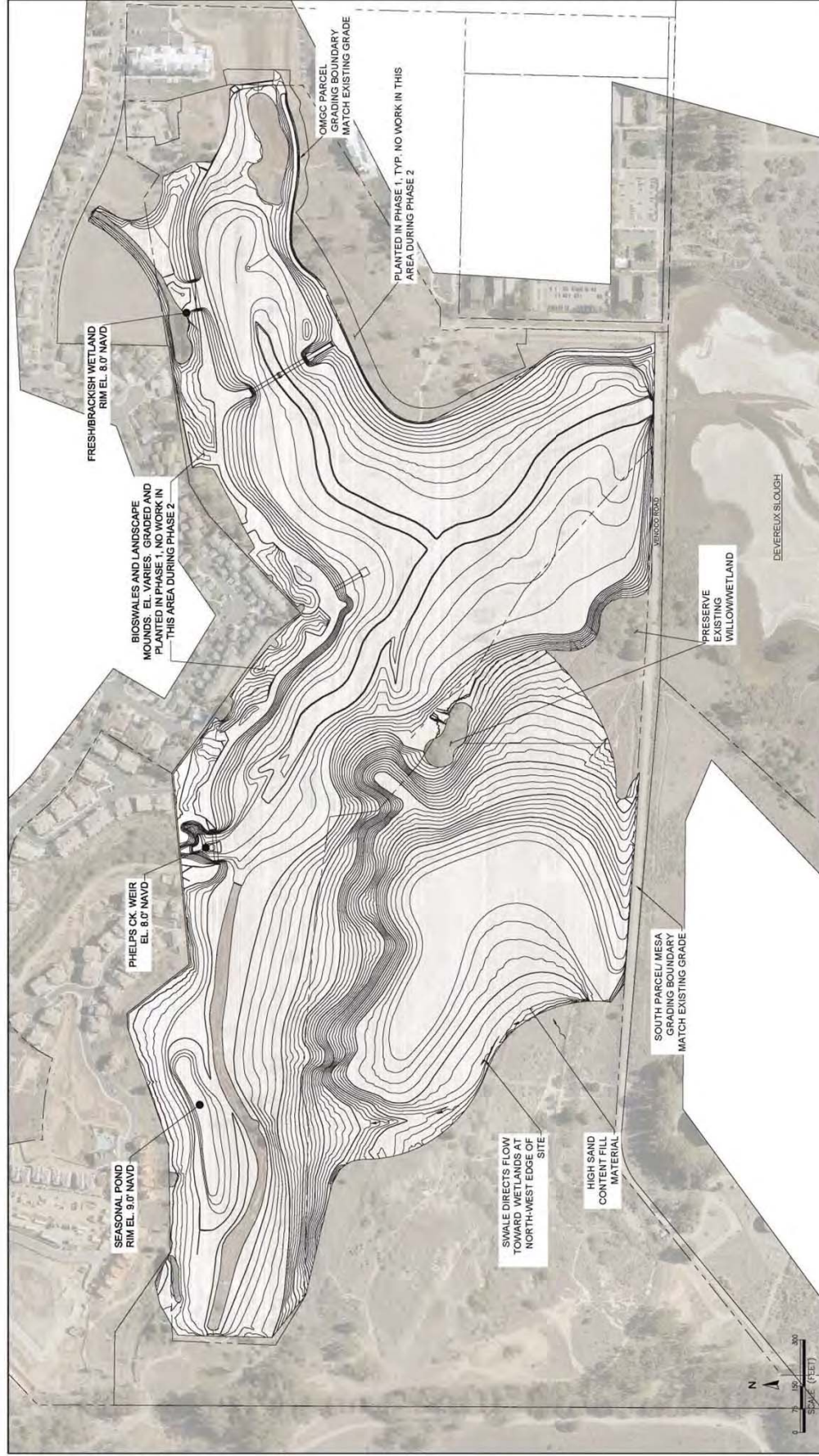
FIGURE 3
Proposed Habitat Areas



Source: ESA, 2016

FIGURE 5
Phase 1 Grading Plan

U.S. Fish & Wildlife Service
UCSB NCOS Restoration Project Environmental Assessment

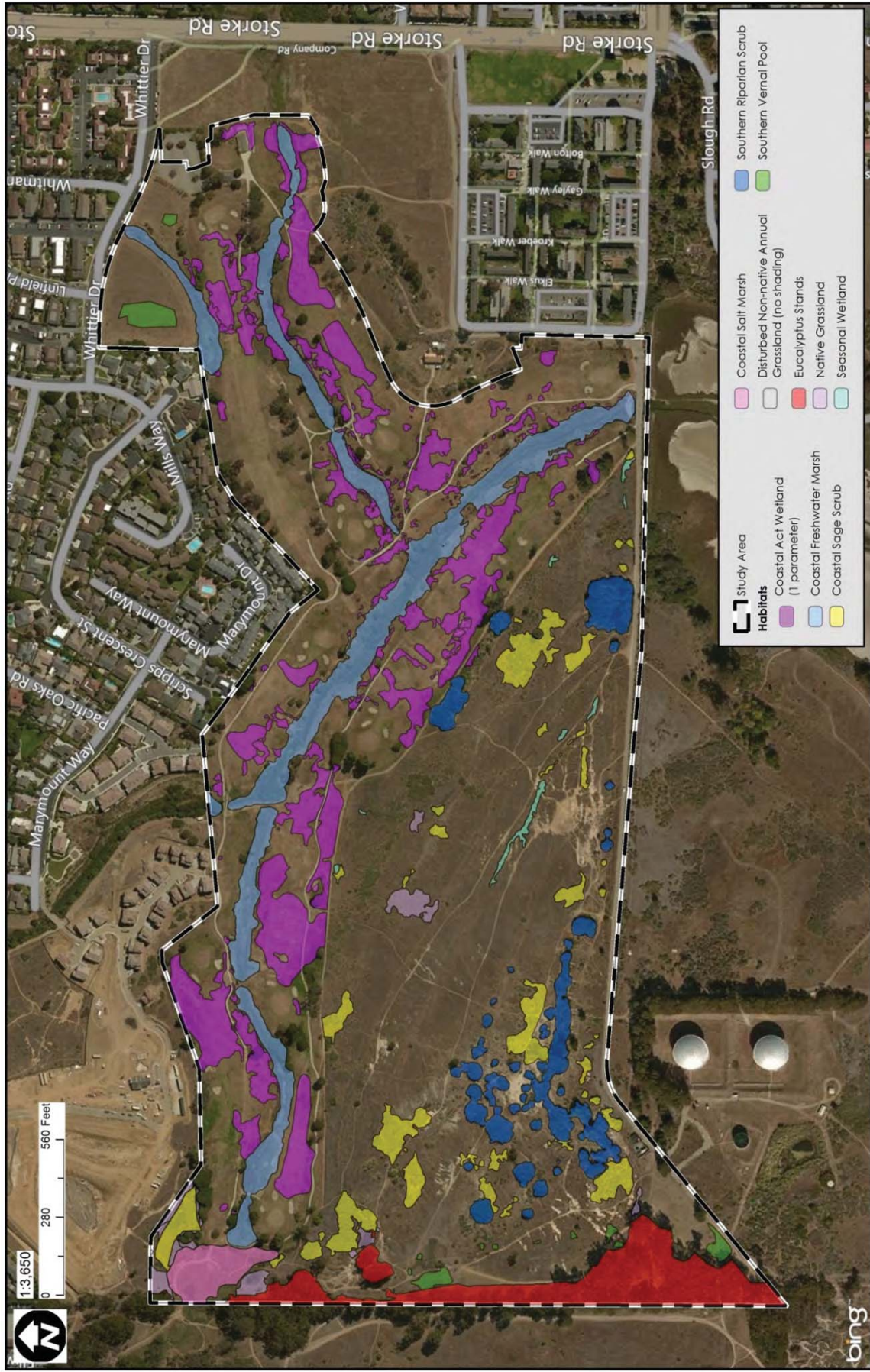


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U.S. Fish & Wildlife Service

UCSB NCOS Restoration Project Environmental Assessment

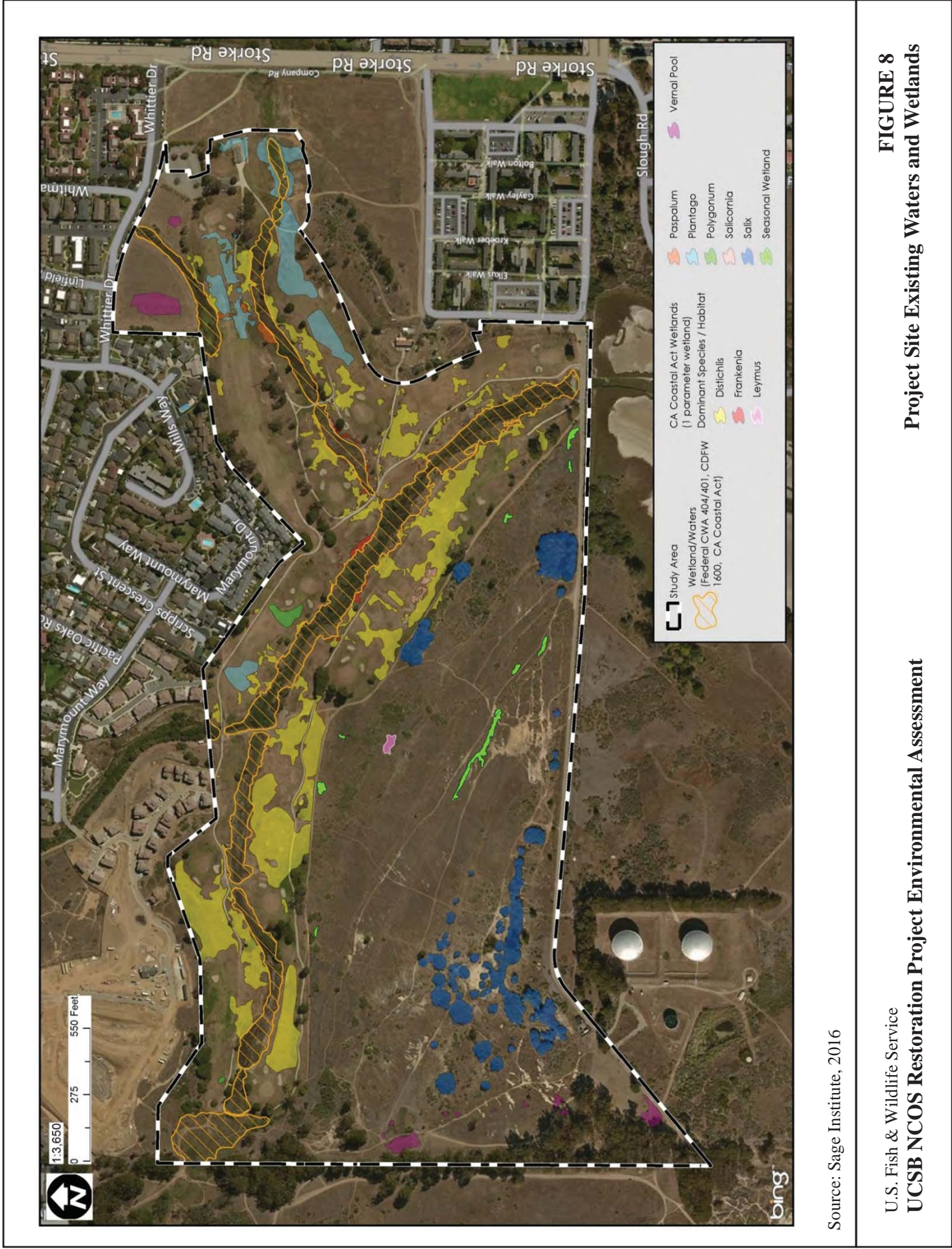
FIGURE 6
Phase 2 Grading Plan



Source: Sage Institute, 2016

FIGURE 7
Project Site Existing Habitat Types

U.S. Fish & Wildlife Service
UCSB NCOS Restoration Project Environmental Assessment

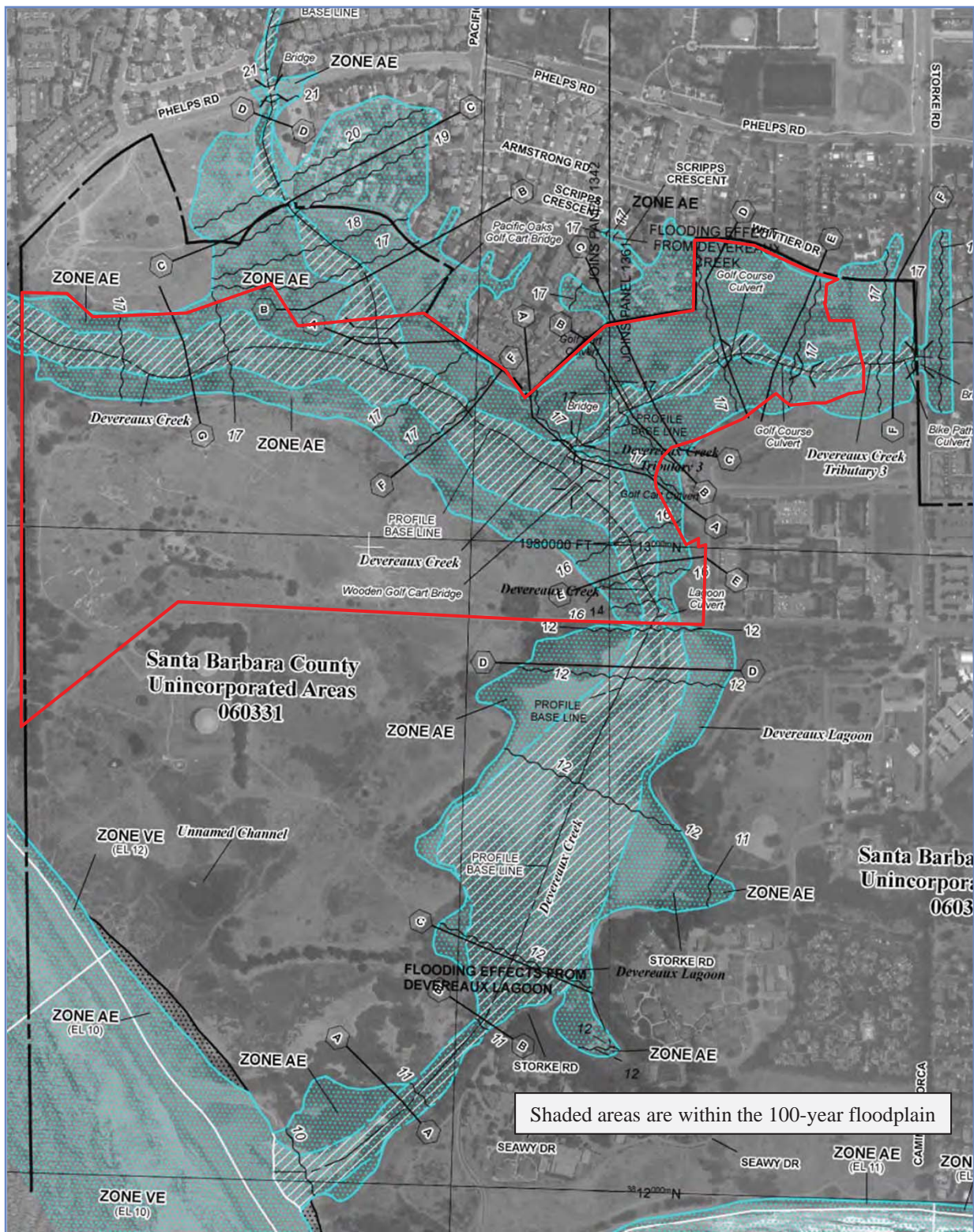


Source: Sage Institute, 2016

U.S. Fish & Wildlife Service

UCSB NCOS Restoration Project Environmental Assessment

FIGURE 8
Project Site Existing Waters and Wetlands



Source: FEMA, 2012

Project Site

