UCSB

OFFICE OF CAMPUS PLANNING & DESIGN

February 2016

Draft
Initial Study/ Mitigated Negative Declaration

North Campus Open Space Restoration Project

Exhibit 4: Initial Study/Mitigated Negative Declaration

North Campus Open Space Restoration Project

Draft
Initial Study and
Mitigated Negative Declaration

Prepared For

University of California at Santa Barbara
Office of Campus Planning and Design

Prepared By

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Santa Barbara, California

February, 2016

Exhibit 4: Initial Study/Mitigated Negative Declaration

UNIVERSITY OF CALIFORNIA at SANTA BARBARA

NORTH CAMPUS OPEN SPACE RESTORATION PROJECT

INITIAL STUDY and MITIGATED NEGATIVE DECLARATION

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1.0 INTRODUCTION

This Initial Study and proposed Mitigated Negative Declaration (MND) have been prepared for the North Campus Open Space Restoration Project (the "Project" or "Restoration Project") in compliance with the California Environmental Quality Act (CEQA) Statute and Guidelines (Public Resources Code Section 21000 et. seq. and California Code of Regulations Title 14, Chapter 3 Sections 15000–15387, respectively. This Initial Study tiers from the University of California at Santa Barbara (UCSB) 2010 Long Range Development Plan (2010 LRDP) Final Environmental Impact Report (FEIR) pursuant to CEQA Guidelines Section 15152.

1.1 PROJECT OVERVIEW

The North Campus Open Space Restoration Project has been proposed by UCSB in collaboration with the State Coastal Conservancy, Trust for Public Land, Land Trust for Santa Barbara County, County of Santa Barbara, Caltrans, California Department of Water Resources, California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service. The Project has been designed to restore and enhance wetland and associated upland habitats that are characteristic of the historic Devereux Slough ecosystem, and it is the overall intent of the Project to restore the tidal connection to the project site that was eliminated when the Ocean Meadows Golf Course was constructed.

The North Campus Open Space (NCOS) 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 is located on three parcels: the South Parcel (68.9 acres), Whittier Parcel (3.70 acres) and the former Ocean Meadows Golf Course (63.8 acres). The NCOS is part of the 652-acre Ellwood-Devereux Open Space Plan Area, which was established in 2003 through a cooperative effort by UCSB, the City of Goleta and the County of Santa Barbara. The purpose of the Ellwood-Devereux Open Space Plan is to comprehensively plan the preservation, management, and development of the Ellwood-Devereux area. The specific development, open space management and public access strategies for the Open Space Plan Area are described in the *Draft Ellwood-Devereux Coast Open Space and Habitat Management Plan* (2004), which was prepared by the City of Goleta, UCSB, and the County of Santa Barbara to comprehensively plan the land use of the Ellwood-Devereux coast.

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 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; be used to provide recreation opportunities; provide 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 create a diverse range of habitats that would connect to and expand important native habitats of the existing lower Devereux Slough and the surrounding Coal Oil Point Reserve.

Restoration of the former upper portion of the Devereux Slough would be accomplished by excavating approximately 355,000 cubic yards of soil primarily from the golf course property and from approximately three acres of the South Parcel, 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 create 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 at the Devereux Creek Bridge. This sill was installed as part of the bridge construction and is located north of and adjacent to the bridge, which is located near the southeastern corner of the project site on Venoco Road. Venoco Road is located along the southern boundary of the project site and provides access to the recently decommissioned Ellwood Marine Terminal.

1.2 PROJECT INFORMATION

Project Title:	North Campus Open Space Restoration Project
Lead Agency Name and Address:	The Regents of the University of California 1111 Franklin Street Oakland, CA 94607
Contact Person	Shari Hammond, (805) 893-3796
Project Location	The project site is located on the North Campus of UC Santa Barbara
Project Sponsor:	University of California, Santa Barbara Santa Barbara, CA 93106-2030

Custodian of Administrative Record:	University of California, Santa Barbara Office of Campus Planning and Design
Previous EIRs from which this Initial Study Tiers:	This Initial Study tiers from the UCSB 2010 LRDP Final EIR (SCH#2007051128), which is also incorporated into this IS/MND by reference. The EIR may be downloaded from the following Internet address: http://www.facilities.ucsb.edu/departments-campus-planning-design/2010-long-range-development-plan-lrdp/documents-and-materials

1.3 PROJECT BACKGROUND

1.3.1 Project Planning

The North Campus Open Space Restoration Project is described in a document prepared by Environmental Science Associates (ESA) and titled *North Campus Open Space Restoration Project Detailed Project Program* (UCSB, 2015). In developing the Detailed Project Program (DPP), ESA collaborated with a committee of UCSB representatives that comprised the NCOS Restoration Project Committee and Science Advisory Board. The process for preparing the DPP included the completion of the following major steps:

- Review and refinement of UCSB Project Goals and Objectives
- Review and summary of historic and existing conditions data
- Identification and analysis of site opportunities and constraints
- Development of conceptual project alternatives
- Evaluation of alternatives and selection of the proposed project

The goals of the Restoration Project are to implement a restoration plan consistent with the goals and objectives established by the NCOS Science Advisory Board. The goals represent a balance of ecosystem restoration and enhancements with the provision of social values. The Project's goals are listed below:

Ecosystem Restoration. Enhance wetland and associated upland habitats characteristic of Devereux Slough ecosystem. To do so will require expansion of wetland area, improved hydrological connectivity, enhancement of habitats for threatened and endangered species and improving resiliency of ecosystem structure and function.

Provide Social Values. Maintain open space and develop opportunities for passive recreation, research and educational use that are compatible with the environmentally sensitive resources of the area.

The NCOS Restoration Project Committee and Science Advisory Board considered two project design and implementation alternatives. Alternative 1 was the "Maximum Grading Alternative," and Alternative 2 was called the "Reduced Grading Alternative." Both alternatives implemented the project goals but differed in the extent and manner in which the goals would be achieved. The NCOS Restoration Project Committee and Science Advisory Board selected Alternative 2 as the proposed Project. Considerations that led to the selection of Alternative 2 are summarized below.

Resilience. Alternative 2 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. Alternative 2 requires 355,000 cubic yards of excavation, while Alternative 1 would result in 550,000 cubic yards of excavation. The 36 percent decrease in earth moving provided by Alternative 2 would result in lower construction costs.

Impact. The reduced earthwork volume associated with Alternative 2 results in a slightly reduced area of impact to existing habitats (approximately 2.0 acres less), resulting primarily from a reduced fill footprint on the South Parcel. In addition, Alternative 2 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, Alternative 2 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.

The implementation of the Restoration Project would be managed by the Cheadle Center for Biodiversity and Ecological Restoration (CCBER). CCBER promotes the teaching of diverse undergraduate courses; supports faculty, staff, and student research interests by providing field and lab-based resources; and satisfies the University's obligation to provide stewardship of campus lands. Through its ecological restoration programs, CCBER encourages land restoration on and near campus.

1.3.2 Regional Planning

The golf course parcel was donated to UCSB by the Trust for Public Land in 2013 to expand the open space conservation program known as the Ellwood-Devereux Coast Open Space Plan Area. The Open Space Plan Area encompasses lands located on the UCSB campus, in the City of Goleta and in the County of Santa Barbara, and is comprised of 10 properties owned by public and private entities. The purpose of the Open Space Plan was to provide an opportunity to comprehensively plan the preservation, management, and development of the Ellwood-Devereux area, rather than considering piecemeal project-by-project approvals. The comprehensive planning approach was proposed to facilitate improved public coastal access, and the

preservation and enhancement of 652 acres of recreation areas, natural land, and marine environment resources.

Planning and management strategies for the Ellwood-Devereux area are outlined in the *Ellwood-Devereux Coast Open Space and Habitat Management Plan* (2004). The Plan describes goals, policies and actions to guide the management of public access and habitat protection throughout the Open Space Plan area. A major component of the Plan was the proposed relocation of development away from coastal areas to the northern perimeter of the planning area where it would be clustered contiguous to existing development, roads, and services. Through the transfer of development rights, potential new residential development on the Ellwood Mesa was transferred to the north side of Santa Barbara Shores Park (the Comstock Homes project), and potential housing development on the South Parcel was transferred to an area north of the golf course parcel (the Ocean Walk project).

1.4 ENVIRONMENTAL SETTING

1.4.1 Regional Setting

The UCSB campus is located in an unincorporated area of Santa Barbara County, near the City of Goleta and the community of Isla Vista, and approximately 10 miles west of the City of Santa Barbara. This general area is referred to as the South Coast region of the County and occupies a coastal plain about three miles wide between the Pacific Ocean and the foothills of the Santa Ynez Mountains (Figure 1.4-1).

The UCSB campus encompasses a total of approximately 1,056 acres and is comprised of four areas known as the Main Campus, Storke Campus, West Campus, and North Campus. Figure 1.4-2 depicts the location and land use designations for each of the four UCSB campus areas. The NCOS Restoration Project is located on the 238-acre North Campus, which is located west of Storke Road, south of a residential neighborhood in the City of Goleta, and north of the UCSB West Campus. Land uses on the North Campus are mostly open space with some student and faculty housing. Housing projects on the North Campus include the 151-unit Sierra Madre student housing project and the 154-unit Ocean Walk faculty housing project.

1.4.2 Project Site Characteristics

Project Site. The NCOS Restoration Project encompasses 136.4 acres 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. Figure 1.4-3 shows the location of the project site within the Devereux Slough Watershed.

The project site consists of three parcels, each owned by UCSB. Each of the project site parcels are depicted on Figure 1.4-4 and are briefly described below.

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Source: UCSB, 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-1

Project Region

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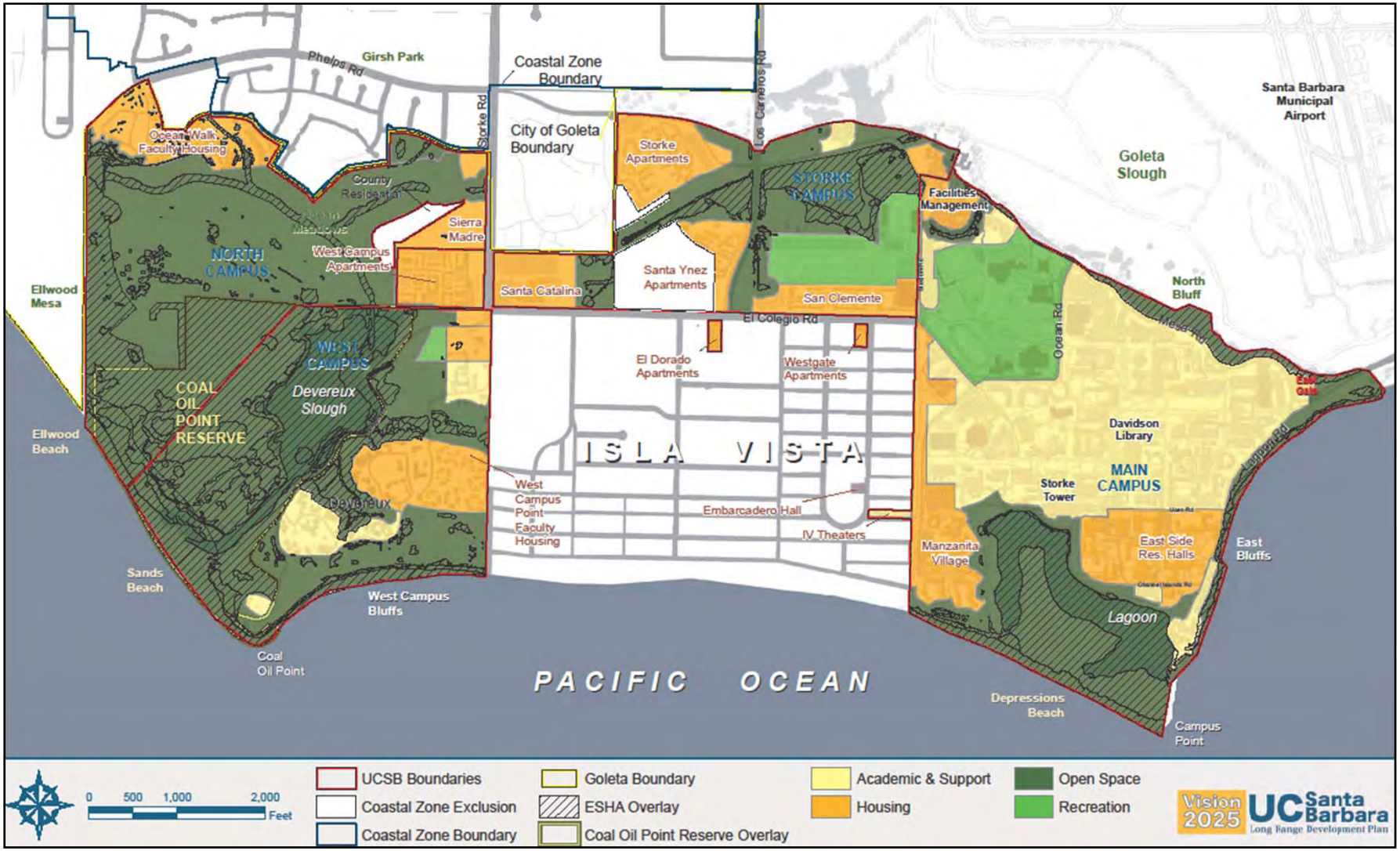

Source: UCSB, 2014

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-2

2010 LRDP Certified Land Use Designations

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Source: UCSB, 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-3

Devereux Slough Watershed Boundary

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Source: UCSB, 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-4

Proposed Project Parcels and Surrounding Land Uses

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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. Figure 1.4-5 shows the extent of grading scars on the South Parcel and on properties to the north and east of the project site resulting from excavations to obtain soil to fill the northern portion of the Devereux Slough and construct the Ocean Meadows Golf Course. 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. The University proposes to reconstruct the storage building under a different project. 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

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University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-5

Historic Grading Near the Project Site

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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.

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 closed 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 except where it is bisected by a small drainage channel that flows southwesterly through the property. The drainage supports marginal quality freshwater wetland and vernal pool habitats.

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 east to west 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 mostly 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 two 24-inch corrugated metal pipes under Venoco Road 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. Since much of the lower portion of the Devereux Creek watershed has been developed with urban uses, 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 organic material over time. Currently, high tide levels are below most of the salt flats in the lower Slough, and are 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 occurred, but larger inflows would be needed for breaches to occur because the site would hold more runoff.

Project Site Topography. The natural topography of the project site has been extensively modified. Land on the project site was cleared for grazing and agriculture starting in the 1800's and site modifications for agricultural and oil exploration operations continued through the early 20th century. More substantial changes to the site resulted from the removal of topsoil and filling of the northern portion of the Devereux Slough to construct the Ocean Meadows Golf Course and for other land development. Grades on the golf course parcel range from zero to 10 percent, and elevations range from five to 15 feet above sea level. The South Parcel slopes generally to the northeast, and the Project area ranges in elevation from approximately fifteen feet above sea level along the property's eastern border, and approximately 72 feet above sea level near the southwest portion of the project site. Average slopes range between five to 30 percent. The topography of the project site and surrounding areas is depicted on Figure 1.4-6.

Project Site Habitat Resources. Vegetation on the former golf course property is a mosaic of primarily non-native turf grasses, annual non-native weeds, native wetland and riparian plants and bare ground. There are also native and non-native trees located adjacent to the golf course fairways, including pine, eucalyptus, cypress, and palm species. The vegetation distribution is strongly influenced by year-round surface water inflows, high groundwater and localized areas of moderate to high soil salinity. Coastal freshwater marsh occurs within the reach of Devereux Creek that extends across the golf course, and within the unnamed tributary that conveys runoff from the Storke Ranch neighborhood to Devereux Creek.

The rare southern tarplant (*Centromedium parryi* ssp. *australis*) has been documented on the golf course site, and Phelp's Creek is known to contain the rare Santa Barbara honeysuckle (*Lonicera subspicata* var. *subspicata*). Tidewater goby, a federally endangered species, has been observed in Devereux Slough in the COPR and also upstream in Devereux and Phelps Creek on the project site. Although tidewater goby was not found in the Devereux Slough during surveys in 2014, they were found in the slough during surveys in 2004-2010, 2012, and 2013.

The South Parcel area is mostly upland habitat dominated by non-native annual grassland and eroded/disturbed areas, but also contains fragments of a variety of natural plant communities and habitat types including southern vernal pools, coastal salt marsh, native grasslands, riparian scrub and coastal scrub. The South Parcel also contains a large contingent of invasive exotic plants, including fennel and pampas grass (*Cortaderia jubata).* Special-status species that have been observed within the South Parcel include: raptors such as red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), yellow warbler (*Setophaga petechia*), and southern tarplant.

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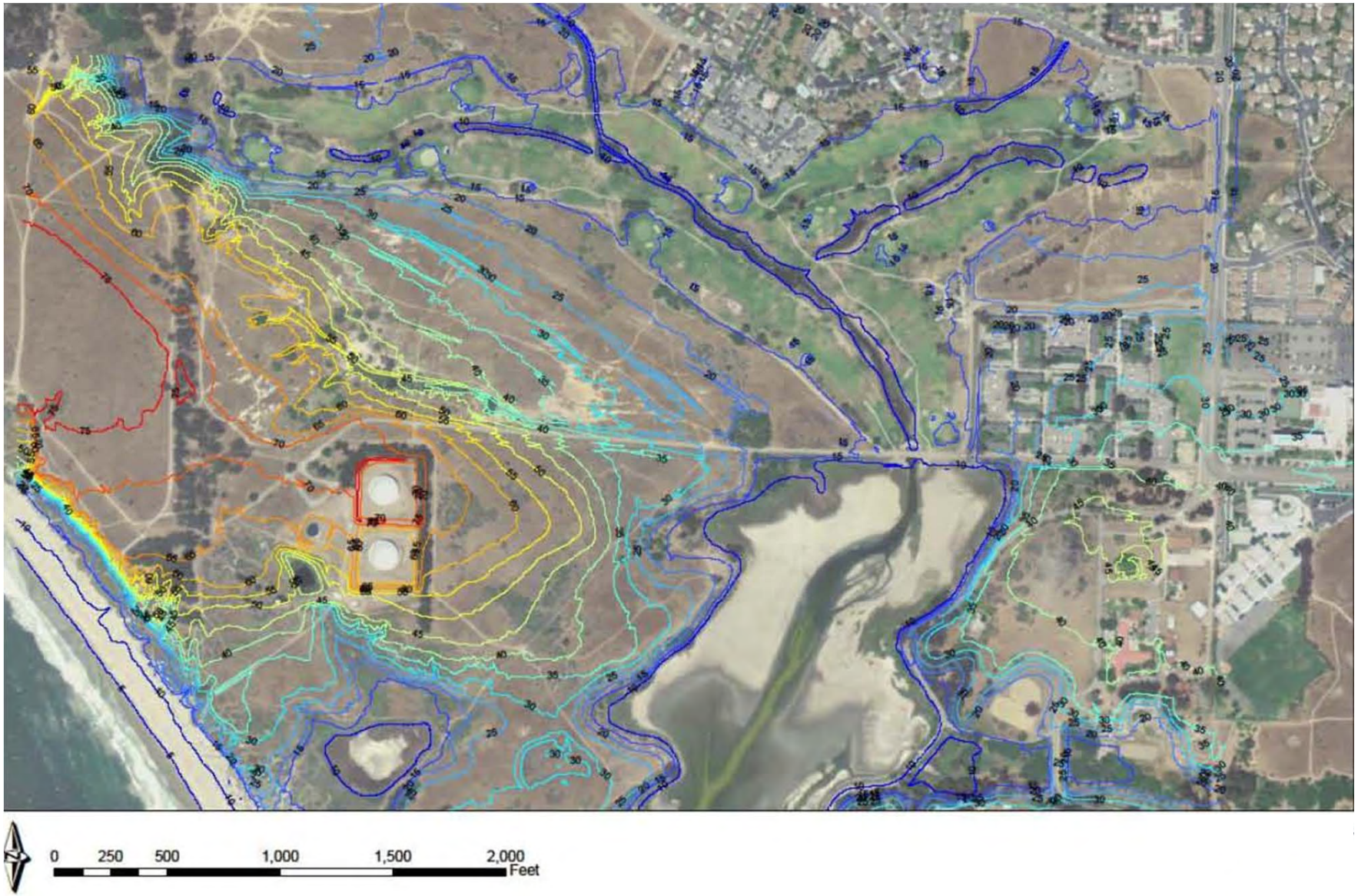

Source: UCSB, 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-6

Existing Topography

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Vegetation on the Whittier Parcel is primarily non-native annual grassland. The small drainage ditch that runs through the center of the parcel is vegetated by several arroyo willows with relatively little herbaceous understory. The southern portion of the ditch, which flows into the golf course, is densely vegetated with California bulrush. Two low grade vernal pools on the parcel are dominated by non-native species with some alkali heath (*Frankenia salina*). Southern tarplant has also been documented on the Whittier Parcel.

Figure 1.4-7 depicts the habitat types located on the project site, and Table 1.4-1 provides a summary of native habitat types on the project site. Areas of the project site that have been designated by the 2010 LRDP as Environmentally Sensitive Habitat are depicted on Figure 1.4-8.

Table 1.4-1
Distribution of Native Habitats on the Project Site

Habitat Type	Approximate Acreage	Dominant Species	Details/Location
Coastal Freshwater Marsh	9.5	tule, cattail	Devereux Creek, detention basin at Phelps Creek tributary, drainage and basin at Whittier Parcel
Coastal Salt Marsh	0.9	picklweed, saltgrass	Northwest corner of South Parcel at Devereux Creek
Southern Vernal Pool	0.7	common spike rush, meadow barley	Western margin of South Parcel; eastern half of South Parcel in drainage swales, Whittier Parcel
Southern Riparian Scrub	3.1	arroyo willow, seep willow	South Parcel, small area at Whittier Parcel
Southern Coastal Sage Scrub	2.7	coyote brush, California sagebrush	South Parcel
Native Grassland	0.9	purple needlegrass, creeping wild rye	South parcel: northwest, southwest, northeast; golf course: northwest

Source: UCSB, 2015

Project Site Cultural Resources. The UCSB 2010 LRDP Final EIR (2010) indicates that five archaeological sites have been recorded on the UCSB North Campus. Final EIR Figure 4.4-2 (Archaeological Surface Site Sensitivity) designates several general areas located along the western border of the South Parcel as having a “high” cultural resource sensitivity.

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

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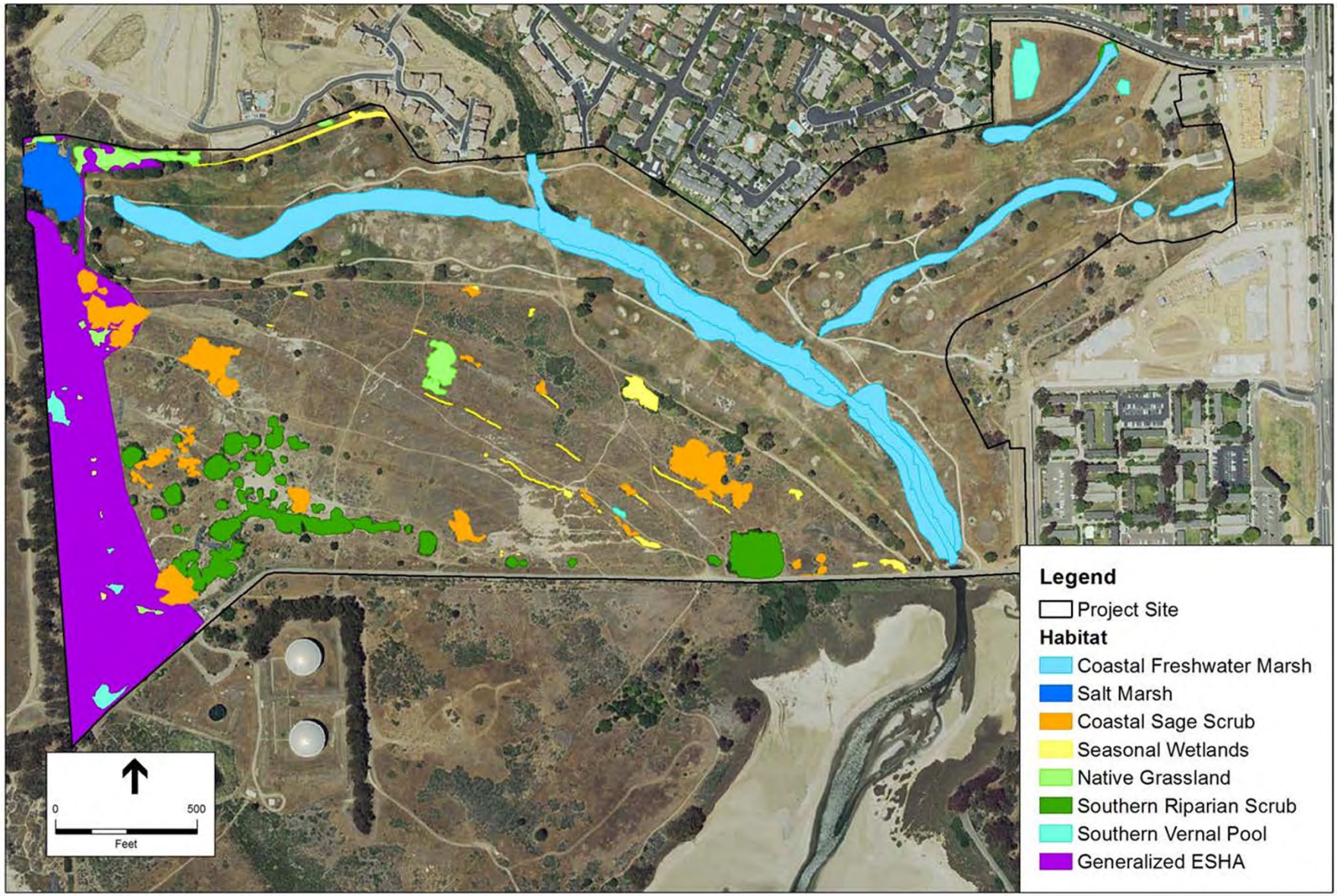

Source: UCSB, 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-7

Native Habitats on the Project Site

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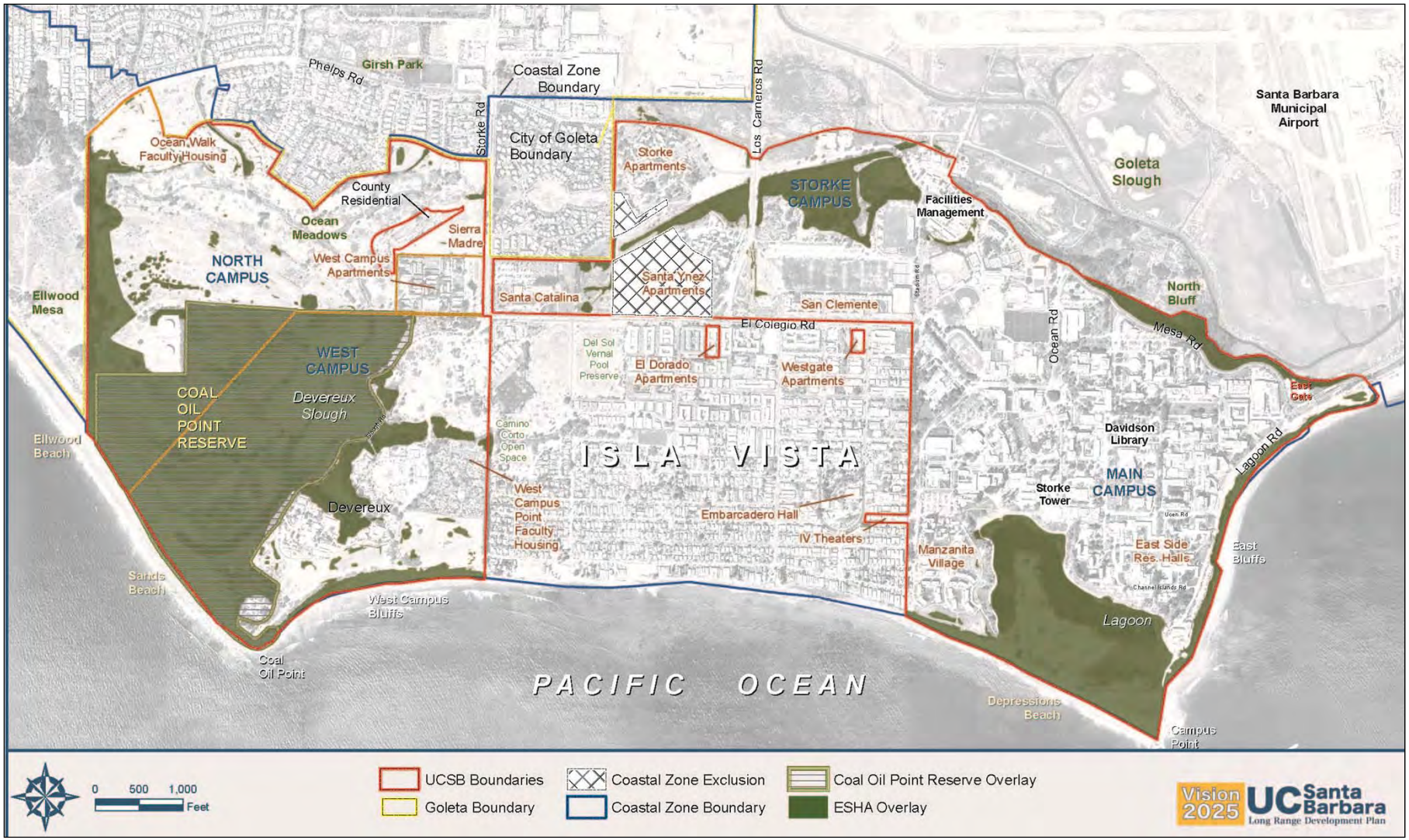

Source: UCSB, 2014

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-8

2010 LRDP Certified Land Use Overlays

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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.

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.

The locations of the major storm water outfalls that convey runoff from the residential areas north of the project site, and the location of the Goleta Sanitary District sewer line on the project site are depicted on Figure 1.4-9.

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, however, the depth of the well casings have not been verified. 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.

1.4.3 Areas Adjacent to the Project Site.

Properties and land uses adjacent to the NCOS Restoration Project are depicted on Figure 1.4-4 and are briefly described below.

Coal Oil Point/Devereux Slough. The COPR covers 165 acres of protected coastal habitat on the UCSB West Campus and protects a wide variety of coastal and estuarine habitats. COPR is a part of the University of California Natural Reserve System. The COPR includes a largely undisturbed coastal dune system that supports dune vegetation, while older and more stable backdunes are covered with southern coastal scrub habitat.

The Devereux Slough is located near the center of the Reserve and is a seasonally flooded, intermittently tidal estuary that empties into the Pacific Ocean through a tidal channel and narrow lagoon that is frequently closed to the ocean by a beach sand berm. When freshwater runoff is sufficient to breach the berm, the entire slough empties rapidly. The main source of fresh water for the slough is Devereux Creek. The slough provides a variety of habitats, including saltmarsh, open water, and mudflats, which support a variety of waterfowl and shorebirds. The COPR beach is a breeding ground for the Pacific coastal population of the threatened western snowy plover and the endangered California least tern. The Belding's savanna sparrow also breeds in the pickleweed habitat of Devereux Slough.

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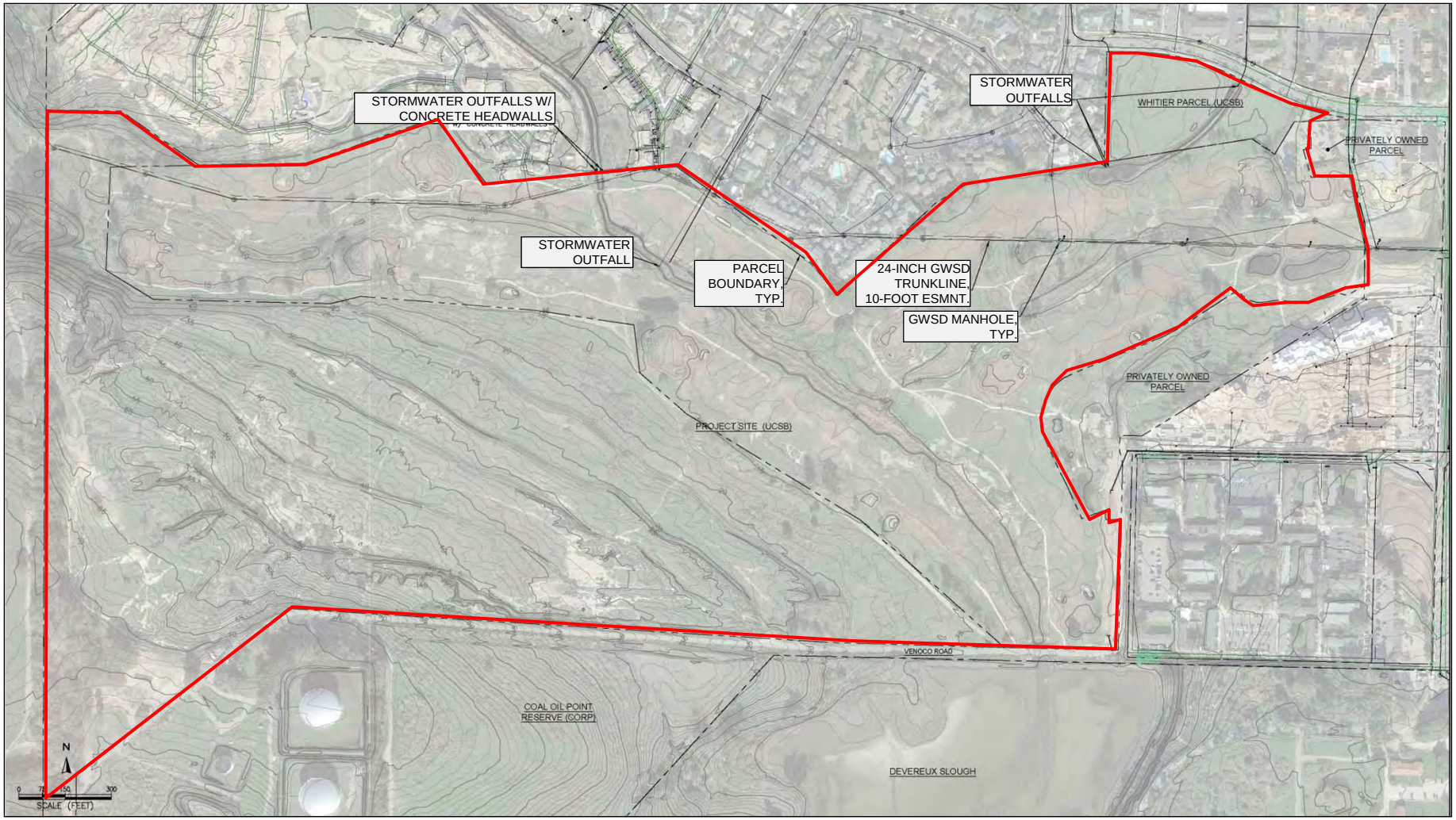

Source: ESA, 2015

Project Site

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-9

Existing Infrastructure and Utilities

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The Devereux Slough has been impacted by land use changes within its watershed and by construction within the slough itself. Records from the 1870's show that the slough was already impacted by agriculture and grazing in the upland watershed, and aerial photos of the slough taken in the 1920's reveal a pattern of agricultural and urban development encroaching into the historic slough footprint. Figure 1.4-10 depicts the former extent of the Devereux Slough and shows that the northern portion of the slough has been filled to accommodate the development of Ocean Meadows Golf Course and residential areas to the north of the golf course. Today the estuarine region of Devereux Slough is only 38 percent of its historic area, and the associated vernal wetland complex is only 15 percent of its historic extent.

There are two public trails in COPR that provide access through the fenced reserve property. The interpretive Dune Pond Trail transects COPR from its northern boundary to the beach, and a short trail through the northeast corner of COPR connects the west campus trails to Venoco Road.

North Campus Housing. The North Campus Faculty Housing project (known as "Ocean Walk") occupies a 26.3-acre site adjacent to the northwest corner of the NCOS Restoration Project. When the phased project is completed it will provide up to 161 units of faculty housing. Phases I and II of the Ocean Walk project developed 59 units that are now occupied, and 30 Phase III units are currently under construction and are to be occupied in early 2016.

The Ocean Walk project included the implementation of a revegetation plan for a 700-foot long segment of Phelps Creek adjacent to the project site where the creek channel was widened and a pedestrian bridge was constructed. A Sensitive Habitat Restoration Plan is also being implemented as part of the Ocean Walk project to guide the restoration and enhancement of 11 acres of riparian and wetland and wetland buffer plant communities present within and adjacent to the project site. The restoration plan also addresses the revegetation of constructed drainage swales located within and outside project-related wetland buffer zones, and provides for ongoing maintenance and protection of existing wetland and restored wetland buffer plant communities. Implementation, maintenance, and monitoring of the Sensitive Habitat and Restoration Plan have been conducted by CCBER.

An additional component of the Sensitive Habitat Restoration Plan was the preparation of the South Parcel Habitat Restoration Plan, which identified various habitat enhancement actions, erosion control and trail improvements to be implemented on the South Parcel. Restoration activities identified by the restoration plan are occurring on an approximately 12-acre area located on the western portion of the South Parcel.

Sierra Madre Apartments. This 151-unit student housing project is located on a 14.8-acre site adjacent to the west side of Storke Road and east of the NCOS Restoration project site. The construction of the Sierra Madre project was recently completed and it is now occupied. The development of the Sierra Madre project includes the on-going restoration of approximately

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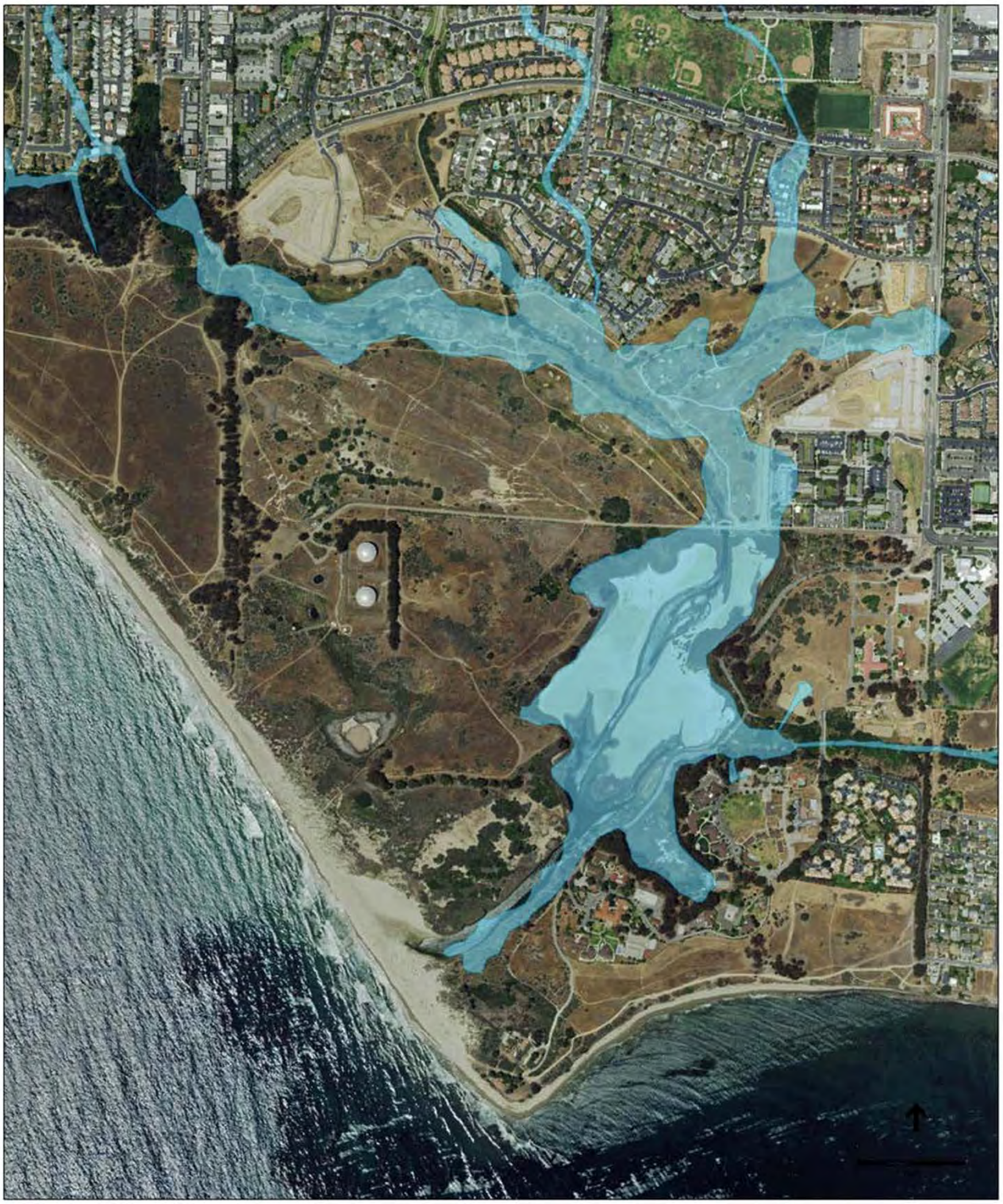

Source: UCSB, 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 1.4-10

Historic Extent of the Devereux Slough

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three acres of wetland and riparian habitat located on the Sierra Madre project site adjacent to Storke Road.

Ellwood Mesa. The 136-acre Ellwood Mesa property is a permanent open space owned by the City of Goleta, and is located west of and adjacent to the project site. Vegetation on the Ellwood Mesa is dominated primarily by non- native annual grassland, however, eucalyptus woodlands on this property support the largest overwintering aggregation site for the monarch butterfly in Santa Barbara County, and the property also contains extensive stands of native grasses and over 40 vernal pools. Devereux Creek bisects the Ellwood Mesa from west to east and is vegetated by freshwater marsh, riparian scrub, ruderal plant species, and a small patch of riparian forest. In addition to the monarch aggregation sites, numerous raptor roosts and nests have been observed within the eucalyptus woodlands. The Ellwood Mesa is used by the community for recreation purposes and an extensive network of trails has been established on the property.

Ellwood Marine Terminal. The Ellwood Marine Terminal occupies a 17-acre portion of the UCSB West Campus and was developed to load crude oil produced from Platform Holly in the South Ellwood Oil Field, located offshore from the community of Isla Vista, onto barges for transportation to Los Angeles and Bay Area refineries. The Ellwood Marine Terminal closed after an onshore oil transportation pipeline (Line 96 Modification Project) that transports oil previously delivered to the terminal became operational in 2012. The terminal operated on the West Campus under a lease agreement between Venoco and UCSB, and that agreement requires that the site be restored to its natural condition.

Venoco is required to apply for a Demolition and Reclamation permit from the County of Santa Barbra for the abandonment of the Ellwood Marine Terminal. Approval of abandonment activities must also be approved by the County of Santa Barbara, the UC Regents, California Coastal Commission, and the State Lands Commission. Abandonment activities will include the identification of equipment that is to be removed and any equipment that will remain, the remediation of contamination, and restoration of the site to ‘natural conditions’.

West Campus Apartments. The West Campus Apartments are located west of Storke Road, north of Venoco Road, and are adjacent to the southeastern corner of the NCOS Restoration Project. The apartments provide 250 units for student families and graduate students.

City of Goleta. The University Village residential neighborhood in the City of Goleta is located north of and adjacent to the NCOS Project. Residences along Marymount Way; at the southern end of Scripps Crescent Street; along the southern ends of Marymount Drive and Mills Way; and along Whittier Drive are adjacent to the NCOS Restoration Project site.

Private Property. The former owner of the Ocean Meadows Golf Course has retained ownership of two parcels adjacent to the eastern edge of the NCOS Restoration Project site and that remain under the jurisdiction of the County of Santa Barbara. The southern parcel (Assessor

Parcel 073-090-072) is 5.89 acres and located west of and adjacent to the Sierra Madre Apartments project. This parcel has a "Planned Residential Development – 58 units per acre" (PRD-58) zoning designation, and a tentative parcel map approved by Santa Barbara County in 2012 (TPM 14,784) would allow the development of up to 26 residential units on the parcel. The second parcel is located on the eastern portion of the former Ocean Meadows Golf Course parking lot. This 0.50-acre parcel is also zoned PRD-58 and TPM 14,784 would allow the development of up to two units on this parcel.

Other Nearby Uses. Other land uses located near the project site include the UCSB San Joaquin Apartments, which are approximately 2,000 feet east of the southeast corner of the project site; the Storke Ranch residential neighborhood in the City of Goleta, which is a minimum of approximately 400 feet east of the project site's eastern perimeter, and the Isla Vista Elementary School, which is approximately 1,750 feet east of the southeast corner of the project site.

1.5 2010 LONG RANGE DEVELOPMENT PLAN

The Board of Regents of the University of California approved the 2010 LRDP for the UCSB campus and certified the 2010 LRDP FEIR in September, 2010. The 2010 LRDP was approved by the Coastal Commission in November 2014. The 2010 LRDP establishes a plan for UCSB campus development through 2025, and the 2010 LRDP FEIR analyzes the environmental impacts of that plan.

2010 LRDP Figure D.1, Certified Land Uses, is provided as IS/MND Figure 1.4-2 and indicates that the NCOS Restoration Project site has an "Open Space" land use designation. The 2010 LRDP also includes several open space management policies that apply directly to the project site and the proposed project. LRDP Policy OS-04 indicates that "to offset the increased intensity of development associated with the build-out of the 2010 LRDP, the University shall fully restore the North Campus Open Space – Ocean Meadows site." LRDP Policy OS-04 also identifies other improvements to be completed as part of the University's portion of the Ellwood-Devereux Open Space regional planning effort, including the establishment of a "South Parcel Nature Park Enhancement Area." LRDP Policy OS-09 requires the preparation of and LRDP Open Space Management Plan that among other things, includes the full restoration of the Ocean Meadows site.

1.6 REQUIRED PERMITS AND APPROVALS

The University of California is the Lead Agency for the NCOS Restoration Project and is responsible for complying with the requirements of CEQA. The UCSB Chancellor has been delegated the primary decision-maker for the project.

The following permits, reviews, and approvals from other agencies are also required to implement the NCOS Restoration Project:

United States Fish and Wildlife Service. Section 7 Consultation regarding effects to federal Endangered Species Act-listed species. A Section 7 consultation would be required for potential project-related effects to tidewater goby. The Fish and Wildlife Service will also review and comment on the requested 404 Permit from the U.S. Army Corps of Engineers.

U.S. Army Corps of Engineers. Issuance of an individual 404 Permit for the filling or dredging waters of the United States pursuant to the Clean Water Act.

California Department of Fish and Wildlife. A Section 1602 Streambed Alteration Agreement for proposed modifications to the segment of Devereux Creek and its tributaries located on the project site.

Central Coast Regional Water Quality Control Board. A Section 401 certification of the Corps' Section 404 permit is required to certify that the Section 404 Permit will comply with state water quality requirements. The 401 certification would also address proposed dewatering operations.

Water Resources Control Board. Prior to the start of construction activities, the Project must obtain coverage by filing a Notice of Intent with the Water Resources Control Board under the General Permit for Discharges of Stormwater Associated with Construction Activity.

California Coastal Commission. The Coastal Commission would be required to approve a Coastal Development Permit and a Notice of Impending Development for the NCOS Restoration Project.

Santa Barbara County Air Pollution Control District. UCSB must submit an Asbestos Demolition/Renovation Notification to the APCD a minimum of 10 working days prior to the demolition of the former Ocean Meadows Golf Course clubhouse building.

1.7 PROJECT OBJECTIVES

An extensive set of goals and objectives for the NCOS Restoration Project were developed by the UCSB NCOS Restoration Project Committee and Science Advisory Board. A summary of the objectives applicable to this CEQA review is provided below, and a complete list of the Project objectives is provided in Appendix A.

Habitat Restoration. Preserve, enhance, and restore a diversity of wetland and upland habits characteristic of the Devereux Slough system including estuarine[1] and palustrine[2] habitat types.

Biodiversity. Preserve, enhance, restore the native biodiversity of the greater Devereux Ecosystem.

Sustainability. Facilitate the conservation and restoration of natural resources in a manner that maintains and improves the ecological integrity, function, diversity and productivity for future generations.

Public Access. Design enhanced access consistent with ecosystem preservation and restoration values in a safe, consistent, coherent and functional manner.

Recreational Use. Design to accommodate an appropriate level of passive recreational use consistent with restoration goals and objectives.

Research and Education Use. Encourage and facilitate use of site by students and researchers from UCSB and other academic institutions for research and general education**.**

Cultural Access. Create opportunities for Native American use of the site for collection of plants and education about historic cultural use of site.

Maintain or Reduce Flood Risk. The Project will not increase flood risk over baseline conditions, which are defined based on existing conditions and anticipated future conditions without the Project.

1.8 CUMULATIVE DEVELOPMENT

A list of reasonably foreseeable cumulative development projects on the UCSB campus is provided in Table 1.8-1. Information sources used to compile the cumulative development list was provided by the University's *2010-2020 Consolidated State and Non-State Capital Financial Plan*. State capital projects are funded annually without guarantee or commitment to future funding; some listed projects are unfunded and not approved. Project locations, building sizes, and project schedules are subject to change.

In addition to the development projects listed in Table 1.8-1, the University of California Regents approved the UCSB 2010 LRDP and certified the LRDP Final EIR in September, 2010. The 2010 LRDP proposes a comprehensive framework for the physical development of the

[1] Relating to or formed in an estuary.
[2] Relating to a system of inland freshwater habitats.

UCSB campus through 2025 to accommodate an on-campus enrollment of up to a three-quarter average of 25,000 full-time equivalent students, and a total of approximately 6,400 faculty and staff. The 2010 LRDP also includes the addition of approximately 1.8 million assignable square feet (ASF) of academic and support building space by 2025; 5,443 additional student bed spaces, 1,874 additional units of faculty and staff housing, and 239 additional units of housing for students with families.

Cumulative development projects in the City of Goleta and County of Santa Barbara located in the vicinity of the NCOS Restoration Project are listed on Tables 1.8-2 and 1.8-3, respectively.

Table 1.8-1
UCSB Cumulative Development Projects

Campus Project	Description/Location	Status
North Campus Faculty Housing	Up to 161 faculty housing units adjacent to Phelps Road north of Ocean Meadows Golf Course.	59 units in Phases I and II are complete and the 30-unit Phase III to be completed March 2016. The remaining units are in planning stages. Coastal Commission approval of project in November 2006; EIR, SCH#2003071178.
Sierra Madre Housing	151 student, faculty, and staff housing units located along Storke Road.	This project is now occupied. Coastal Commission approval November 2006; EIR, SCH#2003071178.
Davidson Library Addition	Three-story addition to Davidson Library including study space, office, storage, etc. 40,884 ASF	Completed. Coastal Commission approval December 2010; MND adopted February 2009 SCH#2008011080
Main Campus Infrastructure Renewal Project	Planned throughout the Main Campus, the project is proposed to correct critical infrastructure deficiencies. The project will address storm drainage, sanitary sewer, potable and reclaimed water and natural gas pipelines.	MND adopted November 2007, SCH#2007101108 Phase 1 approved by the Coastal Commission December 2009 Phase 1a is complete Phase 1b is under construction and Phase 1c is awaiting permitting and construction
Institute for Energy Efficiency	Laboratory, research offices and support space for energy-related research. Approximately 30,000 ASF.	Planning stages
Bioengineering Building	Three-story research building including a vivarium facility in the basement.	Under construction. MND adopted June, 2010. SCH #2010051047 Approved by the Coastal Commission October 2011. 48,690 ASF

Table 1.8-1
UCSB Cumulative Development Projects

Faculty Club Expansion	The Faculty Club is located between Parking Lot 23 and the Campus Lagoon. The project would renovate existing facilities and provide a total of 30 new guest rooms, for a total of 34 rooms on the project site. 15,685 SF addition to Faculty Club building.	Under construction. MND adopted March 2013. SCH#2013011036. Approved by the Coastal Commission April 2014.
Ocean Road Housing	543 housing units with 407 units located west of Ocean Road, which would be realigned, and 136 units to be included as part of two parking structures on the east side of Ocean Road.	Planning stages.
San Joaquin Apartments and Precinct Improvements	This project would provide 1,003 student bed spaces (186 units) east of and adjacent to the Santa Catalina Residence Hall.	Under construction. EIR certified in January, 2014 (SCH #2013051009).
Aquatics Complex	New athletic pool and tennis courts. Located near Rob Gym.	Planning stages
KITP Visiting Scholar Residences	32 apartment units located on the Storke Campus for attendees at functions sponsored by the Kavli Institute for Theoretical Physics.	Under construction. MND completed in June, 2014 (SCH #2014041095).

Source: Office of Campus Planning & Design, 2015.
NOTE: ASF = Assignable Square Footage

Table 1.8-2
City of Goleta Cumulative Development Projects

Project	Location	Land Use	Size/ Description	Status
Projects Under Construction				
Haskell's Landing (The Hideaway)	079-210-049 Hollister Avenue & Las Armas Road	Residential	14.23 acres 101 multi-family units	Under Construction
Goleta Valley Cottage Hospital	065-090-022 606-090-028 351 S. Patterson at Hollister Avenue	Commercial	18.38 acres Hospital: 93,090 SF Existing: 152,658 SF Approved: 59,568 SF net new	Under Construction
Cabrillo Business Park	073-450-005 6767 Hollister Avenue	Commercial	91.4 acres Business Park: new structures total 693,100 SF (R&D, self storage, service uses; 241,682 SF existing; 934,782 SF total)	Under Construction

Table 1.8-2
City of Goleta Cumulative Development Projects

Project	Location	Land Use	Size/ Description	Status
Villages at Los Carneros	073-330-024, -026, -027, -028, -029 Adjacent to 71 S. Los Carneros Road	Residential	43.14 acres 465 units (56 single-family and 409 multi-family)	Under Construction
Rincon Palms Hotel and Restaurant	073-140-004 6868/6878 Hollister Avenue	Commercial	3.05 acres Proposed: 95,678 SF hotel; 138 rooms; 5,440 SF conf.	Under Construction
Westar	073-030-020; -021 Hollister Ave N/E corner of Glen Annie Rd and Hollister	Residential/ Commercial	23.55 acres 266 multi-family residential units 86,000 SF retail	Under Construction
Pacific Beverage at CBP	073-610-022, -023, -027, -029 SW corner of Coromar Drive and Discovery Drive	Industrial	7.6 acres 93, 780 SF office/warehouse 3,200 SF truck maintenance/storage building	Under Construction
GVCH Medical Office Building Reconstruction 08-185-DP	065-090-023 5333 Hollister Avenue	Commercial	2.17 acres Medical Office Building Demo existing 41,224 SF; 52,000 SF proposed; 10,776 SF net new	Under Construction
Camino Real Marketplace Skating Facilities	073-440-022 Santa Felicia Drive	Commercial	4.8 acres 46,479 SF ice rink	Recently occupied
Approved Projects (Not Constructed)				
Citrus Village	077-490-043 7388 Calle Real	Residential	1.02 acres 10 multi-family units	Approved
Mariposa at Ellwood Shores	079-210-057 7760 Hollister Ave.	Commercial	2.95 acres 62,481 SF Assisted Living (90 residents)	Approved
Schwann Self Storage	071-090-082 10 S. Kellogg Ave.	Industrial	2.06 acres 111,730 SF self-storage facility	Approved
Marriott Residence Inn	073-050-020 6300 Hollister Avenue	Commercial	10.57 acres 80,989 SF hotel (118 rooms)	Approved

Table 1.8-2
City of Goleta Cumulative Development Projects

Project	Location	Land Use	Size/ Description	Status
Cortona Apts	073-140-016 6830 Cortona Drive	Residential	8.82 acres 176 multi-family units	Approved
Islamic Society of SB	077-160-035 N/E Corner of Los Carneros and Calle Real	Commercial	0.59 acres 6,183 SF building for religious organization & 1 caretaker unit	Approved
Harvest Hill Ranch	069-620-044 880 Cambridge Road	Residential	4.73 acres Seven lot subdivision with net of 6 single-family homes	Approved
Somera Medical Office Building	065-090-013 454 S. Patterson Avenue	Commercial	8 acres 20,000 SF net new medical office building	Approved
Pending Projects				
Sturgeon Building	077-160-040 S/E Corner of Los Carneros and Calle Real	Commercial	0.53 acres 6,046 SF retail/medical office	Pending (on hold)
Shelby	Cathedral Oaks Road	Residential	60 single family units 14.38 acres	Pending
Old Town Industrial Center	071-171-074, -080, -083 891 S. Kellogg Avenue	Industrial	14.76 acres 186,770 SF light industrial building/5,100 SF office building	Pending
Old Town Village	071-130-023 South Kellogg Avenue	Residential and Commercial	175 townhomes with shopkeeper and live-work units	Pending
Saint George Mixed Use Project	071-101-002, -015 5392 and 5400 Hollister Avenue	Residential and Commercial	0.95 acres 8 multi-family units	Pending
Heritage Ridge	073-060-031 through -043 North of Calle Koral and West of Los Carneros	Residential	16.2 acres 228 apartments and 132 senior apartments	Pending
Kenwood Village	077-130-066, 019; 077-141-049	Residential	10 acres 60 residential units	Pending

Table 1.8-2
City of Goleta Cumulative Development Projects

Project	Location	Land Use	Size/ Description	Status
Fuel Depot and Car Wash	073-100-008 370 Storke Road	Commercial	1.0 acre 1,667 SF new drive-thru car wash, self-serve car wash, gas fueling dispensers and manager's residence; existing retail coffee shop building to remain	Pending

Source: City of Goleta Cumulative Project List – Major Projects, September 1, 2015

Table 1.8-3
County of Santa Barbara Cumulative Development Projects

Project	Location	Land Use	Size / Description	Status
Pending Residential and Commercial				
The Nest Isla Vista Mixed use 14DVP-00000-0001	Isla Vista	Residential and Commercial	19 residential units and 20,913 SF of commercial area	Pending
The Knoll 07TRM-00005 07DVP-00031	533 N. Patterson Ave.	Residential	Subdivision of 4.75 acre parcel into 13 lots for 13 residential units	Pending
Approved or Under Construction Residential and Commercial				
Cavaletto Noel Tree Farm 08DVP-00012	560 Merida Dr.	Residential	Construction of 134 units, including 37 single-family and 97 multi-family	Approved
St. George 08DVP-00040	870 Camino del Sur, Isla Vista	Residential	Apartments, 56 units	Approved/ Under Construction
St. Athanasius Orthodox Church Campus 01CUP-00152; 09TEX-00004	300 Sumida Gardens Ln.	Commercial	26,921 SF	Approved/ Under Construction
Santa Barbara Ranch 03DVP-00000-00041	Gaviota Coast, Dos Pueblos Canyon	Residential	21 SFDs; 13,421 SF equestrian facilities; 6,347 SF agricultural buildings	Approved
Santa Barbara Ranch (Inland) 08DVP-00008; VTM,14,755	Gaviota Coast, Dos Pueblos Canyon	Residential	40 SFDs	Approved

Table 1.8-3
County of Santa Barbara Cumulative Development Projects

Project	Location	Land Use	Size / Description	Status
La Franella Cove Lot Split 05TPM-00000-00001	South of Cathedral Oaks Road and east of Patterson Avenue	Residential	4 units	Approved
Hourigan Development Plan 04DVP-00000-00027	East of N. Kellogg Avenue	Residential	9 units	Approved

Source: Santa Barbara County Planning & Development Interactive Projects Map, accessed October 2, 2015

Table 1.8-4 summarizes the combined amount of cumulative development in the City of Goleta, unincorporated areas near the Project, and on the UCSB campus.

Table 1.8-4
Estimated Cumulative Development in the Project Area

Land Use	Size
Single-Family Residential	395 dwelling units
Multi-Family Residential	2,660 dwelling units
Residential Subtotal	*3,055 dwelling units*
Non-Residential (1)	1,645,646 square feet

(1) Non-residential uses consist mostly of a mix of retail-, office- and business park-related uses, with some institutional uses.

2.0 PROJECT DESCRIPTION

This section describes the design, construction and implementation characteristics of the NCOS Restoration Project. The project description presented below summarizes information provided by the *North Campus Open Space Restoration Project Detailed Project Program* (2015).

2.1 PROJECT LOCATION

The NCOS Restoration Plan project site encompasses 136.4 aces and is comprised of three properties known as the Ocean Meadows Golf Course, South Parcel and Whittier Parcel, which are all located on the UCSB North Campus. The restoration project site is located west of Storke Road, approximately 4,500 feet west of the UCSB Main Campus, south of and adjacent to residences in the City of Goleta, and north of and adjacent to the Coal Oil Point Reserve and Devereux Slough. The location of the project site is depicted on Figure 2.1-1.

2.2 PROJECT DESIGN CONCEPTS

The NCOS Restoration Project would seek to recreate more natural conditions and greater ecological functionality within a 136.4-acre area that 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 355,000 cubic yards of soil 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 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 2.2-1.

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 Coastal Open Space, of which the project site is a part. Public access and educational opportunities would also be provided on the project site, including trails, interpretive signage, and viewing

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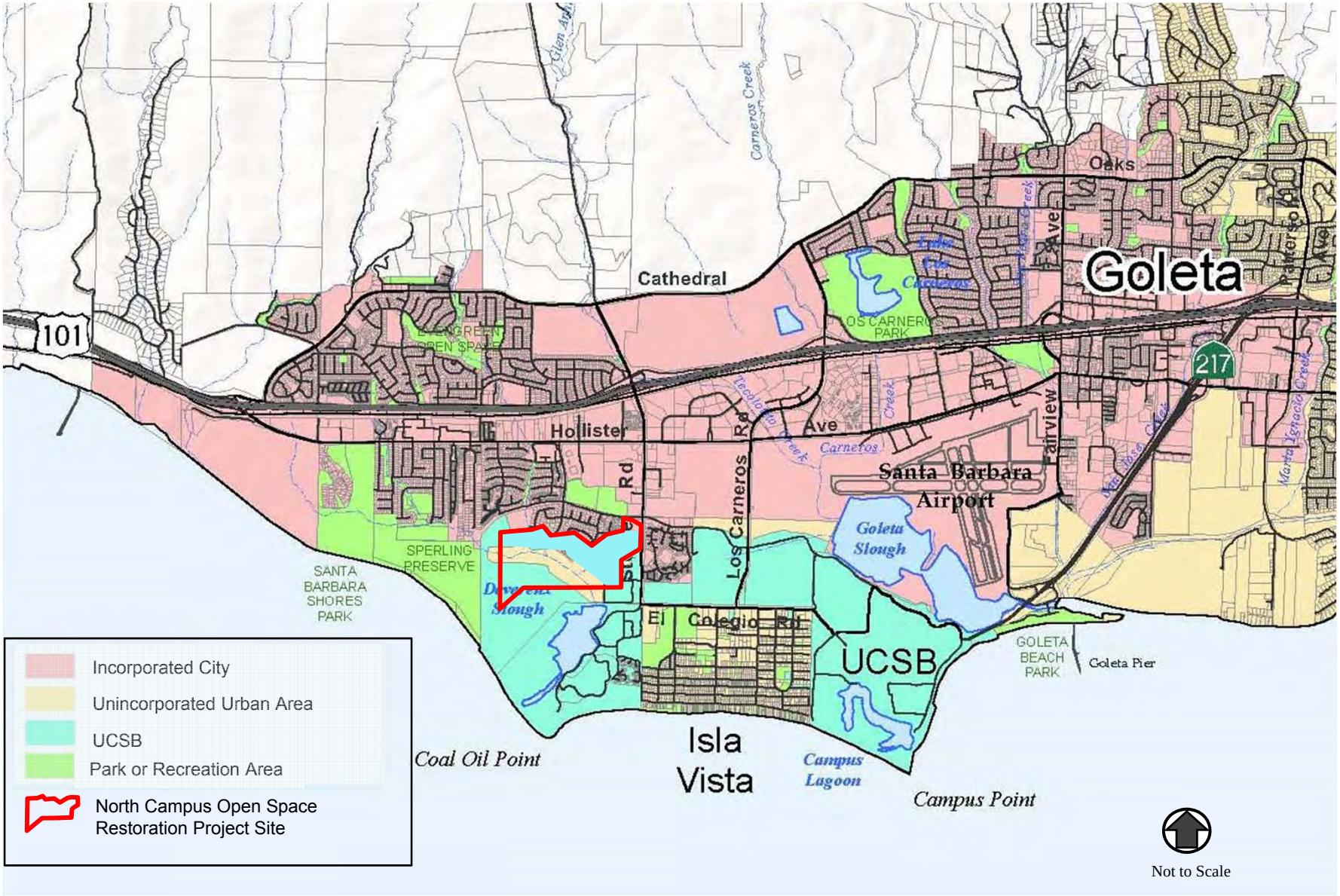

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 2.1-1

Regional Location

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Source: UCSB, 2015

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North Campus Open Space Restoration Project

Figure 2.2-1

Proposed Project Site

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stations. The project would also provide connections to regional trails, such as the Anza and California Coastal trail.

Other major design elements of the NCOS Restoration Project are summarized below:

- Create conditions conducive to the preservation and continued function of existing salt marsh and wetland habitats.

- Establish a large seasonally ponded feature at the northern site boundary, west of the Phelps Creek tributary connection that would have potential benefits to migratory shorebirds and other wildlife.

- Provide a pond and grade control structures at Phelps Creek to connect the creek to the restored estuary. Conditions that could provide suitable habitat for tidewater goby, should a population reenter the restored estuary system, would also be established. The proposed grade control structures would be designed to maintain conditions that support recent riparian restoration projects implemented on Phelps Creek, just upstream of the project site boundary.

- The banks of the ditch on the Whittier Parcel that currently carries runoff from residential areas to the north would be graded back to create riparian and wetland habitat and a fresh-to-brackish transitional connection to the restored estuary.

- Preserve and enhance the wetlands on the eastern portion of the project site located in the unnamed tributary to Devereux Creek that carries storm water from a culvert that flows under Storke Road.

- Approximately 2.75 acres of marsh plain habitat would be created on the southeastern area of the project site along the golf course/South Parcel property boundary. This area would be augmented with sand and not revegetated to create conditions suitable for nesting snowy plovers. This design would mimic conditions that occur in a two- to three-acre area of the lower slough, located just south of the Devereux Creek Bridge and Venoco Road, that is currently used by snowy plovers as a nesting site.

- Revegetation of the restored landscape with native salt marsh, fresh and/or brackish wetland, high marsh/transitional, seasonal wetland, vernal pool, riparian, back dune woodland/scrub, coastal sage scrub, native grassland, and sandy dune annual plant species. Plants would be selected and planted according to their physiological requirements to create natural habitat zonation and structural diversity within restored habitat areas.

- Salt marsh species would be planted on 65 percent of the marsh plain elevation, with the remainder of the marsh plain surface to be unvegetated sediments.

- Riparian vegetation would be planted at the confluence of Phelps Creek with the Upper Devereux Slough. Once established, riparian canopy will shade portions of the stream, lowering water temperatures and enhancing aquatic habitat conditions.

- Existing canopy trees that serve as raptor and other bird roosting, nesting, and foraging sites would be preserved.

- Plantings are to include species such as California blackberry, blue elderberry (*Sambucus nigra* ssp. *caerulea*), and other plants that have cover and forage value for butterflies, birds and other wildlife.

- To the extent possible, plant materials would be salvaged from the site or collected and grown from local sources to preserve local genetic integrity.

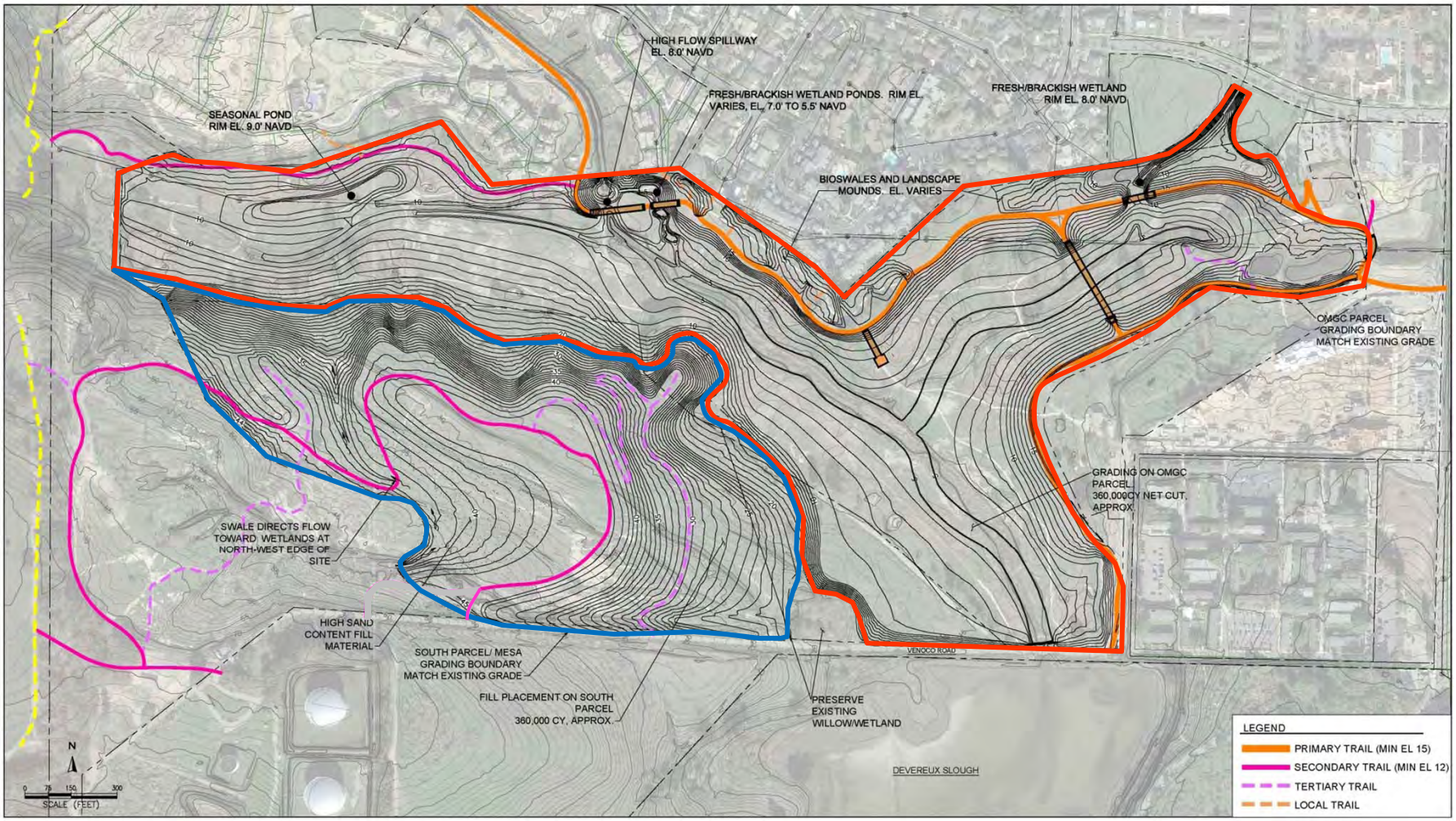
- Provide enhanced cover, resting and forage areas, and an enhanced migration corridor for wildlife.

- Provide wildlife viewing opportunities and a network of public access trails. Primary trails would be located at elevations above the projected 100-year flood water surface elevation on the north and east sides of the project site and would have connections to local and regional trails adjacent to the site.

2.3 GRADING AND TOPOGRAPHY

Approximately 355,000 cubic yards of soil that was used to fill the upper portion of the Devereux Slough would be excavated and placed primarily 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. The Project would require approximately 360,000 total cubic yards of grading as approximately 5,000 cubic yards of soil and sand would be excavated from the South Parcel for subsequent reuse to create habitat areas. The proposed NCOS Restoration Project grading plan is depicted on Figure 2.3-1, and grading cross sections across the project site are provided on Figure 2.3-2. Major aspects of the proposed grading plan are described below.

Areas 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



Source: UCSB, 2015

Proposed Fill Area

Proposed Excavation Area

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Figure 2.3-1

Proposed Grading Plan

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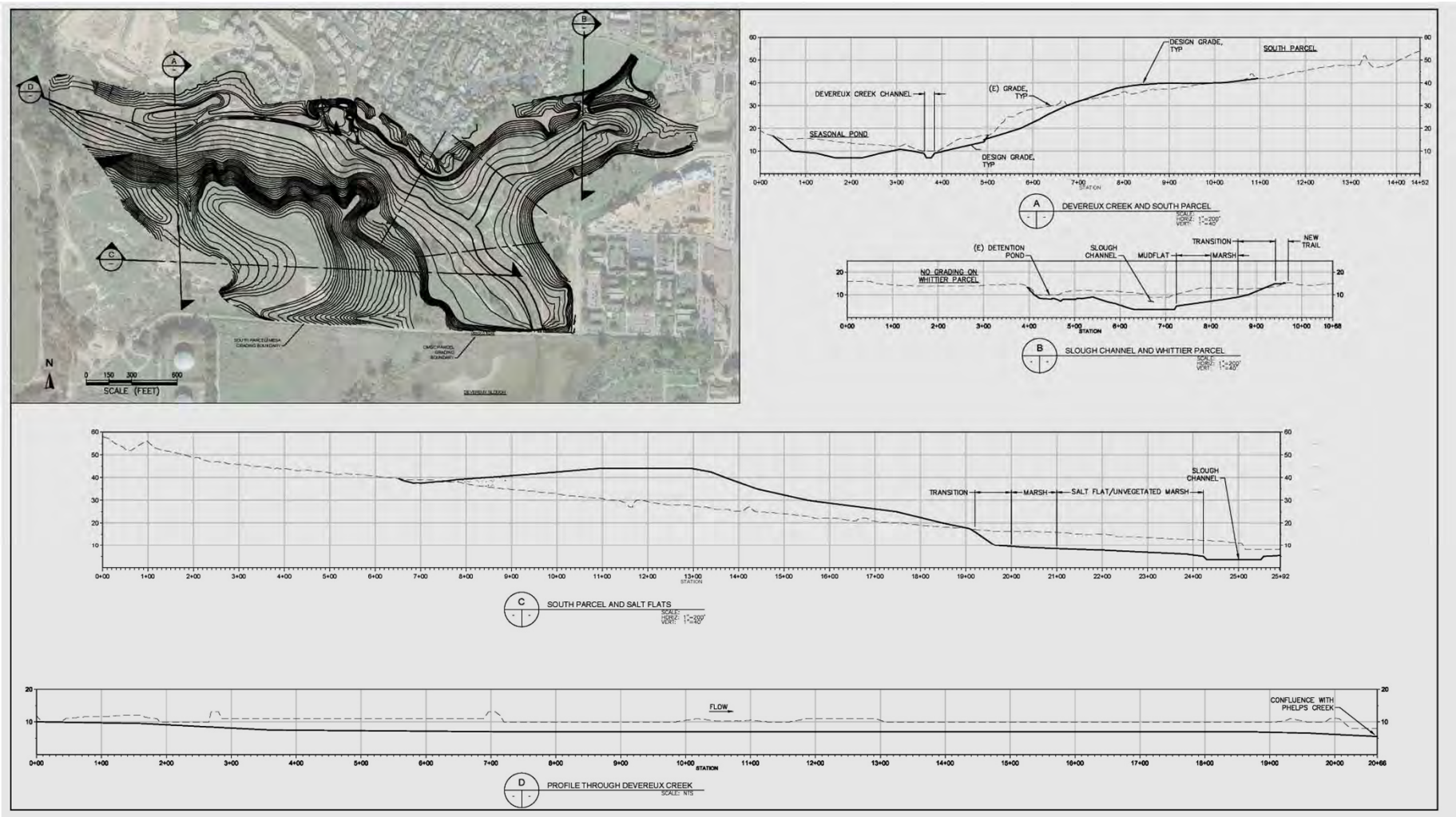

Source: UCSB, 2015

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North Campus Open Space Restoration Project

Figure 2.3-2

Proposed Grading Cross Sections

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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 NAVD. 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 for water quality treatment 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 create a new channel for 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.

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 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 spillway at the southern end of the pond, and two ungrouted rip rap grade control structure would be constructed to minimize the potential for erosion-related impacts. Figure 2.3-3 provides grading details and cross sections for this project area. Construction of the grade control structures may require temporary dewatering of the Phelps Creek channel, which would be accomplished using a pump and hose. Water removed from the creek would be discharged back into the creek downstream of the construction site in a non-erosive manner by using temporary rip rap or other similar materials at the discharge site. Construction of the grade control structures may require excavation and temporary slope stabilization within the creek channel. Slopes would be stabilized using steel sheet piles, which would be removed after the grade control structure provides adequate support.

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 may 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, sandy

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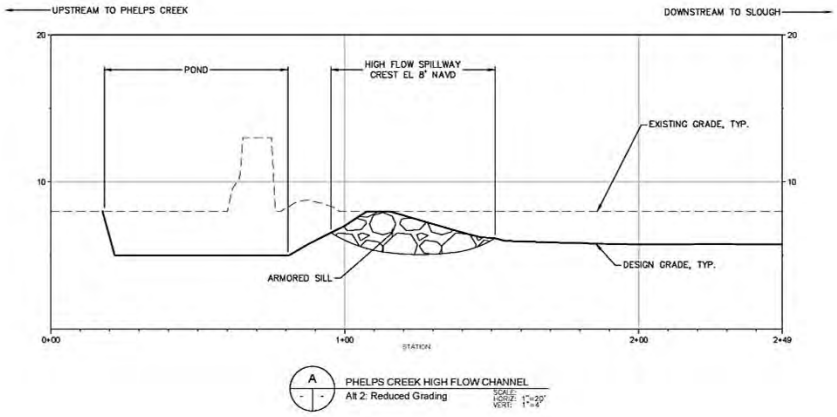

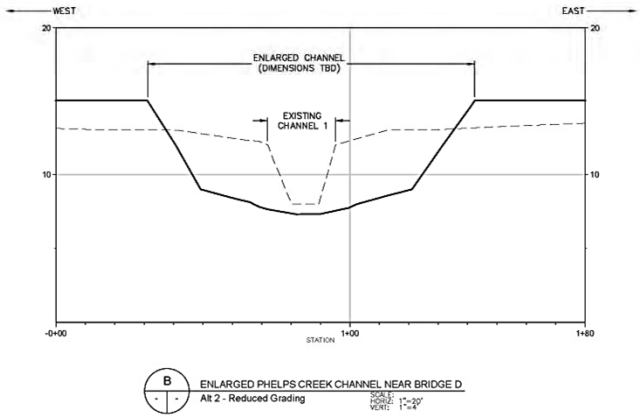

Source: UCSB, 2015

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North Campus Open Space Restoration Project

Figure 2.3-3

Phelps Creek Area Grading and Cross Sections

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unvegetated areas potentially suitable for use by snowy plover, native grasses and vernal pools, and coastal sage scrub. 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 rise up to 20 feet in elevation with slopes gradients of 3:1.The proposed topography contours and a cross section through the South Parcel area are provided on Figures 2.3-1 and 2.3-2.

Grading on the project site would be conducted in two phases. The first grading phase is planned to occur in the summer of 2016 and would excavate approximately 100,000 cubic yards of soil from approximately 40 acres of the Ocean Meadows Golf Course and Whittier Parcel. The excavated soil would be transported to and placed on a 25-acre area on the western portion of South Parcel. The second grading phase would be conducted during the summer of 2017 and would result in the excavation of approximately 255,000 cubic yards of soil from an approximately 60 acres of the golf course property. The excavated soil would be transported and placed on the eastern half of South Parcel. Total Project-related grading would be approximately 360,000 cubic yards, which includes the over-excavation of 5,000 cubic yards of sand and soil from the South Parcel that would subsequently be used on the project site. Grading operations for phases 1 and 2 would be completed over a two year period unless weather-related delays require grading in a third year of construction.

All proposed excavation and fill operations on the project site would comply with applicable UCSB Long Range Development Plan policy and 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.

2.4 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, seepage 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. This would result in more frequent mudflat inundation. 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 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.

As described in Section 1.3.1 (Project Planning) above, two project design alternatives were evaluated. One of the reasons the proposed Project design (the reduced grading alternative) was selected for implementation was that it would provide greater potential habitat resiliency related to the possible future migration of estuarine wetland habitat in response to sea level rise. While the increased grading alternative (Alternative 1) would have provided a greater extent of estuarine wetland immediately following construction (42 acres compared to 33 acres for the proposed Project), future conditions driven by sea level rise are expected to result in a conversion of much of the emergent and transitional wetland to submerged aquatic habitat, reducing habitat diversity. With future sea level rise, the Project would maintain a mix of habitats. The higher elevation high marsh transitional habitat (13 acres for the Project vs. 10 acres for the increased grading alternative) is expected convert to vegetated marsh habitat with higher inundation frequencies.

2.5 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. The location of existing sensitive habitat areas are depicted on Figure 1.4-6, above. 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. Proposed habitat areas that would be preserved and restored on the project site are conceptually depicted on Figure 2.2-1. Table 2.5-1 provides a summary of the types and area of habitats that would be impacted, preserved, and created by the Project. As shown on Table 2.5-1, the Project would

impact approximately 12.4 acres of sensitive habitat, including 9.4 acres of freshwater/brackish marsh; and approximately 6.0 acres of on-site sensitive habitat would be preserved. Most of the preserved habitat includes somewhat 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 2.5-1
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**

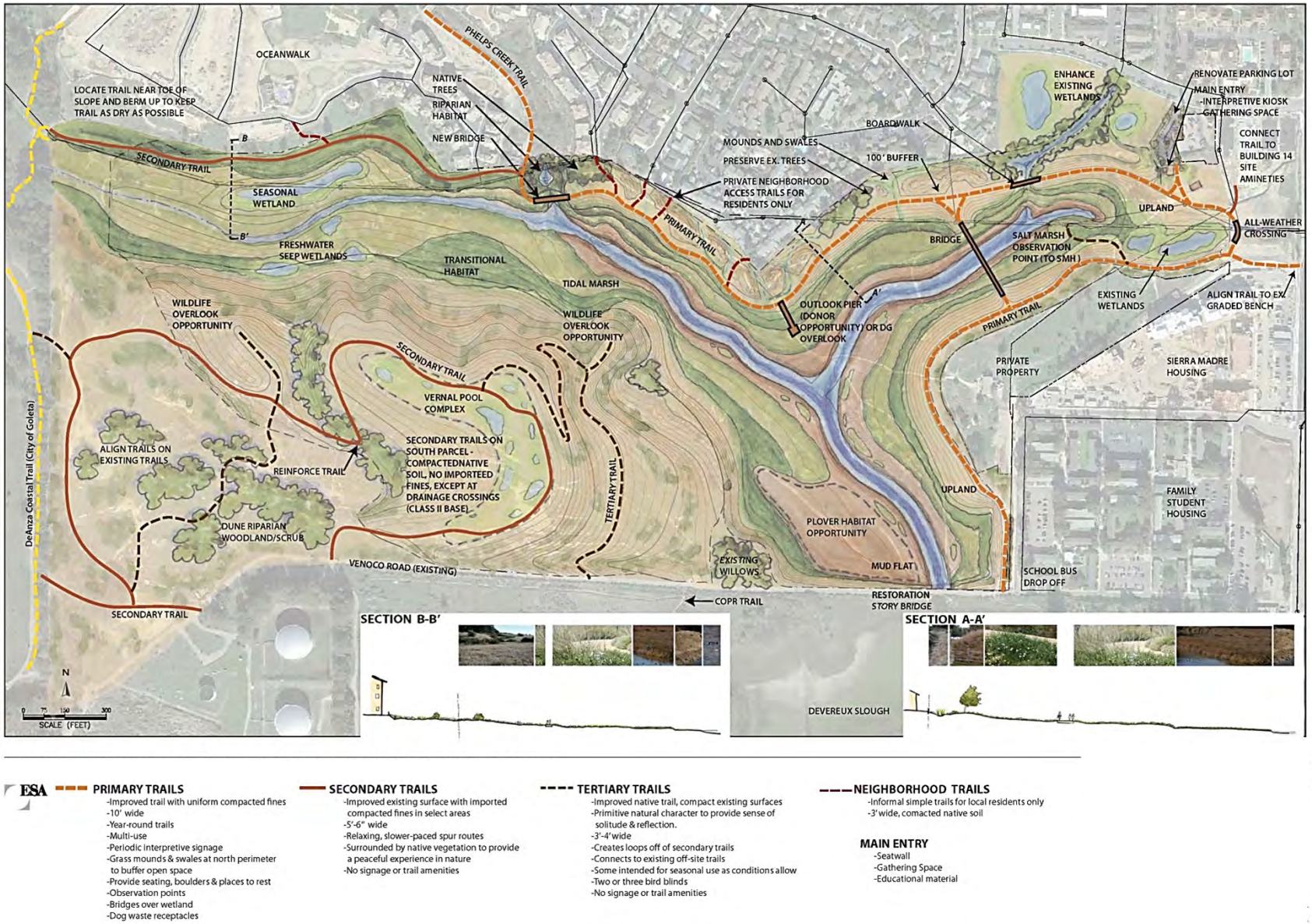
Source: UCSB, 2015

It is anticipated that the expansion and enhancement of habitat on the project site will benefit a wide range of plant and animal species, including five federally listed species that are found on or near the project site, 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.

2.6 PUBLIC ACCESS

2.6.1 Project Site Trail Access

A network of trails is proposed for the project site, and the types and locations of the on-site trails are depicted on Figures 2.6-1 and 2.6-2. A trail system for the project site was initially identified by the 2004 *Ellwood-Devereux Coast Open Space and Habitat Management Plan.* The Project has refined that trail system based on anticipated levels of use, proposed grading, known soil and grade constraints, and proximity to existing and restored sensitive habitats. In addition, there were four public meetings held to gather public opinion on public access in 2013 and 2014 and ongoing online opportunities for public opinion.



Source: UCSB, 2015

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Figure 2.6-1

Public Access Concept Plan

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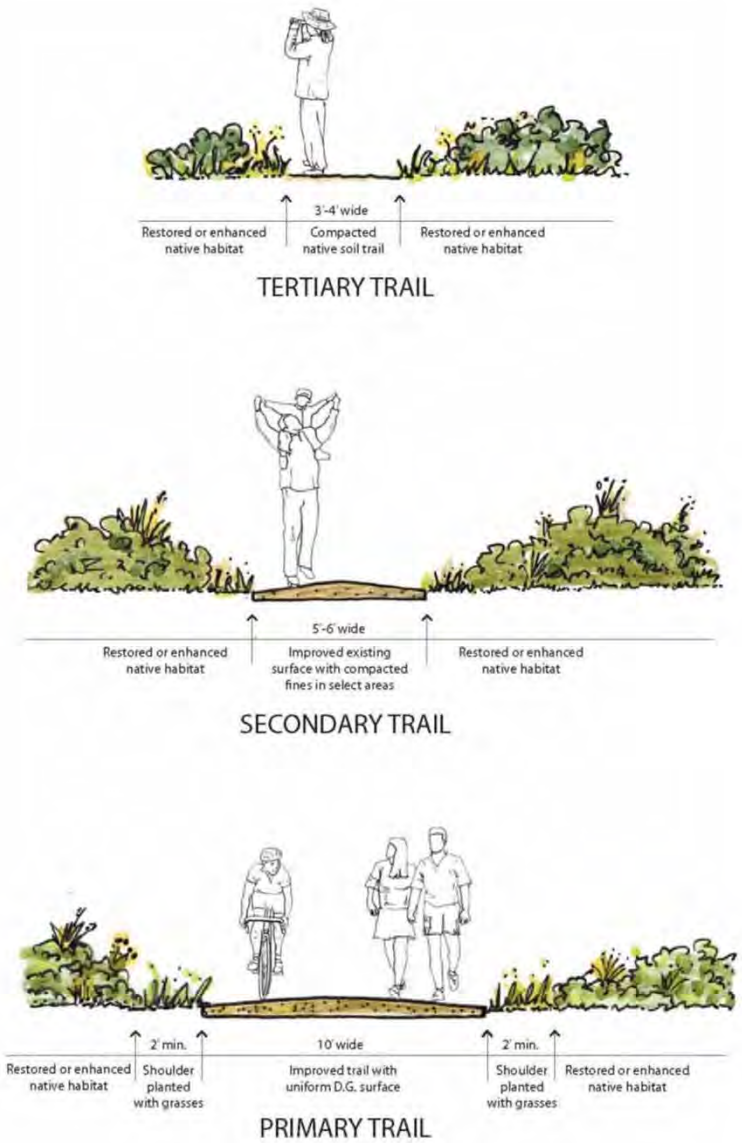

Tertiary trail: "nature experience trail"

Secondary trail: improved aggregate surface, moderate use, pedestrians, some bicycles

Primary trail: improved aggregate surface, highest use, bicycles & pedestrians, baby carriages, dogs, etc.

Source: UCSB, 2015

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North Campus Open Space Restoration Project

Figure 2.6-2

Proposed Trail Types

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A 1.2-mile long "primary" trail is planned for the project site. The primary trail would connect to the existing Phelps Creek Trail on the northern portion of the project site and extend eastward over Phelps Creek and proposed fresh/brackish water ponds and wetlands via a proposed bridge. The trail would then extend to the eastern project site boundary and further to the east to Storke Road. This segment of the trail would include two smaller creek crossing structures: a boardwalk that crosses the drainage channel that enters the golf course parcel from the Whittier Parcel, and a paved crossing over a culvert located along the unnamed tributary to Devereux Creek on the eastern portion of the project site. Near the eastern project site boundary the trail would turn southward/southwest and be located west of and adjacent to private property that borders the project site and the West Campus Apartments. The trail would continue southward to Venoco Road and would provide access to the lower Slough area. Another segment of the primary trail would include a bridge that crosses the proposed eastern arm of the restored estuary, which would create a loop trail on the project site. An observation pier that connects to the primary trail on the northern portion of the project site is also proposed. The pier would provide opportunities to view the restored slough and project site. Additional information regarding the proposed project site trail bridges is provided in Section 2.7.2 below.

Two main "secondary" trails would provide a total of 1.25 miles of trail on the project site. One of the secondary trails would be located in the northwestern portion of the site and would connect the Phelps Trail, the North Campus Housing (Ocean Walk) development, and the northern reach of the DeAnza/Coastal Trail, which is located west of and adjacent to the project site. This trail segment would provide overlook opportunities to the upper reaches of the restored slough and a seasonal wetland, and would be located at a higher elevation than a trail presently located in this area to reduce impacts to habitat and erosion potential. Another secondary trail would be located on the South Parcel. This loop trail would connect to Venoco Road and traverse the perimeter of the proposed mesa created by the placement of fill soil removed from the golf course. This relatively flat trail would be constructed of compacted native soils, except where it crosses a proposed drainage swale, where it would be constructed of compacted imported aggregate and fine soil material. This loop trail would provide viewing opportunities across the site, and would be located near a vernal pool complex, native grassland habitat, coastal sage scrub habitat, and rare dune riparian woodland and scrub habitats. The trail would also provide connections to the De Anza/Coastal trail, which extends to the north and west from Venoco Road on the Ellwood Mesa property adjacent to the project site. A third short segment of secondary trail would connect the Sierra Madre housing project to the primary trail located on the project site.

The project design sets the primary trail system elevations at 15 feet NAVD to be above sea level rise conditions projected through 2050, and for the midrange sea level rise projections for 2100. The elevation selected for secondary trails is 12 feet NAVD. These trails are intended to provide an experience that requires following the terrain close to the water and habitat, and can be readily adapted to future higher water levels.

Approximately 0.75 miles of "tertiary" trails are proposed. These trails would provide connections to secondary trails, traverse through a variety of restored habitat types, and would

provide wildlife viewing opportunities. The project would also provide informal "neighborhood" trails that would be for the use of local residents and would connect residential areas to the project site trail system.

2.6.2 Vehicle Access and Parking

Vehicle access to the project site would continue to be provided from Whittier Drive, which intersects with Storke Road approximately 300 feet to the east of the site. The project site includes the western portion (approximately 11,000 square feet) of the parking lot that served the Ocean Meadows Golf Course, and on-site parking area would be reconfigured to provide parking for approximately 30 vehicles. Facilities for bicycle parking would also be provided. The reconfiguration of the existing parking lot and club house area would also include the development of a small "gathering" area that would provide facilities for people visiting the Restoration Project, such as information kiosks and benches. Restrooms are not proposed at this time but could potentially be added to the project in the future.

2.7 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.

The final design and implementation of the Project will also rely on information generated by additional site investigation and design efforts that are to be conducted as part of a Stage 2 project design effort. Stage 2 design studies and investigations will result in the refinement of the technical analysis of the project site conditions to satisfy permit requirements, codes, and engineering standards of practice. It is anticipated that technical studies and analysis to be completed during Stage 2 of the Project's design will include items such as: surveying and site mapping; subsurface exploration for geotechnical analysis and groundwater analysis; an updated flooding analysis, including the evaluation of future flood elevations and extents under post-project conditions; engineering design of the Phelps Creek grade control structures; engineering design of bridges and boardwalk structure, including structural, geotechnical and hydraulic analysis; updated future habitat and ecological projections based on final project design; evaluation of hydraulics and salinity trends in the seasonal wetland pond(s); updated soil texture and chemistry analysis; and the production of engineering design drawings, plans, and specifications.

2.7.1 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.

In anticipation of project implementation, CCBER has been collecting seed since December 2014, and has established a contract with a local grower for 300,000 salt marsh, grassland and coastal sage scrub plantings to be ready by December 2016. CCBER plans to begin growing plants for the project beginning in December 2015.

2.7.2 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 on grading phase areas 1 and 2, 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 with 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 transported off-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.

Debris has been dumped or left at various locations on the project site and includes concrete rubble, metal posts, and trash. Where rubble exists on portions of the site to be filled, it may be buried in place, as deemed appropriate by the project engineer. All debris that may affect water or soil quality, or is hazardous, such as asphalt, or auto parts, will be removed from the site. Some organic debris, such as thatch from dead non-native vegetation, will be removed and disposed of off-site, to avoid further invasion of the site by seed or propagules of undesirable vegetation. All debris not incorporated into the project design will be removed and disposed of properly in a landfill or other approved receiving site.

A six-foot wide concrete golf cart path remains on the golf course portion of the project site. This path would be removed and the path material recycled at an off-site location. The existing buried irrigation system would also be removed and disposed of off-site.

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.

The existing golf cart path crosses Devereux Creek seven times on the project site. These culvert crossings would be removed and the associated piping and concrete debris would be recycled at an off-site location. In addition, the existing timber bridge across Phelps Creek in the northern portion of the golf course portion of the site would be removed and recycled off-site.

Bulk Earthwork and Fine Grading. Following site preparation conducted for grading phase areas 1 and 2, the portions of the project site within the proposed upper slough footprint would be graded to restore the landform to elevations suitable for establishment of subtidal aquatic habitat, mudflats/salt flats, marsh plain (vegetated marsh/wetlands and unvegetated sediment plains), high marsh/transitional ecotone, and upland habitats. Approximately 355,000 cubic yards of soil would be excavated from the Ocean Meadows Golf Course parcel. High groundwater conditions exist on-site, therefore, wet or saturated soil conditions are likely to be encountered during excavation. Soils at and above elevation six feet NAVD, roughly 260,000 CY, are likely to be drier and have acceptable moisture content to facilitate fill placement and compaction. Soils excavated from below six feet NAVD, roughly 95,000 cubic yards, may be wet and require additional time for aeration and drying before being placed and compacted.

To restore former estuary conditions, grading will occur in Devereux Creek and in the unnamed tributary on the eastern portion of the project site. Water that may be flowing in those creeks would be diverted from active earthwork areas prior to the start of grading. Creek flow bypass would be accomplished by installing a temporary conduit, comprised of a pipeline and/or excavated channel. Flow would be diverted into the temporary conduit upstream of the excavation and discharged into a stilling basin and then back into the slough at the downstream end of the excavation area. A temporary bypass pipe would not exceed a diameter of three feet and a temporary channel would be a trapezoid with a top width of approximately 15 feet and a maximum depth of approximately four feet.

Excavated soil would be placed on the South Parcel to re-form the mesa to topography similar to existing natural landforms in the vicinity. Prior to placement of fill material and following clearing and grubbing, portions of the South Parcel mesa fill placement site containing sandy soils would be over excavated and the sandy soils set aside for replacement in the South Parcel back dune woodland/scrub and sandy dune annual habitat areas as well as on the sediment flat feature designed to emulate COPR snowy plover nesting habitat. This over-excavation work would be undertaken to create more stable fill-to-base soils contact within the fill area, and to promote infiltration, which would promote groundwater conditions that support existing wetlands and back dune woodland/scrub habitats to be preserved on the South Parcel. The mesa fill would be contoured such that storm water drainage would flow toward the northwest to support existing and proposed vernal and seep-fed wetlands. Fill material would be placed in lifts (layers) and recompacted, and reserved topsoil would be placed on the final lift.

Following the bulk excavation on the project site, fine grading would take place to achieve the desired contours, grades, and slopes. Fine grading refers to achieving finished elevations within stricter tolerances than mass graded areas, to serve specific hydrologic and habitat functions; using specific soil materials, compaction densities, and other requirements that are unique to the features being graded and created. Within the excavation area, all surfaces above elevation eight feet NAVD would be fine graded, including the seasonal pond feature near the northwestern project boundary, stormwater bioswales, the Whittier channel riparian enhancement, the pond and grade control feature (potential goby habitat) at Phelps Creek, and the potential snowy plover nesting feature in the southern project area. The entire South Parcel fill site would be fine graded, with additional select grading of the high sand content areas and the vernal pool complex.

Erosion control measure best management practices (BMPs) would be implemented to stabilize temporary and finished fill slopes and all other areas where vegetation or soil has been removed. Erosion control measures would include BMPs such as but not limited to: the use of silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, jute or coir fabric, sandbag dikes, and temporary hydroseeding with native or sterile non-native seed mix to reduce runoff velocity, enhance infiltration and transpiration, trap sediment and to stabilize soil. Earthen dikes, drainage swales and ditches would also be used to intercept, divert and convey surface runoff and sheet flow to minimize erosion and reduce pollutant loading. Excavated soil would not be placed in or adjacent to open water channels, and roads used during construction would be swept and cleaned of accumulated earth and debris. Erosion control materials containing plastic may be temporarily used but would not be permanently used on the project site. All proposed erosion control BMPs would be described in the SWPPP.

Soil Testing, Sorting and Stockpiling. To provide conditions favorable to the establishment of restoration plantings, the Project would include a program of soil testing, sorting, and temporary stockpiling operations prior to the placement of selected soils on the South Parcel fill site. Some golf course soils have salinities that are too high to serve as suitable planting substrate for vernal pool or upland plant species. Soils testing would be used to identify the distribution of high salinity soils across the golf course. Excavated high salinity soils would be sorted for placement in the lower lifts of the fill (buried below the level of rooting) so that salinity levels do not negatively affect plant growth. If necessary, high salinity soils would be flushed with potable water to reduce salt content. Lowest salinity soils would be sorted and salvaged for use in placement for the top layer of fill. Similarly, soils with clay content of 30% or more would be selected for use in vernal pool creation on the fill site.

If immediate transport and application of excavated soil is not feasible during a particular construction season, the soil would be stored on-site. Stored soils would be stockpiled as briefly as possible to prevent anaerobic conditions from developing. Temporary seeding of stockpiled soils may be performed to prevent erosion during the storage period. Plantain (*Plantago insularis*) is a suitable species for this purpose as it is non-persistent and will not compete with establishing native plantings. If temporary planting is not used, other best management

practices, such as the use of silt fences or other sediment control methods, would be implemented.

Soil tests would be performed at the time of stockpiling, and again at the time of redistribution over the restoration area if the soils have been stored for longer than 2 months. These tests will serve to determine whether any adverse changes (such as changes in pH levels) have occurred during storage. Measures will be taken to remedy any adverse changes in soil chemistry, such as adding appropriate soil amendments.

After final grading and the re-application of excavated soils has been completed, soils tests would be performed to identify any difficult (e.g., high salinity, high sand or clay content, etc.) soils and formulate appropriate soil treatments, detect variations in the soils throughout the restoration site, make any necessary adjustments to the planting plan, and determine cultural regimes for establishment maintenance.

Stream Stabilization and Scour Protection. Soil excavation required to construct the restored slough channel will lower the ground surface elevation in the area where Phelps Creek enters the project site. The lowered ground surface elevation would have the potential to result in erosion and the incision of the Phelps Creek channel. To transition from the higher existing grade in the Phelps Creek channel to the lower design grade of the restored slough, two grade control structures would be installed were Phelps Creek enters the project site. The grade control structures would be constructed of ungrouted boulders and would be approximately two to three feet in height. Figure 2.3-3 provides a detailed view of proposed grading in this area.

At the Devereux Creek Bridge, the existing sheet pile sill and associated armoring would be removed to provide improved hydrologic connection between the lower slough and the restoration site. Following the removal of the sill it may be necessary to install scour protection (riprap) along the expanded channel banks and/or channel bottom in the vicinity of the bridge to limit scour that would have the potential to adversely affect the bridge abutments and pilings. The size and extent of riprap placement would be based on hydraulic and engineering analysis consistent with established guidelines published by the Federal Highway Administration (FHWA).

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.

Utilities. Potable water service in the project area is provided by the Goleta Water District and a service line for the former golf course clubhouse building is located on the project site. Recycled water that is used by UCSB and others in the project area is produced by the Goleta Sanitary District and distributed by the Goleta Water District. An existing recycled water service line is located along Storke Road and at the nearby Sierra Madre housing project site.

The project site is located in the Goleta West Sanitary District service area, and wastewater collected by the District is sent to the Goleta Sanitary District's wastewater treatment plant. A wastewater collection line is presently located on the project site that served the former golf course clubhouse building. No restrooms or drinking fountains are proposed by the Project at this time, but could potentially be added in the future. Short-term uses of potable water on the project site would be for plant irrigation and flushing salts from high salinity soils, and short-term recycled water use would be for plant irrigation. No nighttime lighting is proposed for the project site.

Public Access Facilities. Following the completion of bulk and fine grading, the proposed trails and bridges would be installed on the project site. Proposed trails and bridges are described below and their locations are depicted on Figure 2.7-1.

- Primary Trail: 1.2 miles of 10- to 12-foot wide trail surfaced with Class 2 road base.

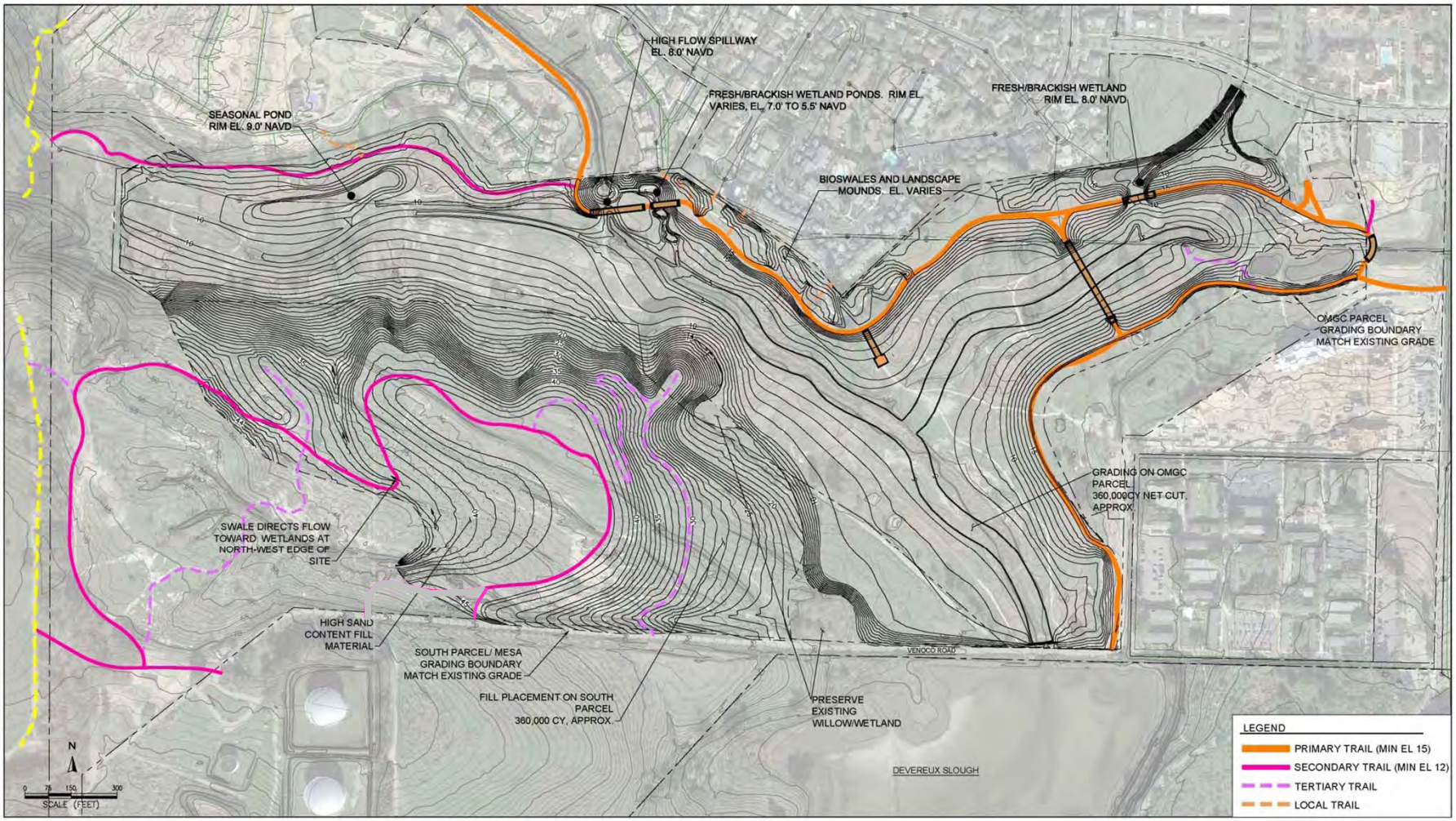
- Secondary Trails: 1.25 miles of six-foot wide trails, including a trail along the south side of North Campus Housing trail surfaced with Class 2 rock base, and a six-foot wide trail in the southwestern portion of the site surfaced with native soils.

- Tertiary Trails: 0.75 of a mile of four-foot foot wide trails surfaced with native soils.

- Bridge A: This structure would be located near the Sierra Madre Housing project and would cross 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 low-rise timber boardwalk would be approximately 100 feet long by 12 feet wide. It is expected that this crossing would be inundated during larger storms, 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 cast in drilled hole piles 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.



Source: ESA, 2016

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 2.7-1

Proposed Bridge Locations

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- 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 cast in drilled hole piles placed at approximately 100-foot intervals. The bridge would be inundated during larger storms and would 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.

- 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.

Revegetation. The habitat concept plan presented on Figure 2.2-1 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. A preliminary revegetation plant species list is provided in Appendix B of this Initial Study/MND.

Planting Procedures. All planting on the project site would be supervised by a restoration ecologist with experience in native plant revegetation. To the extent feasible, planting would be performed between November 15 and March 31; preferably, immediately following a rainfall of one to one and one-half inches. If seasonal rainfall is low, or does not coincide with the desired planting dates, both the plant materials and the receiving ground surface would be thoroughly irrigated prior to planting.

Following the planting of salvaged plants, container stock, cuttings, and willow wattles, specified amounts of seed would be hydroseeded, broadcast, and/or drill/imprint seeded over designated areas. If seed is not applied until just before the onset of winter rains, the seeded areas would be covered with straw mulch, tacked down and monitored throughout the first rainy season after seeding occurs. If seed is applied earlier, it would be irrigated such that vegetation is sufficiently established to reduce the potential for erosion caused by winter rains.

Temporary Irrigation. Temporary irrigation would be provided for approximately one to three years to promote the establishment of the restoration plantings. Irrigation rates would be determined based upon individual species requirements, and would be adjusted to provide the minimum necessary amount of water for rapid, healthy growth. To limit the growth of invasive, weedy species, seeded areas would receive the minimum amount of irrigation required to establish the target species.

During the last six months of the (one-year) establishment period, irrigation would be gradually curtailed so that vegetation may adapt to a natural precipitation regime. If drought stress is detected in the plantings or in areas of the restoration site following this "weaning" process, irrigation would be continued to affected portions of the site for an additional year.

The irrigation system would consist of primarily above-ground components and lines. The above-ground components can be removed upon completion of the establishment period without disturbing plant life.

2.7.3 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, exotics will be completely removed from the site prior to the planting phase of construction. Exotic 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 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.

A Habitat Restoration and Monitoring Plan to be prepared for the Project will include monitoring and adaptive management measures, and would be completed as part of final project design. The Plan would 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

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 Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, California Coastal Commission, and the State Coastal Conservancy. 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 a May 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 May 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.

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

Descriptions of project-specific and cumulative impacts that have the potential to be significant, or that have been determined to be less than significant, are provided in the narrative of Section 5.0 of this IS/MND.

If this Initial Study evaluation of potential environmental impacts concludes that the North Campus Open Space Restoration Project would not result in an impact regarding a specific environmental issue area, that issue area is denoted with an "NI" (no impact) in the table provided below. Environmental issue areas denoted by an "LS" were determined to have less than significant impacts. Environmental issue areas denoted with an "M" would have impacts that can be feasibly reduced to a less than significant level with the implementation of mitigation measures identified by this IS/MND. The mitigation measures included in this IS/MND consist of measures included in the 2010 LRDP Final EIR and measures developed specifically for the North Campus Open Space Restoration Project. The North Campus Open Space Restoration Project would not result in any "Potentially Significant Impacts" that cannot be reduced to a less than significant level.

M	Aesthetics	NI	Agriculture and Forestry Resources	M	Air Quality
M	Biological Resources	LS	Cultural Resources	LS	Geology/Soils
LS	Greenhouse Gas Emissions	M	Hazards & Hazardous Materials	LS	Hydrology/Water Quality
M	Land Use/Planning	NI	Mineral Resources	M	Noise
NI	Population/Housing	LS	Public Services	LS	Recreation
M	Transportation/Traffic	LS	Utilities/Service Systems	M	Mandatory Findings of Significance

NI No impact
LS Less than significant impact
M Less than significant with the implementation of proposed mitigation

4.0 ENVIRONMENTAL DETERMINATION

On the basis of the initial evaluation that follows:

☐ I find that the proposed project WOULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, the project impacts were adequately addressed in an earlier document or there will not be a significant effect in this case because revisions in the project have been made that will avoid or reduce any potential significant effects to a less than significant level. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.

Signature	Date
Printed Name	For

5.0. EVALUATION OF ENVIRONMENTAL IMPACTS

The University has defined the column headings in the Initial Study checklist as follows:

A) "**Potentially Significant Impact**" is appropriate if there is substantial evidence that the project's effect may be significant. If there are one or more "Potentially Significant Impacts" a Project EIR will be prepared.

B) "**Project Impact Adequately Addressed in LRDP EIR**" applies where the potential impacts of the proposed project were adequately addressed in the LRDP EIR and mitigation measures identified in the LRDP EIR will mitigate any impacts of the proposed project to the extent feasible. All applicable LRDP EIR mitigation measures are incorporated into the project as proposed. The impact analysis in this document summarizes and cross references (including section/page numbers) the relevant analysis in the LRDP EIR.

C) "**Less Than Significant With Project-level Mitigation Incorporated**" applies where the incorporation of project specific mitigation measures will reduce an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." All project-level mitigation measures must be described, including a brief explanation of how the measures reduce the effect to a less than significant level.

D) "**Less Than Significant Impact**" applies where the project will not result in any significant effects. The project impact is less than significant without the incorporation of LRDP or project-level mitigation.

E) "**No Impact**" applies where a project would not result in any impact in the category or the category does not apply. "No Impact" answers need to be adequately supported by the information sources cited, which show that the impact does not apply to projects like the one involved (*e.g.*, the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (*e.g.*, the project will not expose sensitive receptors to pollutants, based on a project specific screening analysis).

	(A)	(B)	(C)	(D)	(E)
Issues	**Potentially Significant Impact**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant with Project-level Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
5.1 AESTHETICS – Would the project:					
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	✓	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	✓	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	✓	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☐	✓

5.1.1 Setting

The NCOS Restoration Project site is located on the 238-acre North Campus, which is west of Storke Road, south of a residential neighborhood in the City of Goleta, and north of the UCSB West Campus. Open space that is part of the Ellwood-Devereux Open Space Area is west of and adjacent to the North Campus. Land uses on the North Campus are mostly open space with some student and faculty housing. Housing projects on the North Campus include the 151-unit Sierra Madre student housing project and the up to 161-unit Ocean Walk faculty housing project, which currently has 59 constructed units and 30 units under construction.

Project Site Conditions

The NCOS Restoration project site encompasses three parcels known as the former Ocean Meadows Golf Course, South Parcel and Whittier Parcel. The existing visual characteristics of the three project parcels are described below, and photographs depicting

representative visual conditions on the three project parcels are provided on Figures 5.1-1 through 5.1-7.

Ocean Meadows Golf Course. This 63.8-acre parcel was formerly operated as a golf course and is located west of UCSB student housing (the Sierra Madre and West Campus Apartments), south of the UCSB North Campus faculty housing project (Ocean Walk), and south of residences in the City of Goleta. Operation of the golf course included regular irrigation of the course's fairways and greens, and maintenance of on-site vegetation. The golf course was closed in 2013 and since that time maintenance activities have been curtailed and consist of nominal irrigation to support some vegetation growth and annual mowing to control weeds. Structural development associated with the golf course was limited and generally consisted of a small parking lot and clubhouse structure near the northeast corner of the site, and paved golf course paths. These structures are still located on the project site, however, their condition is deteriorating.

The golf course property is generally flat and existing visual conditions are dominated by views of low-growing remnant grasses, small weedy shrubs, bushes and some trees. Most of the on-site trees and bushes are located along Devereux Creek and a small unnamed tributary to the creek. Devereux Creek traverses the golf course property from east to west and the unnamed tributary is located on the eastern portion of the property. Most of the vegetation on the golf course property consists of non-native and ornamental plants. Many of the trees on the golf course are dead or are in poor condition, although the trees along Devereux Creek appear to be in fair to good condition.

The Ocean Meadows Golf Course property is used extensively by the public for walking and other active and passive forms of recreation, and access throughout the property is facilitated by the golf cart paths and trails that have been developed on the site. Views of the golf course property from off-site locations that are generally accessible to the public are provided from Storke Road through a view corridor framed by housing units on the Sierra Madre Apartments project site (Photo No. 3 on Figure 5.1-4); from Whittier Drive where foreground views of the Whittier Parcel and background views of open space areas on the golf course property are provided; and from the end of Scripps Crescent Street, which dead-ends at the northern perimeter of the project site (Photo No. 10 on Figure 5.1-6). Views of the golf course property are also provided from residences located adjacent to the project site, including the UCSB Ocean Walk project, residences in the City of Goleta University Village neighborhood, and from the UCSB Sierra Madre Apartments and West Campus Apartments.

South Parcel. This 68.9-acre open space area is located south of and adjacent to the former golf course, and north of Venoco Road. The visual character of the South Parcel is primarily defined by views of non-native grassland and a eucalyptus windrow along the eastern perimeter of the property. Much of the South Parcel has been disturbed by past grading activities and recreation activities (off-road bicycle riding), and as a result areas along the southern portion property are devoid of vegetation (Photo No. 7 on Figure 5.1-4).

Similar to the Ocean Meadows Golf Course property, the South Parcel property is used extensively by the public for walking and other active and passive active forms of recreation, and access throughout the property is facilitated a network of trails that have been developed on the site. Views of the South Parcel are available from various off-site locations, including pathways located on the golf course property to the north, Venoco Road to the south, and from the West Campus Apartments to the east. Photo numbers 6, 7 on Figure 5.1-4 and photo 13 on Figure 5.1-7 provide representative views of the South Parcel as seen from Venoco Road and the West Campus Apartments.

Whittier Parcel. This 3.7-acre parcel is located north of and adjacent to the northeastern corner of the golf course property. The visual character of the Whittier Parcel is dominated by views of non-native grassland and a small drainage channel that crosses the property from north to south. Views of the Whittier parcel that are generally available to the public are primarily from Whittier Drive, which is located north of and adjacent to the property. Residences adjacent to the parcel to the west and that are located along the north site of Whittier Drive near the property also have views of the Whittier Parcel. A representative view of the Whittier Parcel as seen from Whittier Drive is provided by Photo No. 3 on Figure 5.1-2.

Overall, the project site's visual character is predominately open space that has been modified by past activities, particularly the construction and operation of the Ocean Meadows Golf Course. Visual conditions on the site are dominated by views of non-native grassland or remnant golf course vegetation, however, several large trees and native habitat areas are interspersed throughout the site, predominately along creek and drainage channels. Structural development on the project site is very limited and there are very few large trees on the project site. Due to the general absence of structures and large trees, views of the Santa Ynez Mountains from the project site are generally unobstructed. Views of the Pacific Ocean are not available from the project site, however, the Devereux Slough can be seen from viewpoints in the southern portion of the site (Figure 5.1-3). There are no sources of night lighting on the project site, and lighting in the project area is generally limited to low level exterior and interior lighting in residential areas to the north and east of the site.

Surrounding Area Conditions

The visual character of areas adjacent to the project site are predominately defined by residential development to the north and east, and open space to the south and west. Residential development to the north of the project site includes mostly two-story structures in the University Village neighborhood in the City of Goleta, and two-story faculty housing in the UCSB Ocean Walk project. Residential development to the east includes the three-story units of the UCSB Sierra Madre Apartments and two-story West Campus Apartments. The private property located east of and adjacent to the golf course property and west of and adjacent to the Sierra Madre Apartments consists mostly of open space, but also includes several small structures and some open storage. Open space areas to the south of the project site are located on the UCSB West Campus and include the Coal Oil Point Reserve and the Devereux Slough. The Ellwood Marine Terminal facility, which includes two large oil storage tanks and other related equipment, is also

located on the West Campus and is south of and adjacent to the southwestern portion of the project site. The open space area to the west of the project site is the Ellwood Mesa, which is part of the Ellwood-Devereux Open Space Area.

LRDP Requirements

2010 LRDP Figure F.4 (Scenic and Visual Resources) identifies scenic view points on the UCSB campus. Identified scenic view points on the project site include: views of the South Parcel from the western end of Venoco Road; views of the South Parcel from the western edge of the project site; and views of the project site from the area where Phelps Creek enters the northern portion of the golf course property.

The 2010 LRDP includes Visual and Scenic Resource policies that generally apply to the development on new buildings on the UCSB campus. Policies that are applicable to the Project include:

> **Policy SCEN-07 -** For trees with significant scenic value, the first priority shall be to avoid tree removal where feasible. If tree removal cannot be avoided, the second priority shall be relocation of the tree. If the scenic tree cannot feasibly be retained in place, the tree removal shall be conducted and mitigated consistent with the Tree Trimming and Removal Program in Appendix 2. Where a scenic tree is located within ESHA or Open Space the tree trimming and removal shall be subject to Policy ESH-29.

Policy ESH 29 states, in part, that the removal of trees from areas designated as ESHA or Open Space (such as the project site) requires the approval of a Notice of Impending Development (NOID) by the California Coastal Commission. In addition, 2010 LRDP Appendix 2 (Campus Tree Trimming and Removal Program) states that any removed native tree or breeding/nesting tree for which a NOID was required shall be replaced at a 3:1 ratio with a native tree, and any ornamental tree with a trunk diameter of six inches or more at breast height that is removed shall be replaced with a native or ornamental tree at a 1:1 ratio.

> **Policy SCEN-10 -** Contours of finished surfaces on the North and West Campuses are to be blended to achieve a consistent grade and natural appearance. Borders of cut slopes and fills are to be rounded off to a minimum radius of five feet so as to blend with the natural terrain.

5.1.2 Checklist Responses

a. *Would the proposed project have a substantial adverse effect on a scenic vista?*

For this analysis a “scenic vista” is considered be a view of an expansive area or large natural feature that is generally considered to have desirable visual qualities. In the context of the proposed Project, areas and features that are considered to have desirable

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Figure 5.1-1

Photo Location Key

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4. Sierra Madre Student Housing is on the right and left sides of the photo. A wetland restoration area is in the foreground and the project site is in the center background.

5. View from the Venoco Road bridge looking south at the Devereux Slough. Mudflat areas can be seen on the right and left sides of the photo.

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Refer to Figure 5.1-1 for Photo Locations

Figure 5.1-3

Project Site Photos

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4. Sierra Madre Student Housing is on the right and left sides of the photo. A wetland restoration area is in the foreground and the project site is in the center background.

5. View from the Venoco Road bridge looking south at the Devereux Slough. Mudflat areas can be seen on the right and left sides of the photo.

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Refer to Figure 5.1-1 for Photo Locations

Figure 5.1-3

Project Site Photos

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6. View from the Venoco Road bridge looking north across the South Parcel. Rip rap and bank armoring for the bridge can be seen in the foreground.

7. View of the South Parcel from Venoco Road. Erosion channels and areas devoid of vegetation can be seen in the photo.

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Refer to Figure 5.1-1 for Photo Locations

Figure 5.1-4

Project Site Photos

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8. View of the former Ocean Meadows Golf Course. Residences under construction in the UCSB Ocean Walk project are on the left site of the photo. Vegetation in the Devereux Creek channel is on the right side of the photo.

9. View of the former Ocean Meadows Golf Course. Residences in the UCSB Ocean Walk project are on the left side of the photo. The Devereux Creek channel is in the center of the photo.

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Refer to Figure 5.1-1 for Photo Locations

Figure 5.1-5

Project Site Photos

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10. View of the former Ocean Meadows Golf Course. Phelps Creek is on the on the right side of the photo, and its confluence with Devereux Creek can be seen in the center of the photo.

11. View of the former Ocean Meadows Golf Course. Residences in the University Village neighborhood are on the left side of the photo. The small structure on the right side of the photo is located on private property adjacent to the project site.

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Refer to Figure 5.1-1 for Photo Locations

Figure 5.1-6

Project Site Photos

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12. View of Devereux Creek on the former Ocean Meadows Golf Course.

13. View of the South Parcel

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Refer to Figure 5.1-1 for Photo Locations

Figure 5.1-7

Project Site Photos

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visual qualities include large area of open space, water bodies, and mountains. Scenic vistas associated with the project site include views of the open space located on the former Ocean Meadows Golf Course, South Parcel and the Whittier Parcel; views of the Devereux Slough and surrounding open space to the south of the project site, and views of the Santa Ynez Mountains to the north. This analysis focuses on the potential for the Project to adversely affect the quality of views of entire landscapes or natural features, rather than the visual quality of individual Project-related features and structures.

Views of the Project Site. Views of the project site that may be considered scenic vistas are provided from locations throughout the site, but the primary viewpoints are along on-site paths and trails, and from Venoco Road as the existing paths, trails and road are used by many of the persons visiting the site. Private residences adjacent to the project site to the north, and UCSB faculty housing and student apartments adjacent to the project site to the north and east also have views of the project site that may be considered scenic vistas. Views of the project site are also provided from roads, sidewalks and bike paths adjacent to the project site, with the most prominent views being available from a short segment of Storke Road near the Sierra Madre Apartments; the eastern portion of Whittier Drive; and the end of Scripps Crescent at the northern perimeter of the project site. Views of the Santa Ynez Mountains are provided from many locations throughout the project site, while locations that provide views of the Devereux Slough are generally limited to the southeastern corner of the project site, primarily in the vicinity of the eastern end of Venoco Road.

Implementation of the NCOS Restoration Project would result in two major changes to the project site that would affect its visual character and existing open space scenic vistas: 1) modifications to existing site topography, and 2) the removal of existing vegetation and the creation/restoration of native habitats. The potential for these changes to the project site to result in a substantial adverse effect to an existing scenic vista are evaluated below.

Proposed Habitat Restoration. The Project would change the visual character of the project site from an open space area predominately covered with ornamental and non-native vegetation to an open space that supports a variety of native habitat types, including marsh plain, high marsh and upland habitats. Some areas of the project site that do support native habitat, such as the freshwater marsh and riparian habitat located in and near Devereux Creek would be removed and replaced with aquatic/subtidal habitat, which would have an appearance similar to natural habitat areas associated with the Devereux Slough. Overall, the conversion of the project site from supporting mostly non-native vegetation to the proposed mosaic of native habitat types would not adversely affect the long-term visual quality of the site and would result in **less than significant** impacts to existing scenic vistas of open space.

Proposed Topography Modifications. Changes to the topography of the former golf course property are proposed to facilitate the restoration and creation of new habitat

areas. For example, much of the area along and adjacent to Devereux Creek and its unnamed tributary on the eastern end of the project site would be lowered approximately three to six feet, and in some areas as much as 10 feet, from existing conditions to create channels that facilitate periodic tidal flow into what are now creek channels that were constructed when the golf course property was filled in the mid-1960's. The existing ground surface along the northern perimeter of the golf course property adjacent to homes in the University Village neighborhood would not be changed substantially, but low landscape berms approximately two to three feet in height would be constructed to serve as a buffer between the residential area and the remainder of the project site. Bioswales would also be constructed in this area to treat storm water runoff from the residential area.

Proposed changes to the topography of the Whittier Parcel would be limited to expanding the width of the drainage channel that extends across the property, and increasing the depth of vernal pools that are located on the property. Modifications to the channel and vernal pools would be made to create and enhance wetland habitat.

Proposed changes to the topography of the South Parcel would vary, but in general the ground surface of the property would be raised using soil excavated from the golf course and Whittier Parcel. The proposed topography of the South Parcel would resemble conditions that existed before it was graded to obtain the soil to construct the Ocean Meadows Golf Course. The maximum proposed increase in ground surface elevation on the South Parcel would be approximately 15 feet.

Overall, proposed changes to the topography of the project site would not be extensive and would not substantially change the open space character of the site. In addition, landforms created on the project site would comply with the requirements of LRDP Policy SCEN-10, which requires that graded slopes have a rounded and natural appearance. This would be achieved by the proposed grading plan that would create slopes with a maximum gradient of 3:1 (h:v) and most slopes would have gradients of between 3:1 and 50:1 or shallower. Views of the project site would continue to be available from residential areas and roadways adjacent to the site and the visual quality of those views would not be substantially changed or adversely affected. The NCOS Restoration Project would not result in changes to the project site that would adversely affect the site's visual quality and would not result in a substantial adverse effect on an existing scenic vista as seen from viewpoints on the project site, viewpoints adjacent to the site, or viewpoints depicted on LRDP Figure F4. Therefore, the Project's impacts to existing on-site scenic vistas would be **less than significant**.

Views of Off-Site Scenic Resources. The restoration of the project site would result in the establishment of native habitat areas and relatively minor modifications to the existing topography of the site, such as lowering areas along existing creek channels on the golf course property by approximately five to ten feet, and raising the elevation of portions of the South Parcel a maximum of approximately 15 feet. Lowering the ground

surface of the golf course would not substantially affect existing views of the Santa Ynez Mountains from on- or off-site locations. Raising the elevation of portions of the South Parcel would not substantially affect existing views of the Santa Ynez Mountains from the South Parcel or open space areas to the south (Coal Oil Point Reserve) because the existing ground surface elevation adjacent to Venoco Road, a popular hiking and bicycle route, would not be changed. Existing views of the Devereux Slough from on- and off-site locations would not be substantially affected because no changes to the topography south of Venoco Road are proposed. The Project would not result in changes to the project site topography that would adversely affect views of off-site scenic resources from viewpoints located on or adjacent to the project site, and the project would not result in the development of structures or the installation of landscaping (trees) that would interfere with existing views of off-site scenic resources. Therefore, the Project's impacts to views off-site scenic vistas would be **less than significant**.

b. *Would the proposed project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

As described in response "a" above, changes to the visual character of the project site that would result from proposed habitat restoration activities and associated topography modifications would not substantially change the overall visual character of the contiguous open space provided by the former golf course property, South Parcel and Whittier Parcel site. The Project would, however, result in changes to the appearance of individual features on the project site that are generally considered to be scenic resources, such as water bodies, and single or groups of trees. The potential for the project to substantially damage scenic resources is evaluated below.

Water Bodies. Water bodies on the project site that may be considered scenic resources that contribute to the scenic quality of site include Devereux Creek, the unnamed tributary to Devereux Creek on the eastern portion of the project site, Phelps Creek on the northern portion of the project site, and a drainage channel on the Whittier Parcel. Devereux Creek enters the project site from the west, traverses the former golf course property from west to east, then turns southward and enters the Devereux Slough after passing beneath a bridge located along the eastern end of Venoco Road. The unnamed tributary begins east of the project site after emerging from a culvert that extends beneath Storke Road. After entering the project site, the tributary extends to the west approximately 1,500 feet and then joins Devereux Creek. Phelps Creek enters the project site at a location between the UCSB Ocean Walk faculty housing development and the University Village residential neighborhood. The creek flows southward on the project site approximately 200 feet before entering Devereux Creek. The Whittier Parcel drainage channel collects runoff from the residential neighborhood north of the project site, flows generally north to south across the Whittier Parcel and empties onto the golf course property.

Devereux Creek, the unnamed tributary on the eastern portion of the project site, Phelps Creek, and the drainage channel on the Whittier Parcel were each substantially modified by grading and filling operations associated with the construction of the Ocean Meadows Golf Course. Each of the water courses and the vegetation they support are generally limited to a narrow channel that is bordered by ornamental landscaping and non-native grassland. Due to the previous modifications to the creeks and drainage channel, their visual quality has been diminished.

The Project would alter each of the creek and drainage channels located on the project site. The western portion of the Devereux Creek channel would be lowered, recontoured and re-vegetated to create a new creek channel, and a new seasonal pond would be created north of and adjacent to this segment of the creek. The central and eastern portions of Devereux Creek and the unnamed tributary to the creek would be lowered and recontoured to create new subtidal slough channels that would convey storm flow and would be periodically inundated by tidal flow. The segment of Phelps Creek on the northern portion of the project site would be reconfigured to create a new seasonal pond and channel that would join the modified Devereux Creek channel to the south; and the drainage channel on the Whittier Parcel would be recontoured to provide enhanced wetland habitat. In general, the proposed modifications to the creek and drainage channel water bodies on the project site would be designed and implemented to improve their habitat value and function by providing a more natural configuration and vegetation appropriate for the proposed habitat types. After the recontoured areas are revegetated and planting becomes mature (a period of approximately three to five years) the modified water bodies would have a more natural appearance when compared to their existing conditions. Therefore, the proposed restoration and creation of new habitat types would not result in substantial long-term damage the scenic quality of existing water bodies on the project site. The potential for the Project to result in significant short-term impacts to the scenic quality of the project site is evaluated in response “c” below.

Modifications to Phelps Creek and the construction of the proposed seasonal pond would require the construction of two grade control structures to minimize the potential for erosion impacts as Phelps Creek drops in elevation before it reaches Devereux Creek. The grade control structures would be approximately two to three feet in height and constructed from moderate- to large-sized ungrouted rip rap (rocks). At the Devereux Creek Bridge, the existing sheet pile sill and associated armoring would be removed. It may also be necessary to install rock riprap along the Devereux Creek channel banks and/or channel bottom in the vicinity of the Devereux Creek Bridge to limit the potential for erosion and scour. The use of ungrouted rock rip rap to construct proposed grade control structures and to minimize scour at the bridge would not damage or degrade the scenic quality of water bodies on the project site. Therefore, the aesthetic impacts that may be associated with proposed grade control and scour protection structures would be a less than **significant** impact.

Scenic Trees. A variety non-native landscape trees are located on the golf course and South Parcel properties, including cottonwood, cypress, eucalyptus, melaleuca, myoporum, palm, pine, and other non-native trees. Three sycamore and two oak trees that were planted as landscape trees, and four willow trees in creek channels are also located on the project site. The most visually prominent trees on the golf course property are along Devereux Creek and adjacent to residences in the University Village neighborhood. The most visually prominent trees on the South Parcel are the eucalyptus trees located in a windrow along the property's western border. There are no trees on the Whittier Parcel. For this analysis, visually prominent trees are considered to be "scenic" if an individual tree or a group of trees are visually distinctive and a focus of attention for reasons such as unique appearance or size in relation to surroundings.

Golf Course Property. The Project would result in the creation of various habitat types, including aquatic/subtidal, mudflat/saltflat, marsh plain, upland and high marsh/transition habitats. There are approximately 235 trees located on the golf course property (178 live trees and 57 dead trees) and the Project would result in the removal of approximately 189 of those trees because they would not be consistent with the proposed habitat types. Trees on the golf course property that would be retained include most of the large pine and eucalyptus trees located adjacent to the residences in the University Village neighborhood. Due to the size of these trees in relation to their surroundings (a residential neighborhood) they are considered to be scenic trees. Although most of the trees adjacent to the neighborhood would be retained, proposed grading and construction activities adjacent to the trees, primarily to construct proposed landscape berms and bioswales, would have the potential to damage or result in significant impacts to the health of the trees. This potentially significant impact can be reduced to a less than significant level by implementing the tree protection measures included in proposed mitigation measure AES-1a. With the implementation of the specified tree protection measures, potential construction-related impacts to the on-site scenic trees adjacent to the University Village neighborhood would be a **significant and mitigable** impact.

The pine and eucalyptus trees located near the residential neighborhood to the north of the project site would be approximately 150-300 feet north of the proposed fresh/brackish water channels that would be developed along the current alignment of Devereux Creek and the unnamed tributary on the eastern portion of the golf course property. It is anticipated that due to the distance between the proposed channels and the trees to be preserved, changes in hydrologic conditions within the channels would not adversely affect the long-term health of the existing trees. The proposed primary hiking trail to be constructed on the project site would be located south of and adjacent to the pine and eucalyptus trees described above. The trail would not require extensive ground surface modifications and the trail would have a pervious road base or similar material surface. Therefore, the construction and use of the trail near the scenic pine and eucalyptus trees would not result in significant impacts to the trees.

Most of the other trees located on the golf course property that would be removed are small to moderate in size, and many of these trees are dead or appear to be in declining health. Some of the trees on the golf course property, predominately along or near Devereux Creek, are large and appear to be in good health. The large trees on the golf course property include several individual eucalyptus trees, however, those trees are not considered to be scenic because they are not unique to the area and not a focus of attention in the open space that comprises the project site. Two trees located on the western end of the golf course property include a large cypress tree and a large Monterey pine tree. These two trees appear to be in good health, are species that are somewhat unique to the project area, and are considered to be scenic trees. Near the center of the golf course property are two large Monterey pine trees that are appear to be in good health. These trees are somewhat unique to the project area and are considered to be scenic trees. On the eastern end of the golf course property is a large pine tree that is also considered to have scenic qualities. Each of the five trees identified above are non-native trees that were planted as landscape trees. 2010 LRDP Policy SCEN-07 requires that scenic non-native trees be avoided, relocated if feasible, or replaced at a 1:1 ratio. Avoiding the removal of the identified scenic trees would not be feasible because the trees would not be consistent with the proposed habitat restoration activities (the creation of aquatic/subtidal habitat). The relocation of the trees is not considered feasible due to their size. Therefore, the trees must be replaced at a 1:1 ratio. Compliance with the requirements of Policy SCEN-07 would reduce the significant impacts to existing visual resources that would result from the removal of scenic trees to a less than significant level. Therefore, the removal of five scenic trees from golf course parcel would be a **significant and mitigable impact**. Proposed mitigation measure AES-2a implements the requirements of Policy SCEN-07 by specifying that five replacement trees be provided, and by identifying project-specific tree replacement requirements.

South Parcel. There are approximately 65 trees (62 live trees and three dead trees) on the South Parcel and the Project would result in the removal of approximately 11 of those trees. Due to past grading activities on the South Parcel to construct the Ocean Meadows Golf Course, trees located on the portion of the project site that would be graded are small and not considered to be scenic trees. The windrow of eucalyptus trees located along the western perimeter of the South Parcel is not located in an area that would be disturbed by proposed habitat restoration activities and would also be preserved. Therefore, proposed restoration activities on the South Parcel would have **no impact** to scenic trees.

c. *Would the project have the potential to substantially degrade the existing visual character or quality of the site and its surroundings?*

Construction of the Project, including the presence of construction equipment, the removal of on-site vegetation, grading and temporary soil stockpiles, and the storage of construction materials, would result in temporary disruptions to the appearance of the

project site. Project-related construction activities would cause an adverse change to the visual character of the project site, but due to the short-term (two years) duration of this impact, the effects would not substantially degrade the appearance of the project site or the appearance of the North Campus.

Upon the completion of construction activities at the project site, construction materials and equipment would be removed, and all areas disturbed by grading, construction and staging activities or other project-related activities would be restored to a condition appropriate for the proposed habitat type.

The primary objective of the Project is to preserve, enhance and restore a diversity of wetland and upland habitats that formerly existed on the project site prior to the construction of the Ocean Meadows Golf Course. Implementation of the Project's restoration objective would include the development of project-specific performance/success criteria in consultation with permitting and granting (funding) agencies and those criteria would be tailored to specific habitat types to be established on the project site. At minimum, however, project-related success criteria would be consistent with the following general requirements: all plantings shall have a minimum of 75 percent of the desired total cover after three (3) years and 90 percent of the desired cover after five (5) years for the life of the project. If the survival and cover criteria have not been met, CCBER would be responsible for replacing plantings to achieve the specified plant coverage requirements. Replacement plants would be monitored with the same survival and growth requirements for five (5) years after planting. With the implementation of these and other performance criteria to be developed with permitting and granting agencies, the restoration objectives of the Project would ultimately be achieved and the Project would not result in a long-term degradation of the visual character or quality of the project site.

In addition to proposed habitat restoration activities, the Project would result in the construction of new trails and bridges. The location of the proposed trails and bridges are shown on Figure 2.7-1 and would consist of:

- A Primary trail that would be approximately 10 feet wide and have a road base or other similar all-weather surface. Benches, interpretive signs, and an observation pier/deck would also be provided along the northern portion of the trail.

- Two Secondary trails that would be five to six feet in width with a compacted soil surface.

- Two main Tertiary trails that would be three to four feet in width with a compacted soil surface.

- Various short neighborhood trails that would connect the residential area to the north of the project site to the proposed Secondary and Primary trails on the northern portion of the project site.

- Two steel bridges, a paved pedestrian crossing over a culvert, a boardwalk, and a pier and observation deck.

The proposed trail improvements would not substantially change the visual character of the project site and would be consistent with the existing appearance of the site as numerous paths and trails are currently located on the former golf course and South Parcel properties. In addition, materials used to construct the trails (compacted aggregate and soil) would be compatible with the visual character of the proposed restored habitat areas.

The proposed pedestrian crossing culvert (Bridge A on Figure 2.7-1) and boardwalk (Bridge B on Figure 2.7-1) would be new structural development on the project site but would not be highly visible from locations on or near the site. The proposed steel bridge across Phelps Creek (Bridge D on Figure 2.7-1) would replace a small wooden bridge; and the steel bridge on the eastern portion of the project site (Bridge C on Figure 2.7-1) would cross what is now the unnamed tributary to Devereux Creek and what is proposed to be new aquatic/subtidal, mudflat/salt flat and marsh plain habitat. Both of the proposed steel bridges would be new structural development on the project site that would be visible from on- and off-site locations. The appearance of the new steel bridges, however, would be consistent with the open space character of the project site as their pedestrian-scale appearance would not seem incongruous or out of place when viewed in the context of the open space area and the proposed trail system. Therefore, the proposed bridges would not substantially degrade the visual character or quality of the project site and its surroundings.

The proposed observation pier would be visible from on- and off-site locations. The pier would be supported by piles spaced at roughly 20-foot intervals, would be constructed of wood, and would have a maximum height of approximately seven feet above the ground surface. The pier and observation deck would be constructed of natural materials (wood); would not result in a substantial amount of new development on the open space site; and the visibility of the structure from on- and off-site locations would be minimized by its location near the center of the project site. In addition, the size and appearance of the pier would be a relatively small-scale feature that would dominate or detract from the visual character of the open space area. Therefore, the proposed pier and observation deck would not substantially degrade the visual character or quality of the project site or its surroundings.

Other project-related structural development would be limited, and would include the removal of the existing golf course clubhouse, and the construction of a “gathering” area (benches and interpretive signs) in the former clubhouse area. Restrooms are not

proposed at this time but could potentially be added in the future. If a restroom building were to be added in the future, it would likely be smaller than the existing golf course clubhouse building and would not be a visually prominent structure. The western portion of the existing project site parking lot would be retained and no additional parking areas are proposed on the project site.

Overall, the Project would retain the existing open space character of the project site and would restore non-native and disturbed areas to habitat types that existed before the Ocean Meadows Golf Course was constructed. Proposed trails would not substantially change the visual character of project site, and the proposed bridges would be subordinate to the appearance to the project site open space. Potential structural development, such as a future restroom building, would likely have an appearance and size comparable to the existing clubhouse building that is to be demolished. The Project would not result in a substantial amount of structural development on the project site and would not degrade the existing visual character or quality of the site. Therefore, the Project's short- and long-term changes to the site's visual character would be **less than significant**.

d. *Would the project have the potential to create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

There is currently no nighttime lighting on the project site and the Project would not result in the installation of any new lighting or reflective surfaces that could result in glare-related impacts. Therefore, the Project would have **no impact** related to the potential light or glare impacts.

5.1.3 Cumulative Impacts

As identified on IS/MND Table 1.8-4 (Estimated Cumulative Development in the Project Area) recent or proposed development in the project region could result in the construction of over 3,000 residential units and 1.6 million square feet of non-residential uses. The NCOS Restoration Project would not result in any new residential or non-residential development and would not contribute to potential impacts to scenic vistas that could result from cumulative development in the Project region. Therefore, the Project's impacts to scenic vistas would not be cumulatively considerable and the project's cumulative impacts would be **less than significant**.

The Project would alter the appearance of water bodies on the project site by making topographic and habitat modifications, however, the project would not result in a net loss of any on- or off-site water bodies or substantial changes to their existing appearance. With the implementation of proposed mitigation measures project-related impacts resulting from the loss of scenic trees would be reduced to a less than significant level, and the Project's impacts to scenic water bodies and trees would not be cumulatively considerable.

The Project would restore existing disturbed and non-native habitats on the project site; would retain the open space character of the site; would not degrade the visual quality of the project site; and would not contribute to the degradation of other open space areas in the project region. Therefore, the Project's impacts to scenic vistas and the visual resources of the project region would not be cumulatively considerable and the project's cumulative impacts would be **less than significant**.

5.1.4 Mitigation Measures

Impacts Reduced to a Less Than Significant Level with Proposed Mitigation

Implementation of the following mitigation measures would reduce each of the Project's identified aesthetic impacts to a less than significant level.

IMPACT AES-1 Construction of the NCOS Restoration Project has the potential to adversely affect the scenic landscape trees located along the northern perimeter of the project site adjacent to the University Village residential neighborhood in the City of Goleta.

AES-1a. Measures to protect trees located along the northern perimeter of the project site and adjacent to residences in the University Village neighborhood shall be implemented while grading operations occur on the northern portion of the project site (Phase 1 of Project development). At minimum, required tree protection measures shall include the following.

1. Temporary protective fencing shall be installed as close to the perimeter of the tree's canopy dripline as possible. The tree protection zone fencing shall be maintained in good condition while grading occurs on the northern portion of the project site (Phase 1 of Project development). To the extent possible, construction activities, equipment, vehicles, and personnel shall remain outside the fenced areas.

2. Proposed landscape berms and bioswales shall be located outside the dripline of the protected trees.

3. If grading or trenching must occur within the fenced tree protection zone, a certified arborist shall evaluate the proposed construction activities and provide guidance to minimize impacts to the trees (i.e., methods to minimize root damage, ground compaction, physical damage to the tree, etc.)

4. Soil, construction materials, and equipment shall not be stored within the tree protection zone.

5. Any protected tree that is removed or damaged (more than 20% encroachment into the tree's canopy dripline) shall be replaced at a location similar to the removed or damaged tree on a 1:1 basis with a 15 gallon size replacement tree. Replacement trees shall be planted prior to the completion of Project construction activities and maintained until established (five years).

IMPACT AES-2 Construction of the NCOS Restoration Project would result in the removal of five scenic non-native landscape trees.

AES-2a. The five (5) scenic landscape trees removed from the golf course parcel shall be replaced at a 1:1 basis. A tree replacement planting plan shall be prepared, and at minimum shall include the following information:

1. Replacement tree locations. The replacement trees shall be located on the project site.

2. Replacement tree size, planting, maintenance, and performance (survival and growth) specifications.

3. A five-year monitoring program for the replacement trees with specific performance standards to ensure that the replacement trees become established. If monitoring indicates the replacement trees are not in conformance with the specified performance standards a revised or supplemental planting plan shall be developed

	(A)	(B)	(C)	(D)	(E)
Issues	**Potentially Significant Impact**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant with Project-level Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
5.2 AGRICULTURE AND FOREST RESOURCES – Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the CA Resources Agency, to non-agricultural use?	☐	☐	☐	☐	✓
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐	✓
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☐	✓
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	✓
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☐	✓

5.2.1 Setting

Section 12220(g) of the Public Resources Code defines "forest land" as "land that can support 10 percent native tree cover for any species, including hardwoods, under natural condition, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

Public Resources Code section 4526 defines "timberland" as "land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others."

Government Code section 51104(g) defines "timberland production zone" as "an area which has been zoned pursuant to Section 5112 or 5113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses…"

There are no agricultural, forest lands or timberland resources, or Timberland Production zones on the UCSB campus or on nearby off-campus areas.

5.2.2 Checklist Responses

a. *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the CA Resources Agency, to non-agricultural use?*

   See response provided below under item "e."

b. *Conflict with existing zoning for agricultural use, or a Williamson Act contract?*

   See response provided below under item "e."

c. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*

   See response provided below under item "e."

d. *Result in the loss of forest land or conversion of forest land to non-forest use?*

See response provided below under item "e."

e. *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

There are no agricultural operations or forest resources located on or near the UCSB Campus, and it is not reasonably foreseeable that agricultural operations or forest resources would be established near the project site in the future. Therefore, the NCOS Restoration Project would have **no impact** on agricultural or forest resources.

5.2.3 Cumulative Impacts

The Project would have no impact to agriculture and forest resources and would have **no impact** related to potential cumulative effects.

5.2.4 Mitigation Measures

The NCOS Restoration Project would have no impact on agricultural and forest resources. No mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.3 AIR QUALITY - Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	✓	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	✓	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	✓	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	✓	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	✓	☐

5.3.1 Setting

Air Quality Conditions

Federal and state ambient air quality standards have been established for seven "criteria" pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates less than 10 microns in diameter (PM_{10}), particulates less than 2.5 microns in diameter ($PM_{2.5}$) and lead. California has also adopted standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles.

The Santa Barbara County Air Pollution Control District (APCD) is required to monitor air pollutant levels to assure that federal and state air quality standards are being met. 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 the state PM_{10} standards. The County is an attainment area for all other federal and state air quality standards. Criteria pollutant standard attainment status for Santa Barbara County is summarized on Table 5.2-1.

Ozone is formed in the atmosphere through a series of chemical reactions involving nitrogen oxides (NO_x), reactive organic gases (ROG) and sunlight. Ozone is classified as a "secondary" pollutant because it is not emitted directly into the atmosphere. The major sources of ozone in the County are motor vehicles, the petroleum industry and the use of solvents (paint, consumer products and certain industrial processes). PM_{10} is generated by a variety of sources, including windblown dust, grading, agricultural tilling, road dust and quarries. Vehicle exhaust is a major source of $PM_{2.5.}$

Table 5.3-1
Ambient Air Quality Standards

Pollutant	Averaging Time	State Attainment Status	National Attainment Status
Ozone	1-hour	Nonattainment	--
	8–hour	Nonattainment	Unclassified/Attainment
Particulate Matter (PM_{10})	24-hour	Nonattainment	Attainment
	Annual mean	Nonattainment	Attainment
Fine Particulate Matter ($PM_{2.5}$)	24-hour	--	Unclassified/Attainment
	Annual mean	Unclassified	Unclassified
Carbon Monoxide	8-hour	Attainment	Attainment
	1-hour	Attainment	Attainment
Nitrogen Dioxide	Annual mean	Attainment	Unclassified/Attainment
	1-hour	Attainment	Unclassified/Attainment
Sulfur Dioxide	Annual mean	--	--
	24-hour	Attainment	--
	1-hour	Attainment	--
Lead	30-day Average	Attainment	--
	Calendar quarter	--	Attainment
	3-month average	--	Unclassified

Air Quality Regulations

The 1990 Federal Clean Air Act Amendments and the 1988 California Clean Air Act regulate the emissions of airborne pollutants and have established ambient air quality standards. The United States Environmental Protection Agency administers federal air quality regulations, and the California Air Quality Board (CARB) is the California equivalent. The CARB establishes air quality standards and is responsible for control of mobile emission sources. Local APCDs have jurisdiction over stationary sources and must adopt plans and regulations necessary to demonstrate attainment of federal and state air quality standards. The Santa Barbara County APCD has jurisdiction over air quality attainment in the Santa Barbara portion of the South Central Coast Air Basin.

Clean Air Plan. The 1988 California Clean Air Act requires all air pollution control districts and air quality management districts in the state to adopt and enforce regulations to achieve and maintain air quality that is within the State air quality standards. The Santa Barbara

APCD prepared the 1998 Clean Air Plan to respond to federal and state requirements, and the Plan was adopted as part of the State Implementation Plan. The 2001 Clean Air Plan was developed as a comprehensive update to the 1998 Plan and was expected to bring the County into attainment of the State ozone standard through 2015. By 2004 this goal was not achieved, therefore, the 2004 Clean Air Plan was adopted in December of 2004 and focuses primarily on the Clean Air Act requirements. A 2007 Clean Air Plan was adopted by the Santa Barbara APCD Board on August 16, 2007 and a 2010 Clean Air Plan was adopted on January 20, 2011. The 2010 Plan provides updated air quality information and baseline inventories, updated future emission estimates, and new chapters related to greenhouse gas, climate protection and land use. The 2013 Clean Air Plan was adopted in March 2015 and is the sixth triennial update to the initial State Clean Air Plan adopted by the SBAPCD. Similar to other Clean Air Plan updates, the 2013 Plan identifies and evaluates "an all feasible measures" strategy to ensure continued progress towards attainment of the State ozone standards.

Existing Project Site Air Emission Sources

There are no uses on the project site that are stationary sources of air emissions. Some people may drive to the site for recreation-related uses, and periodic maintenance activities such as weed abatement also result in air emissions. Overall, however, existing uses that occur on the project site are not a substantial source of air emissions.

Sensitive Receptors

Sensitive receptors are generally defined as pollutant-sensitive members of the population or where air pollutant emissions could adversely affect use of the land. Sensitive members of the population include those who may be more negatively affected by poor air quality than other members of the population, such as children, the elderly, or persons with respiratory conditions. In general, residential areas, hospitals, elder-care facilities, primary and secondary schools, are considered to be sensitive receptors. Sensitive receptors adjacent to the project site include residential areas to the east and north. The Isla Vista Elementary School is approximately 1,750 feet east of the southeast corner of the project site.

5.3.2 Impact Significance Thresholds

Long-Term Impacts

The Santa Barbara APCD and Santa Barbara County have adopted thresholds of significance for evaluating a project's air quality impacts. Consistent with the air quality impact analysis provided by the 2010 LRDP EIR, this analysis uses the thresholds adopted by Santa Barbara County in their *Environmental Thresholds and Guidelines Manual* (2008). Based on those thresholds, a project will <u>not</u> have a significant project-specific or cumulative air quality impact if operation of the project will:

1. Emit (from all project sources, mobile and stationary) less than the daily trigger for offsets set in the APCD New Source Review Rule for any pollutant (55 lbs/day for ROG and NO_x, and 80 lbs/day for PM_{10}).

2. Emit less than 25 pounds per day of oxides of nitrogen (NO_x) or reactive organic compounds (ROG) from motor vehicle trips only.

3. Not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone).

4. Not exceed the APCD health risk public notification thresholds adopted by the APCD Board for air toxics.

5. Be consistent with the adopted federal and state Air Quality Plans.

Short-Term Impacts

Pursuant to the County's impact significance thresholds, short-term impacts to air quality from construction are less than significant if standard mitigation measures for fugitive dust are implemented. Since Santa Barbara County violates the State standard for PM_{10}, policies of the 1979 Air Quality Attainment Plan require that all discretionary construction activities implement dust control measures, regardless of the significance of fugitive dust impacts. Dust control measures are also required to minimize the potential for dust-related nuisance impacts. APCD Rule 345, *Control of Fugitive Dust from Construction and Demolition Activities* establishes limits on the generation of visible fugitive dust emissions at demolition and construction sites.

Santa Barbara County has not established quantitative thresholds for short-term construction-related emissions of criteria pollutants because the total amount of construction emissions from all construction projects that occur within the air basin constitute a minor amount of the total pollution emissions, and the emissions are temporary. As a guideline, however, APCD Rule 202.F.3 identifies a substantial effect associated with projects having combined emissions from all construction equipment that exceed 25 tons of any pollutant (except carbon monoxide) within a 12-month period. For this analysis, the APCD guideline for short-term emissions has been used to evaluate the significance of project-related emissions.

5.3.3 Checklist Responses

a. *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

Consistency with the Santa Barbara County Clean Air Plan means that direct and indirect emissions associated with the project are accounted for by the Plan's emissions growth assumptions and the project is consistent with policies adopted in the Plan. The Clean Air Plan relies primarily on the land use and population projections provided by the Santa Barbara County Association of Governments. The 2013 Clean Air Plan utilized SBCAG's Regional Growth Forecast 2010-2040 (2012) to project population growth and associated air pollutant emissions for all of the Santa Barbara County incorporated and unincorporated areas. Population growth on the UCSB campus facilitated by the 2010

LRDP is allocated to the South Coast Unincorporated area, which has increased the past population growth trend for this area.

The 2010 LRDP would increase the UCSB student enrollment approximately one percent per year to 25,000 full time equivalent students by the year 2025. The 2013-2014 UCSB three quarter average campus headcount was 22,225 students.[3] The NCOS Restoration Project would not result in or facilitate a direct or indirect increase in student enrollment at UCSB, and would not be a substantial long-term source of air emissions. Therefore, the Project would be consistent with/have a **less than significant** impact on the Santa Barbara County Clean Air Plan.

b. *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Short-Term Construction Impacts. Project-related construction activities that would result in air emissions include the demolition of the existing clubhouse building, the removal of concrete golf cart paths and associated creek crossing culverts, the excavation of soil that was used to construct the Ocean Meadows Golf Course, and transporting that soil to the South Parcel. Proposed grading operations would be conducted in two phases. The first grading phase would occur between August and October 2016 and would excavate approximately 100,000 cubic yards of soil from the golf course property. The excavated soil would be transported to a 25-acre area on the western portion of South Parcel. The second grading phase would be conducted between May and October 2017 and would result in the removal of approximately 255,000 cubic yards of soil from the golf course property, and the soil would be transported to the eastern half of South Parcel. Weather-related and/or other delays that could occur in 2016 and 2017 could require grading in a third year of construction, however, an extended project construction/grading period would not increase the total amount of soil excavated and transported, and would not result in an increase in total construction-related emissions.

The CalEEMod v.2013.2.2 computer model was used to estimate the Project's construction-related emissions, and a summary of the emissions resulting from the use of grading and soil hauling equipment on the project site is provided on Table 5.3-2. The complete CalEEMod model results are provided in Appendix C. Total project-related short-term emissions of ozone precursor pollutants (ROG and NO_x) would be substantially lower than the 25 tons per year emissions guideline the APCD uses to determine the significance of construction-related emission impacts. Therefore, short-term emissions of criteria pollutants would be a **less than significant** impact and no mitigation is required. The construction equipment operation mitigation measures included in recommended mitigation measure AQ-3a would further reduce the Project's less than significant construction-related emissions of ROG and NO_x. Implementation of these mitigation measures is not required to reduce project-related construction equipment emission air quality impacts to a less than significant level.

[3] UCSB Office of Budget and Planning, 1/29/2015, UCSB Headcount Enrollment: 1954 -55 to 2013-14

Table 5.3-2
Estimated Construction Emissions

Construction Year	Construction Emission Estimates (unmitigated, tons per year)							
	ROG	NO_x	CO	SO_2	PM_{10}		$PM_{2.5}$	
					Dust	Exhaust	Dust	Exhaust
2016	0.280	2.662	2.734	0.002	7.023	0.120	0.912	0.110
2017	0.820	8.642	7.399	0.009	17.189	0.360	1.928	0.332
Total	**1.100**	**11.304**	**10.133**	**0.011**	**24.212**	**0.480**	**2.840**	**0.442**

Source: CalEEMod 2013.2.2

Short-term project-related emissions of PM_{10} would incrementally contribute to an existing air quality standard exceedance, and fugitive dust has the potential to result in significant nuisance impacts. Therefore, construction-related dust emissions would be a potentially significant air quality impact. This impact would be **reduced to a less than significant level** with the implementation of proposed mitigation measure AQ-1a, which includes dust control best management practices recommended by the Santa Barbara APCD and required by the 1979 Air Quality Attainment Plan.

Long-Term Operation Emissions. Long-term emissions from a project generally consist of emissions from vehicle trips generated by the project (mobile emissions); emissions resulting from sources such as consumer products, landscape maintenance, and periodic emissions from painting activities (area sources); and direct and indirect emissions from natural gas and electricity use (energy sources).

Long-term mobile emissions that would be generated by the Project would result from vehicle trips by persons traveling to and from the site. Estimates of project-related traffic used to estimate long-term mobile emissions are from the project-specific traffic study prepared by Associated Transportation Engineers dated January 19, 2016, which estimated that the Project would generate approximately 78 average daily vehicle trips. The *UCSB North Campus Open Space Restoration Project Traffic and Circulation Study* is included in IS/MND Appendix D. The Project would not result in the development of buildings or structures that would be a substantial source emissions resulting from the use of consumer products, maintenance (painting) activities, or energy use. Most project-related landscape maintenance, such as weed control, would be done by hand rather than using mechanical equipment and would not be a substantial source of emissions. Therefore, the Project would not be a substantial long-term source of area or energy emissions. Long-term mobile emissions of the Project were estimated using CalEEMod v.2013.2.2 computer model (Appendix C) and are summarized on Table 5.3-3.

Table 5.3-3
Long-Term Air Emission Estimates
(Summer, unmitigated)

Emission Source	ROG (lbs/day)	NO_x (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Mobile Emissions	0.224	0.424	1.974	0.268	0.075
Mobile Threshold	*25*	*25*	*na*	*na*	*na*

Source: CalEEMod v.2013.2.2

As shown on Table 5.3-3, mobile emissions generated by the Project would be substantially below the Santa Barbara County significance threshold of 25 pounds per day for mobile emissions. The Project would not be a substantial source of area and energy emission because the Project does not include the development or use of buildings or other structures that would be a substantial source of long-term emissions. Therefore, the Project would not exceed the established long-term quantitative thresholds for emissions of ozone precursor pollutants and the Project would result in a **less than significant** air quality impact.

c. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

The air quality impact significance thresholds listed in Section 5.3.2 apply to both project-specific and cumulative impacts. Therefore, if a project would result in a less than significant project-specific air quality impact, or a project-specific impact can be reduced to a less than significant level, the project's cumulative air quality impacts would also be less than significant.

The impact analysis provided in subsection "b" above indicates that construction-related emissions of ozone precursors (ROG and NO_x) would be less than significant, and short-term dust, PM_{10} and $PM_{2.5}$ emissions would be **reduced to a less than significant level** with the implementation of standard dust control measures.

The project-specific analysis provided in subsection "b" also indicates that the Project would result in less than significant long-term emissions of ozone precursors and PM_{10}. Therefore, the proposed project would result in **less than significant** long-term cumulative air quality impacts.

d. *Would the project expose sensitive receptors to substantial pollutant concentrations?*

Short-Term Construction Emissions. Diesel engines emit a complex mixture of air pollutants, mainly composed of gases, vapors and fine particles. The visible emissions in diesel exhaust are known as particulate matter, and consist of carbon particles (soot) and

other gases that become visible as they cool. Diesel exhaust particles carry many of the harmful organic compounds and metals present in the exhaust. Exposures to airborne respirable diesel particulate matter can result in respiratory symptoms such as changes in lung function, and cardiovascular disease. In 1998, California identified diesel particulate matter as a toxic air contaminant based on its potential to cause cancer and other adverse health effects.

The major sources of diesel particulate matter are diesel-fueled vehicles such as trucks and buses, construction equipment, portable equipment such as drilling rigs, trains, marine vessels, and power generation. Traffic on U.S. 101 is a principle source of diesel exhaust emissions in the project region. The concentration of diesel particulate matter declines rapidly as the distance between the source and receptor is increased. For example, a receptor located 20 meters (66 feet) from the edge of a freeway would be exposed to 100 percent of the diesel particulate matter emissions from the freeway. At a downwind distance of 100 meters (328 feet) the relative concentration of diesel particulate matter is reduced over 60 percent (SCAQMD, 2005).

The 2010 LRDP EIR includes a health risk assessment that evaluates potential diesel particulate matter exposure impacts resulting from future on-campus construction projects.[4] Based on conservative construction project assumptions, the health risk assessment concluded that if an individual on-campus construction project emitted less than 2,365 pounds of diesel particulate matter per year, that project would not result in a significant health risk to receptors near the project site. The LRDP EIR analysis of potential construction site diesel particulate matter emissions evaluates project-specific impacts (individual construction projects) because diesel particulate matter impacts only have a localized effect in the immediate vicinity of the construction site.

The 2010 LRDP EIR includes a table indicating how much construction equipment horsepower can be operated at a particular construction site on a daily basis before 2,365 pounds of diesel particulate matter would be emitted. This table provides information for construction projects of varying durations (one month, three months and one year) and the use of various “tiers” (age) of construction equipment that may be operated on the site. Newer construction equipment can be operated at a construction site for a longer duration before 2,365 pounds of diesel particulate matter is emitted because newer “tiers” of construction equipment have engines that emit less diesel particulate matter than older engines. Table 5.3-4 presents the amount of construction equipment (measured in horsepower) that can be operated on a construction site in a single day over a specified time period without emitting more than 2,365 pounds of diesel particulate matter.

[4] The health risk assessment provided by the 2010 LRDP EIR is hereby incorporated by reference. The EIR and health risk assessment analysis are available for review at the following web site: http://lrdp.id.ucsb.edu/documents-and-materials

Table 5.3-4
Daily Maximum Diesel Construction Equipment Horsepower to Remain Less than Significant

Emission Standards	One Month Construction Period (horsepower/day)	Three Month Construction Period (horsepower/day)	One Year or Greater Construction Period (horsepower/day)
Tier 0 (before model year 1996)	19,687	6,562	1,641
Tier 1 (starting model year 1996-1997)	26,577	8,859	2,215
Tier 2/3 (starting model year 2001-2012)	70,872	23,624	5,906
Tier 4 (Starting model year 2011-2012)	708,719	236,240	59,060

Source: 2010 LRDP EIR

Most project-related construction equipment use would result from the excavation of soil from the golf course parcel and the transport of the soil to the South Parcel. Estimates of peak grading-related equipment horsepower that would be used on the project site were obtained using the CalEEMod air quality model (Appendix C), and are based on reasonable estimates of construction equipment use, project phasing, and project-related construction characteristics. Peak grading-related equipment horsepower used to excavate and transport soil on the project site is summarized on Table 5.3-5.

Table 5.3-5
Peak Day Diesel-Powered Construction Equipment Horsepower

Construction Phase	Estimated Peak Equipment Horsepower (1)	Analysis Threshold (maximum horsepower/day for a one year project)		Significant Impact?	
		Tier 1 Equipment	Tier 2 Equipment	Tier 1 Equipment	Tier 2 Equipment
Phase 1 (2016)	3,012	2,215	5,906	Yes	No
Phase 2 (2017)	3,847	2,215	5,906	Yes	No

(1) Source: CalEEMod v.2013.3.3

Based on the estimated peak use of construction equipment on the project site and horsepower characteristics of that equipment, the use of Tier 1 construction equipment would exceed the annual horsepower threshold established by the 2010 LRDP EIR. It is unlikely that Tier 1 construction equipment would be used on the project site because regulations adopted by the California Air Resources Board require that older Tier 1 equipment be phased out of operation and that the older diesel engines be equipped with exhaust filters that substantially reduce diesel particulate matter emissions. To ensure that Project-related grading operations do not exceed the annual horsepower thresholds established by the 2010 LRPD EIR, proposed mitigation measure AQ-2a.1 requires that only Tier 2 or higher diesel-powered equipment be used on the project site. With the

implementation of this measure, project-related construction equipment horsepower would be substantially below the equipment horsepower threshold established by the 2010 LRDP EIR. Therefore, potential health-related impacts resulting from emissions of diesel particulate matter by the Project would be **reduced to a less than significant level.**

Long-Term Emissions. The 2010 LRDP EIR includes a health risk assessment that evaluated potential long-term health impacts that could result from the buildout of the 2010 LRDP. That assessment evaluated the potential for health-related effects resulting from increases in emissions from natural gas boilers, natural gas furnaces, laboratories, diesel generators, and on-campus diesel and gasoline automobile traffic. The assessment determined that buildout of the 2010 LRDP would not result in a significant health risk impact. The NCOS Restoration Project would not construct any new habitable buildings and would not result in long-term emissions resulting from the operation of boilers, furnaces, generators or fume hoods, and the project would not generate a substantial amount of vehicle traffic. Therefore, the Project would result in **less than significant** long-term and cumulative health risk impacts.

e. *Would the project create objectionable odors affecting a substantial number of people?*

Short-Term Impacts. Proposed grading operations adjacent to sensitive residential receptors could have the potential to result in objectionable diesel fume odors. This would be a short-term and periodic impact and is considered to be **less than significant**.

Long-Term Impacts. The proposed tidal channels would not be an enclosed water body (such a lake or pond) and water in the channels would periodically be flushed by storm water and/or tidal flows. The periodic influx of water into the channel system would limit the potential for odor-causing conditions that may be associated with stagnant water or excessive plant or algae growth caused by elevated nutrient levels in the water (eutrophication). The Project would not result in other long-term operations or activities that would result in objectionable odors. Therefore, potential long-term odor-related impacts of the Project would be **less than significant**.

5.2.4 Cumulative Impacts

Based on criteria provided by the County of Santa Barbara's *Environmental Thresholds and Guidelines Manual*, if a project's emissions of ozone precursors (NO_X or ROG) exceed the long-term thresholds, or if emissions have not been taken into account in the most recent Clean Air Plan population growth projections, then the project's cumulative air quality impact would be significant. The Project would not cause population growth projections used to prepare the 2013 Clean Air Plan to be exceeded; the vehicle emissions from the Project would not exceed the 25 pounds per day threshold; and the Project would not be a substantial source of air emissions resulting from area sources or the use of energy. Therefore, the project's cumulative emissions of ozone precursors would be **less than significant**.

Exposure to construction-related diesel particulate emissions is a short-term impact and is limited to a small area near the construction site. Other construction projects identified in

IS/MND Section 1.8 (Cumulative Development) that are located near the NCOS Restoration project site include the North Campus Faculty Housing (Ocean Walk) and San Joaquin Apartments projects. These projects are under construction, however, the earth moving phases of project development have been completed, therefore, those projects would not be a substantial source of diesel particulate emissions when grading operations occur on the NCOS Restoration project site. Therefore, the potential for cumulative diesel particulate matter exposure impacts would be **less than significant**.

5.3.5 Mitigation Measures

The implementation of the following mitigation measures would reduce the Project's construction-related fugitive dust impacts and potential diesel particulate matter emission impacts to a less than significant level.

Impacts Reduced to a Less Than Significant Level with Proposed Mitigation

IMPACT AQ-1 Dust emissions from project-related grading activities would result in a significant air quality impact and contribute to existing non-attainment conditions for PM_{10}.

AQ-1a. The following dust control measures have been recommended by the Santa Barbara County APCD. All of these measures shall be implemented at the project site during construction.

1. Water trucks shall be used during construction to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this will require two daily applications (once in late morning and once at the end of the workday). Increased watering is required whenever wind speeds exceed 15 mph. Reclaimed water shall be used for dust suppression.

2. Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting material off-site or onto the site shall be tarped from the point of origin.

3. After clearing, grading, earth moving, or excavation is completed, the disturbed area shall be treated by watering, revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.

4. Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.

5. Construction contractors shall designate a monitor for the dust control program and to order increased watering, as necessary, to

prevent dust transport off-site. The monitor's duties shall include holiday and weekend periods when work at the project site may not be in progress. The name and telephone number of such persons shall be provided to the APCD prior to the start of grading activities.

6. All required dust control measures shall be provided on project construction plans.

The dust control mitigation measures listed above are best management practices that reduce short-term dust emission impacts to a less than significant level.

IMPACT AQ-2 C**onstruction equipment use on the project site has the potential to exceed horsepower thresholds identified by the 2010 LRDP EIR, which could result in a significant diesel particulate matter emission impact.**

AQ-2a. The following diesel particulate matter emission control measures shall be implemented at the project site during construction.

1. Diesel construction equipment shall be used that meets the California Air Resources Board's Tier 2 or higher emission standards for off-road heavy-duty diesel engines.
2. All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, which limits engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.
3. Diesel powered equipment should be replaced by electric equipment whenever feasible.
4. If feasible, diesel construction equipment shall be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or California.

Proposed mitigation measure AQ-2a.1, which requires the use of Tier 2 or higher construction equipment on the project site would reduce potential project-related diesel particulate matter emission impacts to a less than significant level. Mitigation measures AQ-2a.2, 3 and 4 would result in further emission reduction and would reduce potential diesel particulate matter emission impacts to the extent feasible.

Recommended Mitigation Measures for Less Than Significant Impacts

The following mitigation measures are recommended by the Santa Barbara County APCD to reduce project-related emissions of criteria pollutants to the extent feasible. Implementation of the following mitigation measures will further reduce an already less than significant impact.

IMPACT AQ-3 Construction equipment emissions resulting from the development of the proposed project would contribute to emissions of NO_x, PM_{10}, $PM_{2.5}$ and diesel particulate matter.

The following measures would further reduce the project's less than significant contribution of short-term emissions of NO_x, PM_{10}, and $PM_{2.5}$.

AQ-3a. The following emission control measures have been recommended by the Santa Barbara County APCD. All of these measures should be implemented at the project site during construction.

1. All portable construction equipment shall be registered with the State's portable equipment registration program OR shall obtain an APCD permit.
2. The engine size of construction equipment shall be the minimum practical size.
3. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
4. Construction equipment shall be maintained in tune per the manufacturer's specifications.
5. Catalytic converters shall be installed on gasoline-powered equipment, if feasible.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.4 BIOLOGICAL RESOURCES - Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	✓	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	✓	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	✓	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	✓	☐
e) Conflict with any applicable policies protecting biological resources?	☐	☐	✓	☐	☐

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	☐	☐	☐	☐	✓

5.4.1 Setting

The North Campus Open Space (NCOS) Restoration Project is located on a 136.4-acre area consisting of the former Ocean Meadows Golf Course (63.8 acres), the South Parcel (68.9 acres), and the Whittier Parcel (3.70 acres). The project site is at the downstream end of a 3.5-square mile watershed that includes Devereux Creek, Phelps Creek, and several unnamed tributaries that convey mostly stormwater from surrounding urban development. The proposed restoration area is bordered by a eucalyptus windrow and the Ellwood Mesa to the west, Venoco Road to the south, and residential development to the north and east.

The biological resources setting has been established by Sage Institute, Inc. (SII) biologist/ecologist field surveys conducted in the fall and winter 2015-2016 including a formal jurisdictional wetland delineation study, to document existing conditions and ground truth available background information from academic and professional studies conducted over the project site for UCSB as far back as 2000. Many detailed studies have been conducted over the project site as a part of UCSB academic research and for development under the LRDP. Studies included special-status plant and wildlife species surveys, wetland delineation mapping, general plant community and habitat mapping, and bird surveys conducted throughout the year (nesting, foraging, migrating, etc.). The biological resources analysis described below represents the accumulated data from the copious plant and wildlife resources studies based on existing conditions from current 2015-2016 field surveys.

Ocean Meadows Golf Course. The Ocean Meadows Golf Course was a nine-hole golf course created in 1965 by filling the historic northern extent of Devereux Slough with soil removed from adjacent lands, including substantial borrow that essentially denuded the entire surface of the South Parcel. The elevation of the golf course parcel was raised six to ten feet, which confined the on-site creeks and drainages to narrow drainage corridors. Vegetation and channels along the drainage corridors were managed for golf course fairways turf, greens, and rough. The channels and vegetation are also maintained for flood control conveyance and capacity by the County of Santa Barbara, including at least annual mowing of the emergent vegetation in the channels. The golf course has been closed since 2013 with current management consisting of occasional irrigation of the former fairways with recycled water and annual mowing for weed abatement.

The vegetation of the former golf course now consists primarily of non-native turf grasses, with widely spaced living and dead non-native landscape trees, annual non-native invasive weedy plants, native wetland and riparian plants, and bare ground. Devereux Creek, Phelps Creek, and the on-site drainages support a mix of emergent wetland plants (cattail/bulrush) within the confined drainage channels with a variable fringe of adjacent salt marsh plants along and above the top of bank, and widely scattered patches of willows. The golf course is crossed by the remains of golf cart paths, informal trails (dirt tracks worn into the landscape), and is used for recreation purposes such as walking, cycling, and dog-walking.

South Parcel. The South Parcel is located southwest of the golf course and abuts the Coal Oil Point Reserve (COPR) to the south. The Ellwood Mesa, which is an undeveloped property in the City of Goleta, is adjacent to the South Parcel to the west. The South Parcel was extensively modified by the golf course borrow operation that essentially denuded the entire surface that now supports mostly non-native annual grassland habitat with large patches of fennel, mustard, and pampas grass. Four east-west trending man-made earthen berms and drainage swales/ditches are also located on the parcel that direct rainfall runoff from the uplands towards the east eventually to Devereux Slough through a culvert under Venoco Road. Stands of willows have formed along with small pockets of seasonal herbaceous wetlands in low-lying areas along the swales/ditches. The South Parcel contains numerous dirt trails, eroded areas, and dirt bicycle jumps, and currently is used for walking, jogging, off-road bicycling, and beach access.

Whittier Parcel. The undeveloped Whittier Parcel is located at the northeast corner of the project site and is bordered by the former golf course, Whittier Drive, and residential development. The Whittier Parcel supports mostly non-native annual grassland cover, and two barely distinguishable vernal pools have been mapped on the property.

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 5.4-1 provides a habitat map of the project area.

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

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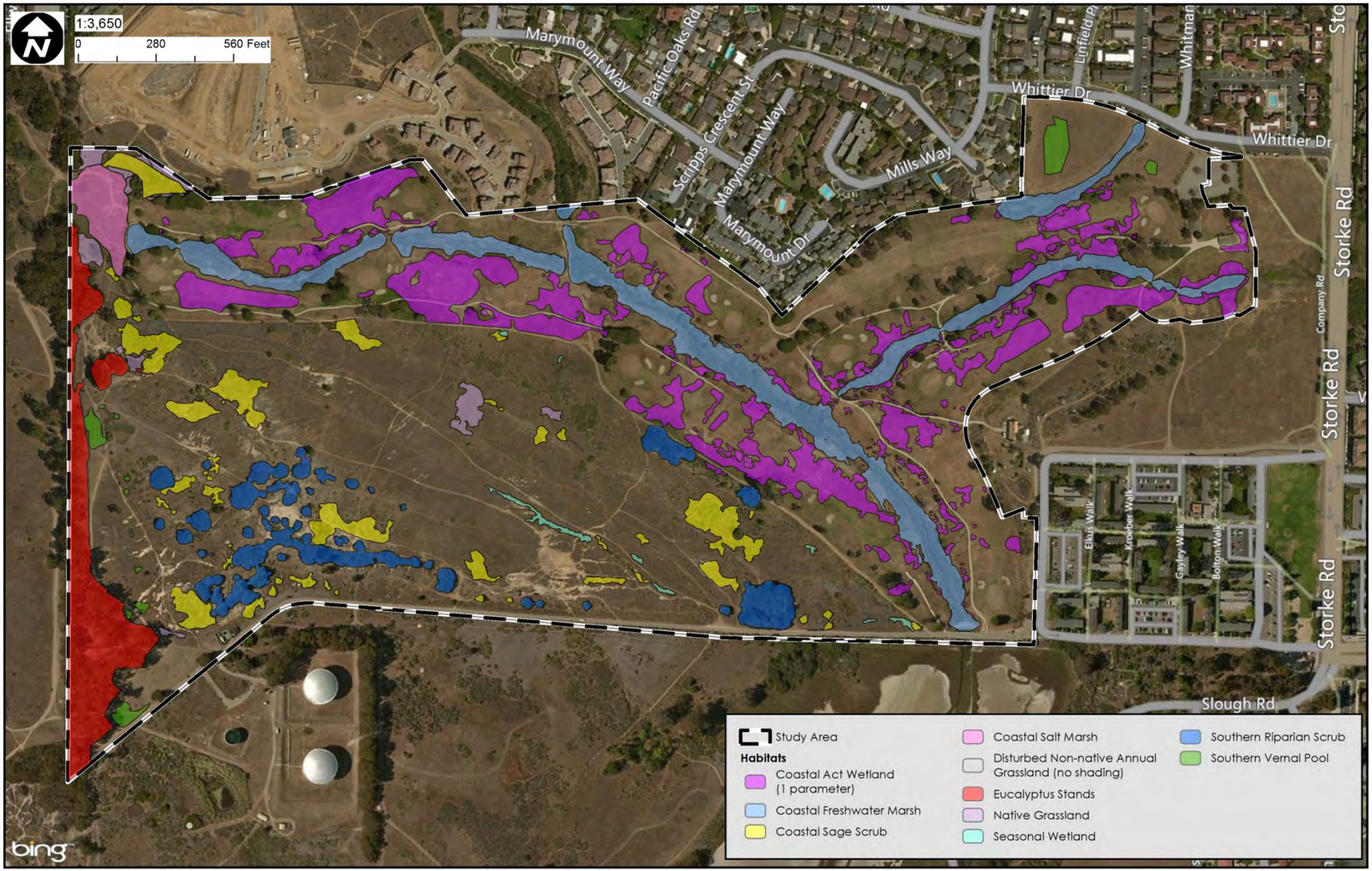

Source: Sage Institute, 2016

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.4-1

Project Site Habitat Types

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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 is a large patch of non-native fennel (*Foeniculum vulgare*), and scattered pampas grass (*Cortedaria 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 thegolf 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*). Native remnant salt marsh plants pickleweed (*Salicornia pacifica*) and alkali sea-heath (*Frankenia salina*) are predominant along the drainages but also widely 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 likely 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 "natural" salt marsh at the northern end of Devereux Creek in the study area as well. The fringe of salt marsh plants are 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),* Mediteranian 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 on 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

The *North Campus Open Space Restoration Project Detailed Project Program – Appendix B* (Existing Conditions Memorandum) provides a detailed description of wildlife species observed in and around the project site. A summary of that information is provided below.

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 mostly 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.

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, garter snake, and western rattlesnake. 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 (CNDDB) by the CNPS and CDFW because of their limited distribution or historic loss over time.

The analysis of special-status species is based on SII field surveys 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 CNDDB 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.

Special-Status Wildlife. Special-status aquatic wildlife known to use the project site include the tidewater goby (federally endangered) and the western pond turtle (CDFW species of special concern) that are restricted to the on-site creeks and drainages. The California red-legged frog (federally threatened) is recorded in coastal creeks in the vicinity of the project site without any documented occurrence on the project site. However, protocol surveys have not been completed and 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 pockets deep pools of permanent ponding.

Two special-status raptors, the 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 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 jurisdictional determination provided the location and extent of potential federal jurisdictional wetlands and other waters of the U.S., waters subject to California Fish and Game Code 1600 et.seq. streamzone jurisdiction, and areas that met the California Coastal Act one parameter definition of wetlands (vegetation, soils, and/or hydrology) within the project area. The U.S. Army Corps of Engineers (Corps) routine and problem areas methodology detailed in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (Corps Manual) were used as the basis to delineate waters of the U.S. including wetlands on the site. The basis of determining and recording indicators for hydrophytic (wetland) vegetation, hydric soils, and wetland hydrology was the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Arid West Supplement). Both the Corps Manual (Section G – Problem Areas) and Arid West Supplement (Chapter 5 – Difficult Wetland Situations in the Arid West) were used for the determination and evaluation of normal circumstances, atypical situations, and problem area wetlands as needed. The Corps Ordinary High Water Mark (OHWM) jurisdiction was

determined based on the 2008 U.S. Army Corps of Engineers: A Field Guide to the Identification of the Ordinary High Water Mark (OHWM). The OHWM was determined by the physical characteristics of the active floodplain observed in the field including recent bank erosion, an incised channel, drift lines of debris and sediment, matted vegetation, and/or a clear natural scour line impressed on the bank or active channel.

The CDFW 1600 streamzone jurisdictional limits were determined in the field by topographic evidence of a clear bed, bank, and channel delineated by a top of bank line or the outside edge of riparian vegetation whichever was greater. In this circumstance, the fringe of salt marsh plants was considered the outside extent of riparian habitat subject to CDFW jurisdiction.

The California Coastal Act regulations define wetlands as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. The California Coastal Act wetlands are determined based on the presence of any one of the three federal wetland parameters (wetland vegetation, hydric soils, or wetland hydrology). The criteria used for each parameter is the federal methodology described above as the California Coastal Act does not set criteria for these wetland parameters.

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 5.4-1. Figure 5.4-2 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 December 8, 2015 Sage Institute, Inc., *North Campus Opens Space Restoration Project Jurisdictional Determination*, report included as Appendix E.

Table 5.4-1
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
Distichlis (salt grass) FAC	0	0	10.64
Frankenia (alkali sea-heath) FACW	0	0	0.22
Leymus (creeping wild rye) FAC	0	0	0.06
Paspalum (golden-crown grass) FAC	0	0	0.15
Plantago (buck-horn plantain) FAC	0	0	2.55
Polygonum (yard knotweed) FACW	0	0	0.18
Salicornia (pickleweed) OBL	0	0	0.19
Salix (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**

Environmentally Sensitive Habitat Area (ESHA)

The Coastal Act defines ESHA as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments (Coastal Act Sections 30107.5 and 30240). The 2010 LRDP has identified many natural areas on the project

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Source: Sage Institute, 2016

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.4-2

Project Site Waters and Wetlands

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site as ESHAs, including: the eucalyptus windrows and remnant salt marsh at the west of the project site; the scattered willows on the South Parcel; Whittier Parcel vernal pools and unnamed drainage wetlands; the north reach of Phelps Creek riparian habitat up to the footbridge; and the eastern reach of the unnamed drainage from Storke Road. These areas are formally protected by the LRDP through policies that address appropriate development within and adjacent to ESHA; through an ESHA overlay that identifies the location of known sensitive habitat areas; and through the application of the Open Space land use designation.

5.4.2 Checklist Responses

a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Special-Status Plants. The only special-status plant species observed on the project site is the southern tarplant, which is known to be associated with the Whittier Parcel vernal pools. 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 result in a significant impact to southern tarplant and seedbank that may be present at the project site. This **potentially significant but mitigable impact** can be reduced to a less than significant level by preserving soil/seedbank at the restoration site and using that soil during the restoration/revegetation of the vernal pools.

Special-Status Animals. The Project would restore and return the highly modified former golf course and borrow areas to a mosaic of pre-disturbance conditions that provide tidally influenced habitats and surrounding uplands restored with native plants. For both special-status and common wildlife species, this would be an overall long-term **beneficial impact** as the habitat for the special-status species that currently exists on the project site would be substantially enhanced. For example, the free upstream and downstream movement for the tidewater goby would be restored between Devereux Creek and Slough by removing the sheet pile sill near Venoco Road and providing protected backwaters during high flow events in the area where Phelps Creek enters the project site. The western pond turtle (observed onsite) and California red-legged frog (limited suitable habitat onsite) would have increased freshwater aquatic and wetland vegetation habitat on the project site. Proposed habitat restoration may also benefit the federally listed California least tern and western snowy plover; as well as two state listed endangered species, Belding's savannah sparrow and peregrine falcon.

The Project would restore tidal influence for salt marsh, mudflat, and tidal channel creation, restore and expand freshwater aquatic and emergent marsh habitat, create and restore vernal pool and other seasonal wetland habitats, and restore uplands with native trees, shrubs, and herbaceous plants. However, there may be short-term construction-

related impacts to special-status wildlife as project-related construction would result in tree removals, dewatering, excavation of the drainage corridors on the former golf course, and placement of soil on the uplands and seasonal wetlands of the South Parcel.

Temporary construction-related actions such as tree removals, dewatering of creeks and drainages, excavation, and fill activities in waters of the U.S./State have the potential to result in the take (kill, harm, harass) of tidewater goby, western pond turtle, California red-legged frog (should it occur), and nesting birds including raptors. The tidewater goby can inhabit the on-site drainages and cannot survive outside of water and would need to be salvaged and relocated as part of the project implementation. The California red-legged frog and western pond turtle can survive out of water but would also need to be relocated to suitable habitat nearby during construction. Loss of habitat, capture and other take of a federally listed and other special-status wildlife species, and take of an active bird's nest including nest failure, would be a significant impact. This **potentially significant but mitigable** impact would be reduced to a less than significant level by implementing mitigation measures BIO-2a, BIO-2b, BIO-2c, BIO-3a, BIO-3b, BIO-4a and BIO-4b.

Mitigation measures BIO-2a, 2b and 2c implement the requirements of 2010 LRDP Policy ESH-28, which provides requirements for the removal and disturbance of trees and bird nests (refer to Table 5.10-1). Specifically, the policy requires avoidance of impacts to nesting trees during the breeding season (February 15 to September 1), or requires pre-construction nest surveys and 500-foot non-disturbance buffer zones around active raptor or colonial bird roosts, and other nesting bird non-disturbance buffer zones as determined by a qualified biologist. Proposed mitigation measures BIO-3a, BIO-3b, BIO-4a and BIO-4b require the implementation of the terms and conditions of the California Department of Fish and Wildlife, Army Corp of Engineers, and the U.S. Fish and Wildlife Service.

b. *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?*

Please refer to response "c" below.

c. *Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

The existing conditions of the jurisdictional waters of the U.S./State, and both federal and Coastal Act wetlands, have been highly modified and managed over time limiting any aquatic functions to the narrow confined channels. On-going vegetation management of the golf course property right up to the channels and in-channel vegetation management

for flood control conveyance and capacity have also contributed to the low functional values of the on-site drainages. Furthermore, the Coastal Act one parameter wetlands have no aquatic functions and are an anomaly of invasive weeds with a wetland indicator status likely manifesting from the continued irrigation of the abandoned fairways, and do not present any natural wetland hydrology meeting the federal criteria.

The Project would restore tidal influence for new/restored jurisdictional salt marsh, mudflat, and tidal 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. Table 5.4-2 describes the types and area of recently mapped waters of the U.S./State located on the project site, and identifies the amount of jurisdictional area that would be permanently impacted (removed) by the Project.

Table 5.4-2
Impacts to Jurisdictional Areas on the Project Site

	Existing Jurisdictional Areas (acres)			**Impacted Jurisdictional Areas (acres)**		
Wetland Type*	**Federal Wetlands**	**CDFW**	**California Coastal Act**	**Federal Wetlands**	**CDFW**	**California Coastal Act**
Creeks and Drainages	10.31	10.31	10.31	9.05	9.05	9.05
Distichlis (salt grass)	0	0	10.64	0	0	10.62
Frankenia (alkali sea-heath)	0	0	0.22	0	0	0.22
Leymus (creeping wildrye)	0	0	0.06	0	0	0.06
Paspalum (golden-crown grass)	0	0	0.15	0	0	0.11
Plantago (buck-horn plantain)	0	0	2.55	0	0	2.38
Polygonum (yard knotweed)	0	0	0.18	0	0	0.18
Salicornia (pickleweed)	0	0	0.19	0	0	0.19
Salix (willow)	0	0	4.22	0	0	0.71
Seasonal Wetland	0	0	0.34	0	0	0.34
Vernal Pools	0.78	0	0.78	0	0	0
TOTAL	**11.09**	**10.31**	**29.64**	**9.05**	**9.05**	**23.86**

It is an objective of the Project to conduct "habitat type conversion" from mostly freshwater wetland conditions to pre-golf course natural tidally influenced conditions. This type of habitat conversion is appropriate given the coastal proximity of the project site and former extent of tidally influence habitat, some of which is lost permanently to urbanization. The conversion of the one-parameter Coastal Act wetlands in the abandoned fairways to the complex mosaic of tidally influenced and freshwater aquatic habitats, and upland buffer areas would be a de minimis effect on those weedy essentially upland patches of wetland indicator plants. Therefore, the Project would result in **less than significant** impacts and would also have beneficial long-term effects on the quantity, quality, and functional complexity of waters of the U.S./State and wetlands within the project site.

The Project would, however, result in short-term construction-related impacts to waters of the U.S./State as it would result in grading operations that include dewatering, excavation, and fill of drainage corridors on the project site. Therefore, the short-term temporary construction-related impacts from excavation, fill, and conversion of habitat types would be a **potentially significant but mitigable** impact. This impact would be reduced to a less than significant level by implementing proposed mitigation measures BIO-3a, BIO-3b, BIO-4a and BIO-4b. These mitigation measures would minimize the potential for construction-related impacts to sensitive wildlife species on the project site, and affirm through the required regulatory compliance process the Project's overall beneficial effect related to increased wetland, aquatic, and tidal habitat functions representative of native habitats present before the golf course and grading eliminated most of these habitat functions.

d. *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

The project site is not an established native resident or migratory wildlife corridor and does not support a native wildlife nursery site. The existing conditions of the project site do not present any physical barriers to the movement of local/ resident wildlife, as was the condition prior to golf course closure. While 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 adjacent to the site to the east.

Project-related construction operations could temporarily reduce wildlife movement that does occur through 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 Project would remove the sheet pile sill where Devereux Creek meets Devereux Slough at Venoco Road, which is a near positive barrier to the free upstream and downstream movement of the tidewater goby and other fish. Overall, the proposed habitat enhancements would have a **less than significant** impact and would also have beneficial long-term effects related to wildlife movement through the project site.

e. *Would the project conflict with any local applicable policies protecting biological resources?*

Please refer to IS/MND Section 5.10 (Land Use and Planning) for an evaluation of the Project's consistency with applicable policies of the 2010 LRDP. The policy analysis concludes that with the implementation of identified mitigation measures, the Project

would be consistent with the applicable biological resource protection policies of the LRDP.

f. *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?*

The NCOS Restoration Project site is not included in any Habitat Conservation Plan or Natural Community Conservation Plan. Therefore, the project would have **no impact** related to the implementation of such plans.

5.4.3 Cumulative Impacts

The Project would create/restore tidal influence for salt marsh, mudflat, and tidal channel habitat creation, 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 wetland habitats on the project site, however, the restored wetland and upland habitat functions would exceed the existing functions of the abandoned golf course, confined narrow drainage ways, and previously disturbed uplands supporting mostly non-native plants. Given the overall beneficial effect of the Project on tidal wetlands and mud flats, freshwater wetlands and aquatic habitats, riparian habitat and uplands that would benefit native plants and wildlife, including special-status species, the Project's impacts to biological resources would not be cumulatively considerable and the Project's cumulative impacts would be **less than significant**.

5.4.4 Mitigation Measures

Impacts Reduced to a Less Than Significant Level With Proposed Mitigation

Impacts to biological resources that have the potential to result from the short-term construction-related impacts of the Project can be reduced to a less than significant level with the implementation of the following mitigation measures.

IMPACT BIO 1 The proposed restoration of vernal pools on the Whittier Parcel has the potential to result in the removal of southern tarplant individuals and seed bank.

BIO 1a A project-specific Tarplant Restoration Plan shall be prepared by a qualified biologist for vernal pool restoration activities proposed for the Whittier Parcel. The Plan shall address tarplant impacts and appropriate mitigation and conservation measures. Conservation measures may include maintaining existing stormwater inputs to undisturbed populated areas, retention of soil seed banks, seed collection, transplanting of individual plants, plant propagation, and

revegetation and preservation of designated mitigation sites in the vicinity of the project site or sites.

BIO 1b Implementation of Tarplant Restoration Plans will be conducted under the direction of a qualified biologist. Restoration shall include initial site preparation, planting, and ongoing maintenance and monitoring efforts. Restoration efforts shall continue for at least five years, and shall be considered successful when a self-sustaining population as evidenced by survival and natural reproduction of southern tarplant is present within the mitigation site. If the mitigation site is a preserve for an existing population, the initial tarplant numbers documented by a focused survey during the peak blooming period will provide the baseline population data. This baseline population number must remain steady or increase over the mitigation period to show establishment of self-sustaining populations on the site. Newly created habitat areas will use the first year tarplant population data as the baseline conditions. This baseline population number must also remain steady or increase over the mitigation period to show establishment of self-sustaining populations on the site.

IMPACT BIO-2 Implementation of the Project would have the potential to result in the destruction of active bird nests and/or loss of breeding fecundity.

BIO-2a To avoid disturbance or loss of active bird nests during development under the 2010 LRDP, any removal of eucalyptus, coast live oak, pine, cypress, or other trees that provide nesting habitat for birds, or disturbance of natural grassland areas shall be conducted between September 15 and February 15, outside of the typical nesting season.

BIO-2b If tree removals or disturbance of natural grassland areas are determined to be necessary during the typical nesting season (February 15 to September 15), nesting bird surveys shall be conducted by a qualified biologist immediately prior to the proposed action. Surveys shall follow standard protocols as established by CDFG and/or CCC. If the biologist determines that a tree or natural grassland area is being used for nesting at that time, disturbance shall be avoided until after the young have fledged from the nest and achieved independence. If no nesting is found to occur, necessary tree removal or grassland disturbance could then proceed.

BIO-2c To avoid indirect disturbance of active bird nests by project construction occurring within the typical nesting season, a qualified biologist shall be retained to conduct one or more pre-construction

surveys per standard protocols approximately 1 week prior to construction, to determine presence/absence of active nests adjacent to the project site. If no breeding or nesting activities are detected within 200 feet of the proposed work area, noise-producing construction activities may proceed. If breeding/nesting activity is confirmed, work activities within 200 feet of the active nest shall be delayed until the young birds have fledged and left the nest.

IMPACT BIO-3. Construction activities on the project site have the potential to result in the take (kill, harm, harass) of the federally listed tidewater goby and California red-legged frog, and special-status western pond turtle.

BIO-3a Prior to commencement of any ground disturbing activities, UCSB shall obtain compliance with the Federal Endangered Species Act (FESA) for potential impacts on the tidewater goby and FESA compliance for the California red-legged frog in the form of take permits/authorizations or written documentation from the U.S. Fish and Wildlife Service (USFWS) that the proposed project would not result in take of the tidewater goby and California red-legged frog, or would not otherwise adversely affect these species. Should a take permit/authorization be required, or conditions imposed by the USFWS to ensure that no take would result from the project, the University shall implement all the terms and conditions of the USFWS permits, authorizations, or recommendations to the satisfaction of the USFWS.

BIO-3b Prior commencement of any ground disturbing or dewatering activities, the University shall develop a salvage and relocation plan for the tidewater goby, California red-legged frog, and western pond turtle that is approved by the USFWS.

The USFWS can only provide take authorization for projects that demonstrate the species affected would be left in as good as or better condition than before the project was implemented. Additionally, the USFWS cannot authorize any project that would jeopardize the continued existence of a listed species. Acceptable mitigation for listed species allowing for take authorization is typically onsite conservation, restoration, creation, and/or protection of occupied habitat in perpetuity, which is basically the purpose of the proposed project. The Project would result in long-term beneficial habitat restoration effects for both listed and other special-status and common wildlife species. Obtaining the required USFWS take authorization, and implementing any additional USFWS requirements, and the salvage and relocation efforts to minimize direct impacts on individuals, would affirm the beneficial effects of the Project even with some level of potential take. As such, implementation of the Mitigation Measure BIO-3a and BIO-3b would reduce potential significant impacts to federally listed and special-status species to a less than significant level.

IMPACT BIO-4 The Project would result in the excavation and fill of waters of the U.S./State and wetlands under the jurisdiction of the Corps, CDFW and Coastal Act.

BIO-4a. UCSB shall obtain Clean Water Act (CWA) regulatory compliance in the form of a permit/authorization from the Corps or written documentation from the Corps that no permit would be required for the proposed habitat restoration project. The applicant shall implement all the terms and conditions of the permit to the satisfaction of the Corps. Corps permits and authorizations require applicants to demonstrate that the proposed project has been designed and will be implemented in a manner that avoids and minimizes impacts on aquatic resources.

The implementation of Corps permitting requirements would also include a Coastal Zone Act Consistency Determination with the California Coastal Commission, and obtaining and CWA 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). In addition, the Corps, RWQCB, and Coastal Commission would need to approve the proposed restoration plan as compensatory mitigation for unavoidable impacts on waters of the U.S./State and wetlands to achieve the goal of a no net loss of wetland values and functions.

BIO-4b. The applicant shall obtain compliance with section 1602 of the California Fish and Game Code (Streambed Alteration Agreements) in the form of a completed Streambed Alteration Agreement or written documentation from the CDFW that no agreement would be required for the Project. Should an agreement be required, UCSB shall implement all the terms and conditions of the agreement to the satisfaction of the CDFW.

The CDFW Streambed Alteration Agreement process encourages applicants to demonstrate that the proposed project has been designed and will be implemented in a manner that avoids and minimizes impacts in the stream zone. In addition, CDFW would need to approve the proposed restoration plan as compensatory mitigation for unavoidable temporary impacts on waters of the State subject to their section 1602 jurisdiction.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.5 CULTURAL RESOURCES - Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☐	✓
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐		✓	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☐	✓
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	✓	☐

5.5.1 Setting

Archaeological Resources. This section provides a brief summary of the cultural context of the project region and known archaeological resources in the project area. Please refer to 2010 LRDP EIR Section 4.4 and Appendix 4.4-1 for additional information.

The UCSB Main Campus is located within the historic territory of the Native American Indian group known as the Chumash. The Chumash occupied the region from San Luis Obispo County to Malibu Canyon on the coast, the four northern Channel Islands, and inland as far as the western edge of the San Joaquin Valley. The Chumash are subdivided into factions based on distinct dialects. The Goleta area is located within the historic territory of the Barbareño Chumash whose name is derived from the Mission with local jurisdiction, Santa Barbara. The Barbareño occupied the narrow coastal plain from Point Conception in Santa Barbara County to Punta Gorda in Ventura County.

The North Campus Open Space (NCOS) Restoration Project site is shown on LRDP EIR Figure 4.4-2 (Archaeological Surface Site Sensitivity) as being primarily a "low" sensitivity area with "high" sensitivity along the southwestern boundary. LRDP EIR Figure 4.4-3 (Archaeological Buried Site Sensitivity) indicates that the project site has a "low" sensitivity for subsurface archaeological resources, and LRDP EIR Figure 4.4-4 (Sensitivity for Cultural Resources) indicates that the project site has not been evaluated for cultural resource sensitivity.

Nineteen previous archaeological studies have taken place within or adjacent to the project area. A review of previous studies indicates that all of the NCOS Restoration Project area has been surveyed for archaeological resources. In addition all or nearly all of the project area has been disturbed by extensive cut and fill activities.

The earliest archaeological studies in and around the Devereux Slough and Ellwood Mesa began in the 1970's as part of oil pipeline and facility development projects (Spanne 1974; Ehmann and Perez 1975). Subsequent archaeological studies during the 1980's took place as part of various housing tract projects. More recently, studies have focused on pipeline and oil facility reclamation efforts and North and West Campus Long Range Development Plans for the University.

Erlandson (1982) surveyed nearly all of the NCOS project area excluding the Ocean Meadows Golf Course and a small southwestern section adjacent the Veneco oil tank facility. The boundaries of the area he surveyed match very closely to the boundaries of the current project. In addition to the field survey, Erlandson reviewed historic maps and aerial imagery. He noted that 1928 and 1938 aerial images show extensive filling across the northern portion of the Devereux Slough. A grading history map revealed that 14–20 foot deep cuts were made across most of the northern and western Devereux Slough area (Erlandson 1982:4). The excavated soil was used to fill in the slough to form what became the Ocean Meadows Golf Course. During his survey, Erlandson was able to confirm the presence of the cut and fill patterns described above and no new archaeological resources were encountered. As he states in his recommendations:

> If archaeological sites other than those currently recorded once existed on the periphery of the Devereux Slough within the project area, it would appear that evidence for their existence has either been mechanically removed or filled over. The fill zones within the property are regarded as extremely unlikely loci for prehistoric habitation considering that these fill areas appear to overly former estuarine mudflats (Erlandson 1982:9).

Most studies conducted within or adjacent project boundaries refer to Erlandson 1982 when discussing the potential for locating unrecorded archaeological sites in the project vicinity. Overall, the consensus of subsequent studies in the area agrees with Erlandson's statement above.

Prehistoric archaeological sites CA-SBA-1194, 1195, -1327, and -1688 are partially within the project site. Located along the western edge of the project site, CA-SBA-1194 is

described as a low-density scatter of marine shell that has been disturbed by trail, road, and pipeline construction. Immediately south is CA-SBA-1195. This site is also described as a low-density scatter of marine shell that has been disturbed by road and pipeline construction. Farther south yet, CA-SBA-1688 is described as a low-density surface scatter of faunal remains that has been disturbed by road construction.

Site CA-SBA-1327 is described as a moderately dense scatter of chipped and ground stone, marine shell, and bone. Human bone was found in disturbed context in 1975 (Denardo and Brando-Kerr 2012). In 2012, an Extended Phase 1 survey by Garcia and Associates of the site indicates that midden soils are present, but that much of the deposit was disturbed to a depth of at least 20 centimeters. They concluded that intact deposits may exist below grading depth, but none were encountered during their study (Denardo and Brandoff-Kerr 2012).

Historical Resources. There are no recognized historically significant structures located on the UCSB Storke Campus. The National Register of Historic Places lists one property, (Campbell No. 2), located on the West Campus. The listings of the California Historical Landmarks of the Office of Historic Preservation, and the California Points of Historical Interest do not identify any properties on the Storke Campus. The Helana T. Devereux Hall, is located on the Devereux School grounds (West Campus area) and is Santa Barbara County Landmark No. 27.

LRDP Policies

ARC-01 - New development that requires ground disturbance shall be evaluated for its potential to impact archaeological resources. Site research, records reviews and archaeological surveys shall be undertaken by a Registered Professional. This documentation shall be submitted with the Notice of Impending Development.

ARC-07 - Work shall be halted immediately when suspected human bone is discovered, regardless of context, until the coroner and a qualified archaeologist can examine the remains. University staff shall notify Coastal Commission staff of the nature of the discovery and that all work has been halted on the site. Activities shall not resume without written authorization from the Office of Campus Planning and Design that construction may proceed. Where Native American remains are discovered, further activities may require a Notice of Impending Development.

Native American Community Consultation

On behalf of UCSB, Applied EarthWorks contacted the Native American Heritage Commission (NAHC) on October 8, 2015 to request a review of the Sacred Lands File for sacred or sensitive Native American areas that may be within or near the NCOS project area. In a reply dated October 26, 2015, the NAHC stated that a records search of the Sacred Lands File failed to indicate the presence of Native American traditional sites/places in the immediate project area. The NAHC did, however, provide contact information for organizations and individuals that

may have knowledge of cultural resources in the project area and recommended they be contacted for additional information. A letter was sent to each of the individuals and organizations on the NAHC list requesting comments regarding sensitive cultural resources within or near the project area. Follow-up telephone calls to those who had not yet responded were placed on November 2015. Responses were received via electronic mail from one individual and via telephone from two individuals or organizations. These are as follows:

- Freddie Romero, Cultural Resources Liaison for the Santa Ynez Band of Chumash Indians (SYBCI), responded by phone on October 27, 2015 on behalf of the Elders Council, including Joe Talaugon and Adelina Alva-Padilla; and on behalf of the Business Council, including Vincent Armenta and Sam Cohen. Romero expressed concern about the project because of the presence of sites in proximity to the project site.

- Patrick Tumamait, who responded via electronic mail on October 28, 2015, stated that he was concerned about earth disturbing activities in that area because of the proximity of nearby sites. In addition, he indicated that all earth-disturbing activities should be monitored by both an archaeologist and Native American.

- Frank Arredondo responded via electronic mail on October 28, 2015 and stated that he knew the project area well and felt that it was likely devoid of undiscovered archaeological material. He reviewed historic maps and aerial photos of project area and observed that grading for the golf most likely removed any possible evidence of archaeological material north and east of the Elwood Marine Terminal.

- Beverly Salazar-Folkes responded via phone on November 3, 2015 and stated that the area was sensitive for cultural resources and wanted to make sure that existing sites were treated appropriately or completely avoided. She recommended archaeological and Native American monitoring if earth disturbing activities were to take place in the vicinity of the known archaeological sites.

In addition to the consultation described above, UCSB met with Freddie Romero; Alicia Cordero, Chumash Cultural Educator; and Ayumi Nakamura, from the Santa Ynez Chumash Environmental Office on February 10, 2016. Comments provided at the meeting were in regard to monitoring grading activities at the project site, and the possible use of the project site for growing native plants and teaching opportunities.

Assembly Bill 52

Assembly Bill 52 (AB 52) went into effect on July 1, 2015 and established a new category of resources in CEQA called “Tribal Cultural Resources” (Public Resources Code § 21074). Tribal cultural resources are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following: (A)

included or determined to be eligible for inclusion in the California Register of Historical Resources. (B) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also created a process for consultation with California Native American Tribes in the CEQA process. Tribal Governments can request consultation with a lead agency and give input into potential impacts to tribal cultural resources before the agency decides what kind of environmental assessment is appropriate for a proposed project. The Public Resources Code now requires avoiding damage to tribal cultural resources, if feasible. If not, lead agencies must mitigate impacts to tribal cultural resources to the extent feasible. The Governor's Office of Planning and Research is currently working to update the State CEQA Guidelines to address the evaluation of impacts to tribal cultural resources, as also required by AB 52.

No local tribal representatives have contacted UCSB in writing to request that they be formally notified of project proposals under the requirements of AB 52. Therefore, the requirements of AB 52 are not applicable to the NCOS Restoration Project.

5.5.2 Checklist Responses

a. *Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*

No historical resources are within or adjacent to the project area. Therefore, the NCOS Restoration Project would have **no impact** on significant historical resources.

b. *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

CEQA Guidelines Section 15064.5 provides criteria for determining the significance of impacts to archaeological and historical resources, and subsection (a)(3) states: "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of

Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4852) including the following:

a. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b. is associated with the lives of persons important in our past;

c. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work on an important creative individual, or possesses high artistic values; or

d. has yielded, or may be likely to yield, information important in prehistory or history."

Criterion "D" is most often used to evaluate the significance of prehistoric cultural remains.

Prehistoric archeological sites CA-SBA-1194, -1195, -1327, and -1688 are partially within the project site. Nocerino et al. (2016) surveyed the entire project site and found no evidence of archaeological material on the surface of CA-SBA-1194 and -1688. Minimal evidence of archaeological material at CA-SBA-1195 and -1327 was observed. Based on the surface survey, it was difficult to determine if the sparse amount of marine shell present in the existing trail that crosses CA-SBA-1195 was from an archaeological deposit.

Nocerino (2016) reviewed past studies at CA-SBA-1327 and found that much of the upper 20 centimeters of soil at the site was disturbed during construction of the nearby oil facilities. During their survey, a few pieces of chipped stone and marine shell were observed in disturbed context within the NCOS Restoration Project area.

In addition to the sites mentioned above, Nocerino (2016) reviewed grading plans for the South Parcel and noted that no grading is proposed in the vicinity of the known archaeological sites, and that a section of the parcel that did not appear to have been previously disturbed would be subject to shallow grading. This area may have the potential to contain intact native soil. No surface evidence of archaeological material was found in this area; however, vegetation obscured visibility. An Extended Phase 1 sub-surface survey was completed to determine the depth of ground disturbance and presence/absence of archaeological material.

Eight exploration trenches were excavated within the Phase 1 study with a backhoe. Overall, the trenches revealed that much of the upper 20-100 centimeters of soil had been redeposited, likely during grading for construction of the golf course. Disturbed soils consisted of loose to moderately compacted brown to tan sandy/loamy clay with tan,

gray, orange, and dark brown mottling. Undisturbed soils were characterized by a moderate to heavily compacted tan sandy clay with gray, orange, and brown mottling. No archaeological material was encountered during Extended Phase 1 survey.

All four archaeological sites (CA-SBA-1194, 1195, -1327, -1688) are in the uplands along the western and southwestern periphery of the project site. All four are outside the area of grading proposed for the Project and no other Project-related activities are planned at any of the four sites. Consequently, construction activities associated with the NCOS Restoration Project would not directly impact (remove or disturb) archaeological resources.

A possible indirect impact associated with the Project might include increased public use and the potential for vandalism and illicit artifact collection. However, none of the archeological resource sites on the project site are readily visible and none contain the sorts of artifacts that would attract collectors. Furthermore, the area of CA-SBA-1194, -1195, and -1688 is already subject to intensive public use and is crossed by numerous well-worn informal paths. By creating established trails that do not go through any archaeological resource sites, the Project should reduce the amount of public use at each site.

Therefore, the potential for the NCOS Restoration Project to result in direct or indirect impacts to previously recorded archaeological resources would be **less than significant.**

As shown on IS/MND Figure 1.4-5 (Historic Grading Near the Project Site) most of the South Parcel and the Whittier Parcel were graded to obtain soil that was used as fill material to construct the Ocean Meadows Golf Course. Due to the previous grading operations, the potential for those disturbed areas to contain previously undetected cultural materials is extremely low. As described above, the portion of the South Parcel that was not disturbed by previous grading was evaluated and no archaeological material was encountered.

Cultural resources that may have been previously located on the South Parcel and Whittier Parcel and that could have been removed by previous grading activities and deposited on the golf course parcel no longer retain their context or integrity. As such, the potential for any archaeological material that may be encountered during the removal of soil from the golf course property to address research questions and to "yield information important in prehistory or history" has been lost. It is also unlikely that soil excavation on the golf course property would encounter important undisturbed archaeological resources because as reported by Erlandson (1982), it is "extremely unlikely" that the fill zones on the golf course were used for prehistoric habitation because the fill areas were formerly estuarine mudflats. Therefore, the potential for the NCOS Restoration Project to result in impacts to previously undetected archaeological resources would be **less than significant.**

c. *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Although marine fossils are present in the project region, previous development on the UCSB campus has not encountered major paleontological resources and it is not likely that significant paleontological resources would be encountered in the previously disturbed fill material that would be removed from the golf course parcel and the Whittier Parcel. There are no unique geological features, such as a coastal bluff, located on or adjacent to the project site. Therefore, the Project would have **no impact** on paleontological resources or unique geological features.

d. *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

Denardo and Brandoff-Kerr (2012) noted that human bone was found at CA-SBA-1327 in 1975. Their Extended Phase 1 survey did not encounter intact deposits above 20 centimeters or human remains at the site. Only the extreme outer edge of the site extends into the NCOS project site and it is unlikely that human remains would be present. The other sites within the project area have not been tested, so the presence of human remains is unknown but given that they are low-density artifact scatters, human remains are considered highly unlikely. In the unlikely event that Native American or historic-period burials are encountered during project-related construction activities, a significant cultural resource impact would result. If human remains are encountered, UCSB will comply LRDP policy requirements to redirect work from the vicinity of the find, and will also comply with provisions of Public Resources Code Sections 5097.98 and 5097.99, and 7050.5 of the California Health and Safety Code, as amended by Assembly Bill 2641. The implementation of LRDP policies and Public Resources Code requirements would ensure that potential impacts are **less than significant** in the unlikely event that human remains are encountered during Project-related grading activities.

5.5.3 Cumulative Impacts

The Project would not result in significant impacts to cultural resources. Therefore, the Project would not have a cumulatively considerable effect on cultural resources on the UCSB campus or in the Project area and its cumulative impacts would be **less than significant**.

5.5.4 Mitigation Measures

No significant impacts to cultural resources would result from the implementation of the NCOS Restoration Project and no mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.6 GEOLOGY AND SOILS - Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	✓	☐
ii) Strong seismic ground shaking?	☐	☐	☐	✓	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	✓	☐
iv) Landslides?	☐	☐	☐	✓	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	✓	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	✓	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	✓	☐

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☐	✓

5.6.1 Setting

Regional Geology

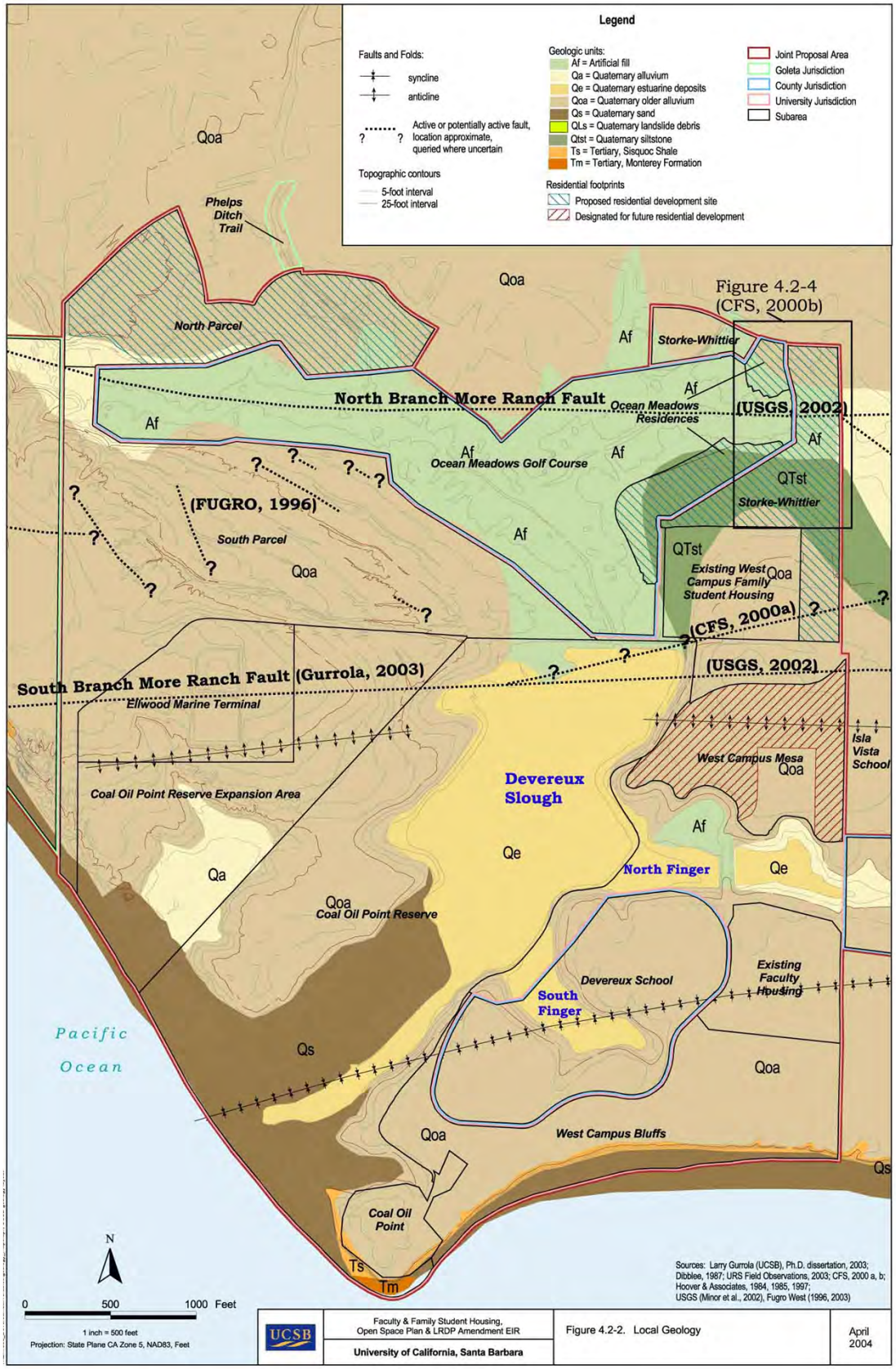
The NCOS Restoration Project site is located on the coastal plain south of the Santa Ynez Mountains, which are part of the western Transverse Ranges. The Transverse Ranges are a predominately east-west trending mountain block extending eastward approximately 75 miles from Point Arguello in western Santa Barbara County into Ventura County. The Santa Ynez Mountains and the adjacent alluvial plain are composed almost entirely of sedimentary rocks. The Santa Barbara and Goleta area is located on the coastal plain that contains east-west trending faults and related folds.

The project site is located in the southern portion of the Goleta Valley, a shallow, east-west trending valley between the Santa Ynez Mountains and a low coastal terrace that has been uplifted by the More Ranch fault system. The terrace is about 40-80 feet above sea level and was formed at sea level as a wave-cut abrasion platform that eroded and beveled off a bedrock surface. The topography of the uplifted terrace surface is gently sloping and undulating. In the project area the terrace has been incised by and is controlled by Devereux Creek and, to a lesser extent, smaller drainages. The location of Devereux Creek is likely fault controlled, as its course closely follows and parallels the trace of the North Branch of the More Ranch fault. The More Ranch fault has uplifted and tilted the 45,000 year-old marine terrace to the south of the fault, and what was once a gently seaward-sloping marine terrace now tilts northward in many places.

Project Site Geology, Topography and Soils

Geology. As shown on Figure 5.6-1, surficial deposits on the former Ocean Meadows Golf Course consist of artificial fill (Af). Most of the South Parcel and the Whittier Parcel are covered with Older Alluvium (Qoa), which also forms the surficial strata over most of the upland terrace areas in the region.

Topography. The natural topography of the project site has been extensively modified. The clearing of land for grazing and agriculture in the 1800s through the early 20th century



University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.6-1

Local Geology

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resulted in erosion and gullying, and subsequent urban development has resulted in increased runoff and erosion. The removal of topsoil, predominately from the South Parcel, to fill the upper portion of the Devereux Slough for golf course and other land development also resulted in extensive modifications to the topography of the project site.

The topography of the former golf course parcel is generally level with grades ranging from zero to 10 percent, and elevations range from five to 15 feet above sea level. What was formerly a relatively flat tidal estuary complex is now a rolling, hummocky surface, with Devereux Creek flowing down the middle of the golf course.

The topography of the South Parcel ranges in elevation from approximately 10 feet above sea level in the eastern portion of the project site to 72 feet above sea level feet in the western portion. Five linear, northwest to southeast trending berms were created on the South Parcel in an attempt to control erosion and runoff from the golf course. The berms and in places the intervening areas are highly eroded. The sediments from this area have eroded into and created a sediment delta infilling the northwest portion of Devereux Slough. Average grades on the South Parcel range from five to 30 percent, with locally steeper slopes on the sides of the berms.

The Whittier Parcel is generally flat except where it is bisected by a small drainage channel that flows southwesterly through the property. Elevations on this parcel generally range between about 14 and 17 feet above sea level.

Faulting and Seismicity

The UCSB campus is located in a seismically active region that has experienced moderate to large earthquakes during historic times. The faults closest to the campus with reported historic seismic activity are offshore faults in the Santa Barbara Channel. These faults have generated earthquakes of magnitude (M) 6.3 in 1925, M5.5 in 1926, M6.0 in 1941, M5.2 in 1968, and M5.1 in 1978. The epicenters of these earthquakes were reportedly located approximately 5 to 10 miles south of the Santa Barbara coast. The project region has also experienced strong ground motion from the 1812, 1857, 1906, 1934, 1952 and 1966 earthquakes along the San Andreas fault.

The More Ranch fault is the western segment of the More Ranch/Mission Ridge/Arroyo Parida fault system. This fault system is topographically well expressed from Ellwood west of the project site to Ojai in Ventura County, and is the principal onshore fault on the Santa Barbara coastal plain. The More Ranch fault is a south-dipping, south side up reverse fault located along the north margin of the UCSB-Isla Vista-Devereux terrace.

As depicted on Figure 5.6-1, the north branch of the More Ranch fault has been mapped as trending through the central portion of the Ocean Meadows Golf Course. To the west of the project site, the hanging wall anticline of this fault forms the Ellwood Oil Field reservoir, which produced approximately 100,000,000 barrels of oil from 1928 to 1971. The south branch of the More Ranch fault is located south of and adjacent to the project site. This fault cuts and

displaces by up to 15 feet the 45,000-year marine terrace west of Storke Road and at the sea cliffs. In addition to the north and south branches of the More Ranch fault, several short secondary faults have been mapped on the northern portion of the South Parcel.

Based on sea cliff exposures, geomorphic expression and oil well data, the North Branch of the More Ranch fault is likely the most active structure in the More Ranch fault system. The Santa Barbara County Seismic Safety Element classifies the north branch of the More Ranch fault as active, however, the More Ranch fault zone is not classified as active by the State. A recent investigation of the south branch of the More Ranch fault conducted for the UCSB San Joaquin Apartments project, which is located a minimum of approximately 1,000 feet east of the NCOS Restoration Project site, identified splays of the south branch fault that were considered to be active (Fugro, 2012). A probabilistic evaluation of the potential for strong ground shaking in the project region estimated a peak horizontal ground acceleration of about 0.59g for a 475-year return period (ten percent probability of exceedance in 50 years) (Fugro, 2012).

Other major faults located near the offshore Coal Oil Point and Goleta Point faults. The Coal Oil Point fault is located offshore, approximately 4,000 feet south of the project site. The Goleta Point fault is also located offshore, approximately 1.5 miles to the east of the project site.

Soils and Soil Hazards

The Natural Resources Conservation Service Web Soil Survey[5] identifies several soil types on the project site. Soil on most of the golf course property is classified as "AC" or aquents, fill areas. Soil on most of the South Parcel is classified as "XA" or Xerothents, cut and fill areas. Soil along the southern and western perimeters of the South Parcel are associated with the Conception fine sandy loam. Soil on the Whittier Parcel is classified as Xerothents, cut and fill areas. A geotechnical feasibility report prepared for the Project (Earth Systems Pacific, 2015) states that on-site soils are anticipated to range from very low to high in expansion potential, and have a high potential to erode.

Liquefaction is the loss of soil strength caused by earthquake-generated ground shaking. Liquefaction typically occurs in loose, fine to medium-grained sands and in very soft to medium stiff silts that are saturated by groundwater. The geotechnical feasibility report prepared for the Projects states that based on previous geotechnical information from the residential development to the east of the project site, the potential for liquefaction of on-site soils is considered to be very low. The UCSB *Faculty and Family Student Housing, Open Space Plan, and LRDP Amendment EIR* (2004) indicates that areas underlain by estuarine deposits in the former Devereux Slough (the former golf course parcel) could have a high liquefaction potential if unconsolidated sand layers exist below the water table at shallow depths.

[5] http://websoilsurvey.nrcs.usda.gov

Slope Stability

The project site is relatively level or sloping, which minimizes the potential for slope stability-related impacts.

LRDP Policy Requirements

The 2010 LRDP includes policies and project approval requirements related to the reduction of geologic hazard impacts and short-term construction-related erosion, sedimentation and water quality impacts. Requirements of the LRDP applicable to the Project are listed below.

> **Policy GEO-01.** New development proposals shall be supported by geotechnical and soil studies conducted by a California-licensed geologist or geotechnical engineer, as appropriate, to determine technical requirements for adequate building foundation and infrastructure designs; such studies shall include an appropriate evaluation of seismic or liquefaction hazards that may affect the subject site. The results of such studies, and the recommendations of the preparing professional, shall be submitted in support of the pertinent Notice of Impending Development.
>
> **WQ-02** – A. Proposed campus development shall be sited, designed, constructed, operated and managed in accordance with the water quality protection requirements set forth in this LRDP, including Appendix 3, Water Quality Protection, which is hereby incorporated in full, by reference as part of this policy. Appendix 3 requires new development, which entails construction or other activities or land uses that have the potential to release pollutants into coastal waters, to submit a water quality protection plan (see Appendix 3 for Construction Pollution Prevention Plan, Post Development Runoff Plan, Water Quality and Hydrology Plan, as applicable) with the NOID. Appendix 3 provides implementation-level requirements to develop each type of water quality protection plan that may be necessary depending on the size and nature of the proposed development. Unless the Executive Director determines that future proposed changes to the contents of Appendix 3 are de minimis, such changes shall require an LRDP amendment. All revisions of Appendix 3 shall be timely published, including the date of the specific revision.
>
> **WQ-05** - The University shall site, design, construct and manage development to preserve or enhance vegetation that provides water quality benefits such as transpiration, vegetative interception, pollutant uptake, shading of waterways, and erosion control. Native vegetation shall be prioritized for use in water-quality treatment facilities such as bioswales and vegetated filter strips. Removal of existing vegetation on campus shall be minimized and limited to a pre-approved area required for construction operations. The construction area shall be fenced to define project boundaries. When vegetation must be removed, the method shall be one that will minimize the erosive effects from the removal. Temporary mulching or other

suitable interim stabilization measures shall be used to protect exposed areas during construction or other land disturbance activities.

Policy WQ-09 - Minimize water quality impacts from construction by implementing best management practices, in compliance with Appendix 3, Water Quality Protection Program, including:

A. Construction shall be planned and managed to minimize impacts by such measures as limiting the project footprint, phasing grading activities to avoid rainy-season soil disturbance, implementing soil stabilization and pollution prevention measures, and preventing soil compaction unless required for structural support;

B. Whenever practical, land on the North and West Campus where there is a risk of erosion that may affect ESHAs, plan the project in increments of workable size which can be completed during a single construction season;

C. Erosion and sediment control measures are to be coordinated with the sequence of grading. Sediment basins, sediment traps, or similar sediment control measures shall be installed before extensive clearing and grading operations begin for campus development; and

D. Fill areas shall have suitable protection against erosion and shall not encroach on Devereux Slough, Storke Campus Wetlands, Campus Lagoon or any other natural watercourses or constructed channels on campus.

Policy WQ-10. Grading operations that have the potential to deliver sediment to wetlands, environmentally sensitive habitat areas, or coastal waters shall be scheduled during the dry months of the year (May through October). The construction timeline may be extended into the rainy season for a specific, limited length of time, based on an inspection of the site, and a determination that conditions at the project site are suitable for. Continuation of work may be allowed if appropriate erosion and sedimentation control measures are in place and will be maintained during the activity. If grading occurs during the rainy season (November through April), sediment traps, barriers, covers or other methods shall be used to reduce erosion and sedimentation in compliance with Appendix 3, Water Quality Protection Program.

Policy WQ-11. Excavated materials shall not be deposited or stored where the material can be washed away by storm water runoff. Topsoil removed from the surface in preparation for grading and construction is to be stored on or near the site, where the stockpile area(s) will not impact natural vegetation, and protected from erosion while grading operations are underway, provided that the topsoil is also managed consistent with Policy ESH-14. Appropriate measures shall be taken to

protect the preserved topsoil from erosion and runoff through such measures as tarping, jute netting, silt fencing, and sandbagging soil. After completion of such grading, topsoil is to be restored to exposed cut and fill embankments of building pads so as to provide a suitable base for seeding and planting. These requirements shall be incorporated into applicable water quality protection plans (Construction Pollution Prevention Plan, Post-Development Runoff Plan, and/or Water Quality and Hydrology Plan as applicable) for processing during the NOID process as described in Appendix 3, Water Quality Protection Program.

The water quality (WQ) policies listed above refer to LRDP Appendix 3, Water Quality Protection Program, which requires that the "*the planning, development, and maintenance of the UCSB campus lands shall be undertaken in a manner designed to protect, and were feasible restore the quality of coastal waters*…" Appendix 3 requires that a Construction Pollution Prevention Plan (CPPP) be prepared for projects that require approval of a Notice of Impending Development by the California Coastal Commission (such as the NCOS Restoration Project) and that the CPPP describe temporary Best Management Practices (BMPs) that will be implemented to minimize erosion, sedimentation and pollution of runoff during project construction. The project-specific CPPP is to be prepared and submitted for review and approval as part of the project's Notice of Impending Development process. The preparation of a CPPP is required in addition to the project's compliance with the requirements of the California State Water Resources Control Board related to the preparation and implementation of a Stormwater Pollution Prevention Plan.

5.6.2 Checklist Responses

a. *Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

   i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

   The purpose of the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Section 2621 *et. seq.*) is to prohibit the location of most structures for human occupancy across the trace of an active fault, thereby mitigating the hazard of fault rupture. The Act prohibits the construction of buildings for human occupancy across active faults, and structures covered by the Act must be setback from the location of the fault. There are no Alquist-Priolo zoned faults in the project region.

   The north branch of the More Ranch fault is located on the project site (see Figure 5.6-1) and in general the fault is located along or near the unnamed tributary to Devereux Creek on the eastern portion of the project site, and along portions of the Devereux Creek channel. As described in Section 5.6-1 above, the north branch of

the More Ranch fault is considered to be an active fault but has not been designated as an active fault zone by the State. The south branch of the More Ranch fault is located south of and adjacent to the project site, and other minor splay faults shown on Figure 5.6-1 do not present a significant fault rupture hazard.

The Project would construct a bridge (Bridge C on Figure 2.7-1) over the creek channel on the eastern portion of the project site and the bridge would likely be located across or adjacent to the north branch of the More Ranch fault. The construction of a pedestrian bridge would not be subject to the structure setback requirements of Alquist-Priolo Earthquake Fault Zoning Act and in the low probability event of movement along the north branch of the More Ranch fault the proposed bridge could potentially be damaged but it is unlikely that bridge damage would expose people to potential substantial adverse effects, including the risk of loss, injury, or death. Therefore, movement along the north branch of the More Ranch fault would have a **less than significant** impact related to ground rupture impacts at the project site.

ii) Strong seismic ground shaking?

It is likely that at some time in the future the NCOS Restoration Project site will experience strong ground shaking caused by movement along a local fault or a major earthquake along a more distant fault. The Project would result in minimal structural development and structures that would be provided would consist of pedestrian access improvements including a bridge/drainage culvert, a boardwalk, two steel bridges, and an observation pier. The construction of all proposed structures would comply with the requirements of LRDP Policy GEO-01, which requires that "infrastructure designs" be supported by geotechnical and soil studies that evaluate potential ground shaking hazards that may affect the project site. Additionally, all proposed structures would comply with applicable regulations and design standards, including but not limited to Title 24 of the California Code of Regulations. With the implementation of regulatory requirements and site-specific design recommendations as required by 2010 LRDP policy GEO-01, potential ground shaking impacts would be **less than significant** and no mitigation measures are required.

iii) Seismic-related ground failure, including liquefaction?

The soil and ground water conditions at the project site vary, however, the highest potential for liquefaction to occur would generally be in areas underlain by estuarine deposits in the former Devereux Slough. Structural development in this area would be limited to the proposed pedestrian bridges and observation pier. As described in response ii above, the construction of all proposed structures would comply with the requirements of LRDP Policy GEO-01, which requires that "infrastructure designs" be supported by geotechnical and soil studies that evaluate potential liquefaction hazards that may affect the project site. Additionally, all proposed structures would

comply with applicable regulations and design standards, including but not limited to Title 24 of the California Code of Regulations. With the implementation of regulatory requirements and site-specific design recommendations as required by 2010 LRDP policy GEO-1, potential liquefaction impacts would be **less than significant** and no mitigation measures are required.

iv) Landslides

The project site would be graded and recontoured as shown on Figure 2.3-1 (Proposed Grading Plan). Proposed slopes would have a maximum height of approximately 20 feet and a maximum gradient of 3:1 (horizontal:vertical), which is a slope gradient generally considered to be grossly stable. Most slopes that would be created on the project site would have gradients ranging between 3:1 and 50:1 or shallower. The Geotechnical Feasibility Report prepared for the Project (Earth Systems Pacific, 2015) states that the majority, if not all, of the soils excavated at the site would be acceptable from a geotechnical viewpoint for reuse as compacted fill and backfill. Some soils, however, may have a high soil moisture content and attempting to compact soils in an overly moist condition may result in unstable conditions. As described in Project Description Section 2.7.2 (Construction) on-site soils that are excavated from below an elevation of approximately six feet NAVD (estimated to be approximately 95,000 cubic yards of soil) may exceed optimal moisture content and would require aeration and drying prior to placement and compaction. The proposed soil handling procedures would allow the saturated soils to dry before final placement, which would minimize the potential for slope stability impacts resulting from saturated or overly-moist soils. Therefore, based on the proposed project design and soil handling measures, the Project would result in **less than significant** slope stability impacts and no mitigation measures are required.

b. *Would the project result in substantial soil erosion or the loss of topsoil?*

Grading on the project site would be conducted in two major phases. The first grading phase would occur during the first year of Project construction (2016) and would excavate soil from an approximately 40-acre area portion of the project site. The first grading phase would excavate approximately 100,000 cubic yards of soil and that soil would be transported to a 25-acre area on the western portion of South Parcel. The second grading phase would be conducted during the second year of Project construction (2017) and would result in the excavation of approximately 255,000 cubic yards of soil from an area of approximately 60 acres. The excavated soil would be transported and placed on the eastern half of South Parcel. Total Project-related grading would be approximately 360,000 cubic yards, which includes the over-excavation of 5,000 cubic yards of sand and topsoil from the South Parcel that would subsequently be used on the project site. Grading operations for phases 1 and 2 would be completed over a two-year period unless weather-related delays require grading in a third year of construction.

Grading that would be implemented by the Project would remove existing vegetative cover, would result in the use of temporary soil stockpiles, and would also result in the creation of new cut and fill slopes. The proposed grading activities would have the potential to result in significant short- and long-term sedimentation impacts to existing habitat areas on the project site that are to be preserved; impacts to proposed habitat areas to be created on the project site; and habitat areas and the water quality of the Devereux Lagoon and Pacific Ocean.

To minimize the potential for erosion-related impacts, the Project would be required to implement erosion control measures required by the LRDP water quality policies listed above and as identified in a project-specific CPPP and the SWPPP. Consistent with the LRDP policy requirements, proposed grading activities would be conducted in phases and would not occur during the rainy season (grading would occur between May and October), and a variety of erosion and sediment control measures would be implemented, including but not limited to: the use of silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, jute or coir fabric, sandbag dikes, and temporary hydroseeding with native or sterile non-native seed mix to reduce runoff velocity, and enhanced infiltration and transpiration. Earthen dikes, drainage swales and ditches would also be used to intercept, divert and convey surface runoff and sheet flow to minimize erosion and reduce pollutant loading. Excavated soil would not be placed in or adjacent to open water channels, and off-site roads used during construction would be swept and cleaned of accumulated earth and debris. Erosion control materials containing plastic would not be used on the project site. All erosion control BMPs would be maintained as described in IS/MND Project Description Section 2.7.3 (Maintenance). This section states that project site maintenance would include regular monitoring following the completion of construction activities and would include the installation and removal, as needed, of temporary erosion control measures.

The project site is over one acre in size and would also be required to file a Notice of Intent to comply with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, and to develop and implement a site-specific Storm Water Pollution Prevention Plan (SWPPP) prior to the start of ground disturbing activities. The primary objective of the SWPPP is to identify, implement and maintain appropriate best management practices to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from construction sites. A General Permit for stormwater discharges associated with construction activity was adopted by the State Water Resources Control Board on September 2, 2009 and amended for the second time in 2012 (Water Quality Order 2012-0006-DWQ), and went into effect on July 1, 2010. These requirements contain provisions for determining a project's risk level, and specific project site implementation requirements based on the results of the risk determination.

With the implementation of the water quality policies of the 2010 LRDP, and the preparation an implementation of erosion control BMPs consistent with an approved

CPPP and SWPPP, the short-term impacts of the Project would be **less than significant** and no mitigation measures are required.

Upon the conclusion of grading activities, graded areas of the project site would be revegetated using native plants compatible with the habitat types that are to be established. All revegetation planting would be monitored to ensure that specified plant cover criteria are achieved. Project-specific performance/success criteria would be developed in consultation with permitting and granting agencies, such as but not limited to the Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, California Coastal Commission, and the State Coastal Conservancy. 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 (3) years and 90 percent of the desired cover after five (5) years for the life of the project. If the survival and cover criteria have not been met, CCBER would be responsible for replacing planting to achieve these requirements. Replacement plants would be monitored with the same survival and growth requirements for five (5) years after planting. With the implementation of proposed revegetation and monitoring provisions, the potential long-term erosion impacts of the Project would be **less than significant** and no mitigation measures are required.

As indicated in Section 5.6.1 above, existing erosion that is occurring on the South Parcel has resulted in the transport of sediment that has resulted in the creation of a delta that is filling the northwest portion of Devereux Slough. The proposed project site grading, recontouring and revegetation would have the **beneficial impact** of correcting the existing erosion and sedimentation impacts by eliminating what has been a long-term source of sediment-related impacts to the slough.

c. *Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

Ground settlement can occur when shallow foundations and surface improvements span materials having variable consolidation characteristics, such as the soils on the project site that have variable moisture and density. To reduce potential soil settlement impacts, shallow foundations and surface improvements on the project site should be placed on material that is as uniform as practicable. A program of overexcavation, scarification, moisture conditioning, and compaction of the upper soils in building and surface improvement area would likely be recommended by future geotechnical engineering reports prepared in accordance with the requirements of LRDP Policy GEO-01. The Project does not propose to construct buildings that could adversely be affected by settlement-related impacts at this time, but future development such as a restroom building, could be adversely affected. The implementation of site-specific foundation

recommendations included in the geotechnical evaluation required by Policy GEO-01 would reduce potential impacts ton on-site structures to a **less than significant** level and no mitigation measures are required.

Grading on the project site has the potential to encounter areas of high groundwater. The construction of proposed Bridge D across Phelps Creek and the construction of ponds and grade control structures in that area are likely to encounter high groundwater conditions. To facilitate construction activities in the Phelps Creek area and other areas where high groundwater may be encountered, groundwater that collects on the ground surface would be removed using a pump and hose. The collected water would be discharged in a non-erosive manner back to the creek downstream of the construction site, or discharged to a temporary dewatering channel used to divert water from Devereux Creek during grading operations in and adjacent to the creek channel. Proposed dewatering activities would not result in groundwater extractions that would have the potential to result in ground significant subsidence impacts. Therefore, the Project would result in **less than significant** ground subsidence impacts.

d. *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

Soils on the project site are anticipated to have an expansion potential that ranges from very low to high. It is anticipated that both shallow foundation and deep foundation systems would be needed to support structures planned for the project site, such as proposed pedestrian bridges, and possible future improvements such as a restroom building. Measures to address potential expansive soil impacts would be identified by future geotechnical engineering reports prepared in accordance with the requirements of LRDP Policy GEO-01. The implementation of site-specific foundation recommendations included in the geotechnical evaluation required by Policy GEO-01 would reduce this potential impact to a **less than significant** level and no mitigation measures are required.

e. *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

The Project does not propose to provide any structures that would require wastewater disposal. Should a restroom facility be constructed on the project site in the future, that facility would dispose of wastewater by connecting to sewer service pipeline located in the project area and would not rely on the use of septic tanks. Therefore, the project would have a **no impact** associated with the use of septic systems.

5.6.3 Cumulative Impacts

Impacts from geologic hazards, such as how structures and properties perform during a large earthquake, are generally site-specific and do not combine such that the risk of hazard-related impacts at any particular site may be increased. Individual development sites and

projects have geologic conditions particular to that site and must be considered on a site-specific basis so that appropriate site development and construction standards can be identified and implemented.

The Project would not substantially increase the number of people, structures and utilities that could be exposed to the potential effects of ground rupture, ground shaking and other geological hazards. The proposed project's compliance with hazard reduction requirements of the 2010 LRDP, including the implementation of recommendation included in site-specific geotechnical studies, and building code requirements would ensure that site-specific impacts are reduced to a less than significant level. Other development projects in the project region must comply with similar applicable building codes and hazard reduction measures. Therefore, future development on the UCSB campus and other development in surrounding areas would not result in or contribute to cumulative seismic hazard impacts. As a result, the proposed project's geologic hazard impacts would not be cumulatively considerable and a **less than significant** impact would result.

Future development in the Devereux Slough watershed could have the potential to result in cumulative erosion-related impacts if sediment is allowed to leave the project site. Future development would be subject to state and local runoff and erosion control requirements, such as the provisions of the State General Construction Permit and requirements to implement and maintain best management practices identified by a Stormwater Pollution Prevention Plan. The Project would implement applicable regulatory and LRDP policy requirement to reduce short-term erosion-related effects to the maximum extent practicable, and other projects in the region would be subject to similar requirements. Therefore, the contribution of the Project to short-term erosion-related impacts would be **less than significant**.

5.6.4 Mitigation Measures

The Project would not result in significant impacts related to geological hazards and no mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.7 GREENHOUSE GAS EMISSIONS – Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	✓	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	✓	☐

5.7.1 Setting

Background Information. Greenhouse gases are referred to as such because they contribute to the "greenhouse effect," which traps heat radiated from the Earth's surface in the atmosphere. "Global climate change" describes changes in the earth's climate, such as an increase or decrease in temperatures, or a shift in precipitation patterns.

Although there is not unanimous agreement regarding the occurrence, causes, or effects of global climate change, there is a substantial body of evidence that climate change is occurring due to an increase in the concentration of greenhouse gases in the Earth's atmosphere. The United Nations Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report considers new evidence of climate change based on many independent scientific analyses, from observations of the climate system, paleoclimate archives, theoretical studies of climate processes, and simulations using climate models. The IPCC Fifth Assessment Report summarizes observed changes in the Earth's climate system, including:

- The atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years. Carbon dioxide concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from net land use change emissions. The ocean has absorbed about 30% of the emitted anthropogenic carbon dioxide, causing ocean acidification.

- Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.

- Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. In the Northern Hemisphere, 1983–2012 was likely the warmest 30-year period of the last 1400 years.

- Ocean warming dominates the increase in energy stored in the climate system, accounting for more than 90% of the energy accumulated between 1971 and 2010. It is virtually certain that the upper ocean (0−700 m) warmed from 1971 to 2010.

- There is high confidence that the rate of sea level rise since the mid-19th century has been larger than the mean rate during the previous two millennia. Over the period 1901 to 2010, global mean sea level rose by 0.19 meters.

According to the IPCC, global warming may cause a variety of environmental changes, such as:

- It is virtually certain that over most land areas, warmer and fewer cold days and nights would occur, and warmer and more frequent hot days and nights would occur.

- It is very likely that the frequency of warm spells/heat waves would be increased over most land areas.

- It is very likely that the frequency of heavy precipitation events would be increased over most areas.

- It is likely that areas affected by drought would be increased.

- It is likely that intense tropical cyclone activity would be increased.

- It is likely that there would be increased incidence of extreme high sea levels.

The effects of climate change may also include a rise in sea level caused by an expansion of the ocean water volume due to an increase in water temperature, melting glaciers and melting polar ice caps. Estimates of future sea level elevations vary considerably based on assumptions regarding greenhouse gas emission control effectiveness and other factors. Sea level rise predictions recommended for use by the California Coastal Commission (2015) indicate that compared to 2000 conditions, sea level could rise two to 12 inches by 20130; five to 24 inches by 2050; and 17-66 inches by 2100.

State law defines greenhouse gases to include the following: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Another greenhouse gas is water vapor. Water vapor is not recognized in state law and climate change programs such as the Kyoto Protocol because there is no obvious correlation between water vapor concentration and specific human activities.

Greenhouse gases have varying global warming potential. The reference gas for global warming potential is carbon dioxide, which has been assigned a global warming potential of "1." Methane gas is another gas that contributes to global warming and has been assigned a global warming potential of 21, which means that is has a greater global warming effect than carbon dioxide on a molecule per molecule basis. Sulfur hexafluoride has a global warming potential of 23,900. The most important greenhouse gas in human-induced global warming is carbon dioxide. While other greenhouse gases have higher global warming potential, carbon dioxide is emitted in such vastly higher quantities that it accounts for 85 percent of the global warming potential of all greenhouse gases emitted by the United States. Greenhouse gas emissions are typically measured in terms of mass carbon dioxide equivalents, which is the product of the mass of a particular greenhouse gas and its specific global warming potential.

Legislative and Policy Requirements. Numerous legislative requirements, policies and programs have been adopted to reduce the effects of climate change and provide guidance related to the assessment of a project's climate change impacts. Greenhouse gas emission reduction regulations applicable to the proposed Project are briefly described below.

California Global Warming Solutions Act (AB 32). AB 32 was signed into law in 2006 and established a statewide goal of reducing greenhouse emissions to 1990 levels by 2020 and requires the California Air Resources Board (CARB) to prepare a Scoping Plan that outlines strategies for reducing greenhouse gases to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide greenhouse gas emissions. The Scoping Plan was approved by CARB in 2008 and includes measures to address greenhouse gas emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. The Scoping Plan includes a range of greenhouse gas reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms.

Senate Bill 97**.** This bill was signed on August 24, 2007, and acknowledges that climate change analysis is to be included in the CEQA process. The bill also required the Office of Planning and Research to develop, and the California Resources Agency to certify and adopt amendments to the CEQA Guidelines for the analysis of greenhouse gas emissions. On December 30, 2009, the Secretary for Natural Resources adopted amendments to the CEQA Guidelines addressing greenhouse gas emissions, and those amendments became effective on March 18, 2010.

UC Sustainable Practices Policy (2015)**.** The University of California has adopted a policy program to minimize its impact on the environment and to reduce its dependence on non-renewable energy. The policy addresses a range of issue areas related to enhancing sustainable practices, including:

- Green Building Design
- Clean Energy
- Climate Protection
- Transportation
- Sustainable Operations
- Recycling and Waste Management
- Environmentally Preferred Purchasing
- Sustainable Foodservices
- Sustainable Water Systems

The UC Policy on Sustainable Practices also established the following provisions regarding Climate Protection Practices:

- With an overall goal of reducing greenhouse gas emissions while maintaining enrollment accessibility for every eligible student, enhancing research, promoting community service, and operating campus facilities more efficiently, the University will develop a long term strategy for voluntarily meeting the State of California's goal, pursuant to AB32 to reduce greenhouse gas emissions to 1990 levels by 2020.

- The University will pursue the goal of reducing greenhouse gas emissions to 2000 levels by 2014.

- The University will pursue the goal of reducing GHG emissions to 1990 levels by 2020.

- The University will develop an action plan for becoming climate neutral which will include: a feasibility study for meeting the 2014 and 2020 goals (and) a target date for achieving climate neutrality as soon as possible, while concurrently maintaining the University's overall mission. Climate neutrality means that the University will have a net zero impact on the Earth's climate, and it will be achieved by minimizing GHG emissions as much as possible and by using carbon offsets or other measures to mitigate the remaining GHG emissions.

Campus Sustainability Plan. The Campus Sustainability Plan (2008) describes major sustainability programs and actions to be implemented by UCSB over the next 20 years. Nine functional areas have been identified, including academics and research, built environment, energy, food, landscape/biotic environment, procurement, transportation, waste, and water. Various campus groups have developed a series of recommendations, goals, objectives and benchmarks to be implemented over a one, five, and twenty year timeframe.

2014 Climate Action Plan**.** UCSB approved its first Climate Action Plan (CAP) in 2009 based on GHG emissions data gathered during calendar year 2007. The 2009 CAP included emissions data and addressed mitigation strategies for scope 1 emissions (direct emissions: on-site natural gas, diesel and propane combustion; campus fleet emissions; marine vessel and fugitive emissions) and scope 2 emissions (indirect emissions: purchased electricity). The 2012 UCSB CAP included scope 1 and 2 emission, and also included data and mitigation strategies for scope 3 emissions (university-funded business air travel and student, staff, and faculty commuting). The 2014 Climate Action Plan quantifies and analyzes UCSB's current, historical, and projected emissions and evaluates the campus' progress toward meeting reduction targets in years 2020 and 2050. Planned and conceptual climate change mitigation strategies outlined in 2014 CAP document demonstrate UCSB's ability to achieve a 1990 greenhouse gas emission level by 2020 as the campus' building stock and population continue to grow as defined by the 2010 LRDP.

The 2014 CAP includes greenhouse gas emissions inventory results through calendar year 2012, mitigation strategies for additional emission reductions, and revised emissions forecasts. The total 2011 greenhouse gas emissions were 90,959 metric tons of carbon dioxide equivalents (MT CO2e), and total 2012 greenhouse gas emissions were 91,596 MT CO2e. The 2014 CAP also includes the following GHG emissions reduction targets:

- 2014: 2000 Emissions Level – 99,699 MT CO2e
- 2020: 1990 Emissions Level – 90, 736 MT CO2e
- 2025: Scope 1 & 2 Carbon Neutrality (Set by UC President Janet Napolitano)
- 2050: Complete Carbon Neutrality (Includes scope 3 emissions)

UCSB has achieved the 2014 reduction target two years early and is projected to meet the 2020 emissions reduction target with the implementation of measures identified by the 2014 CAP. The primary emissions reduction measures are briefly described below.

- *Energy Use and Efficiency*. These emission reduction measures include continuation of the Strategic Energy Partnership program, which since 2009 has implemented ten million dollars' worth of energy conservation projects such as lighting fixture and control retrofits, HVAC equipment replacement, and optimizing building systems to identify inefficient or malfunctioning equipment. This program has also resulted in the installation of photovoltaic systems on the Campus.
- *Transportation*. Identified transportation-related emission reduction measures include reducing business air travel, and reducing commuter emissions by providing on-campus student and faculty housing.

- *Buildings.* Emission reductions under this category result primarily from implementing energy efficiency measures in new construction.

Other emission reduction measures identified by the 2014 CAP include: energy conservation through administrative and behavioral changes; landscape and vegetation measures, such as planting additional trees that sequester carbon and provide shade that reduce building cooling requirements; curriculum development and research; and UCSB participation in state- and region-wide emission reduction programs. After forecasting for planned reduction measures in energy conservation, on-site renewable energy production, energy efficiency projects, and commuter and air travel reductions, UCSB's 2020 projected emission level with mitigation is 86,519 MT CO2e, which would be a 12 percent reduction from the 2020 "business and usual" projections, and a five percent reduction from 1990 levels.

5.7.2 Impact Significance Thresholds

According to the CEQA Guidelines, impacts related to greenhouse gas emissions would be significant if a project would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Neither the State of California, Santa Barbara Air Pollution Control District, nor the University has established CEQA significance thresholds for greenhouse gas emissions. On June 2, 2010, the Bay Area Air Quality Management District's (BAAQMD) Board of Directors unanimously adopted thresholds of significance to assist in the CEQA review of projects. The thresholds establish the level at which the District determined air pollution emissions would cause significant environmental impacts. The BAAQMD's guidance on determining the significance of greenhouse gas emissions are summarized in Table 5.7-1.

Table 5.7-1
Bay Area Air Quality Management District
Greenhouse Gas Significance Determination Guidelines

Greenhouse Gas Emission Source	Operational Emissions
Non-Stationary Sources	1,100 MT of CO_2E/year OR 4.6 MT CO_2E/SP/year
Stationary Sources	10,000 MT CO_2E/year

SP = service population
MT = metric tons

According to the methodology used to establish the BAAQMD greenhouse gas threshold, the threshold of 1,100 MT CO2E/year is the emissions level below which a project's contribution to global climate change would be less than "cumulatively considerable." For projects that are not stationary sources, the BAAQMD established an "efficiency" threshold that is intended to avoid penalizing large projects that incorporate emissions-reducing features and/or that are located in a manner that results in relatively low vehicle miles traveled. This threshold establishes a maximum allowable quantity of emissions per capita or "service population," which is defined as project residents and employees. As defined by the BAAQMD thresholds, a project's contribution to greenhouse gas emissions would not be cumulatively considerable if the project would result in less than 4.6 metric tons of CO_2E/service population/year.

On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD failed to comply with CEQA when it adopted its greenhouse gas emissions thresholds. The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court ordered the District to set aside the thresholds until it complied with CEQA. The District appealed the Alameda County Superior Court's decision. The Court of Appeal of the State of California, First Appellate District, reversed the trial court's decision. The Court of Appeal's decision was appealed to the California Supreme Court, which granted limited review. On December 17, 2015, the California Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the Court of Appeal for further consideration.

The BAAQMD greenhouse gas emissions thresholds included substantial evidence that compliance with the thresholds would demonstrate that a project would be consistent with the statewide emissions reduction goal established in AB 32, and therefore, would result in a less than significant impact under CEQA. In June 2010, the Santa Barbara County Planning and Development Department produced a memorandum, "Support for Use of Bay Area Air Quality Management District Greenhouse Gas Emissions Standards," providing evidentiary support for reliance on the BAAQMD standards as interim thresholds of significance in Santa Barbara County (SBCPD, 2010). The memorandum notes that certain counties in the Bay Area are similar to Santa Barbara County in terms of population growth, land use patterns, general plan policies, and average commute patterns and times.

Given that the University does not have established thresholds of significance for greenhouse gas emissions, and UCSB is located in Santa Barbara County, the rationale for applicability of the BAAQMD thresholds should apply to the Project. Therefore, for this Project, a significant impact related to greenhouse gas emissions would occur if the Project would:

1. Exceed the daily long-term greenhouse gas significance thresholds adopted by the BAAQMD of 1,100 metric tons of CO_2E/year, or 4.6 metric tons of CO_2E/service population/year.

2. Fail to implement reasonable and feasible means to minimize greenhouse gas emissions from a qualitative standpoint in a manner that is consistent with the goals

and objectives of AB 32 as implemented through the City's 2014 Climate Action Plan.

5.7.3 Checklist Responses

a. *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Construction Emissions. Grading operations for the construction the Project would occur in phases. Phase 1 would begin in August 2016 and occur over a period of three months, and phase 2 would begin in May 2017 and occur over a period of six months. Weather-related and/or other delays that could occur in 2016 and 2017 could require grading in a third year of construction, however, an extended project construction/grading period would not increase the total amount of soil excavated and transported, and would not result in an increase in total construction-related emissions.

To estimate project-related grading/construction emissions of greenhouse gases, the CalEEMod v.2013.2.2 computer model was used and the analysis results are summarized on Table 5.7-2. Based on the CalEEMod results, grading activity for the Project would generate an estimated 1,025 metric tons of carbon dioxide equivalents. Air districts such as the SCAQMD have recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions. When amortized over a 30-year period, construction of the Project would generate an equivalent of approximately 34.2 metric tons of CO_2E per year.

Table 5.7-2
Estimated Construction Emissions of Greenhouse Gases

Year	Annual Emissions			
	Carbon Dioxide (tons CO_2)	**Methane (tons CH_4)**	**Nitrous Oxide (tons N_2O)**	**Carbon Dioxide Equivalent (metric tons CO_2E)**
2016	221	0.06	0.0	222
2017	798	0.22	0.0	803
			Total	**1,025 metric tons CO_2E**
			Amortized over 30 years	**34.2 metric tons CO_2E/year**

Source: CalEEMod 2013.2.2.

Long-Term Emissions. Operation emissions of greenhouse gases typically include emissions from mobile sources, area sources (i.e., consumer products, architectural coatings, and landscape equipment use), electricity and natural gas use, supplying water, and the disposal of solid waste. The Project would not be a substantial long-term source

of area or energy-related emission because the Project does not include the development or use of buildings that would use energy or require extensive regular maintenance. Similarly, the Project would not have a substantial long-term demand for water or result in the generation of a substantial amount of solid waste. Table 5.7-3 depicts the operation-related emissions of greenhouse gases that would result from mobile emissions associated with the Project. Mobile source greenhouse gas emissions were estimated using vehicle trip generation data from the Project's traffic evaluation (ATE, 2016), and CalEEMod 2013.2.2.

Table 5.7-3
Annual Mobile Emissions of Greenhouse Gases

Emission Source	Annual Emissions			
	Carbon Dioxide (tons CO_2)	Methane (tons CH_4)	Nitrous Oxide (tons N_2O)	Carbon Dioxide Equivalent (metric tons CO_2E)
Mobile	47.9	<0.1	0.0	48.0

Sources: ATE, 2016; CalEEMod 2013.2.2

Combined Construction, Operation, and Mobile Source Emissions. Table 5.7-4 combines the construction and mobile greenhouse gas emissions that would result from the Project.

Table 5.7-4
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (metric tons CO_2E)
Construction (amortized over 30 years)	34.2
Mobile	48
Total Project Emissions	**82.2**

Sources: CalEEMod 2013.2.2.

As shown in Table 5.7-3, project-related emissions of greenhouse gases would total approximately 82 metric tons per year CO_2E, which would be substantially below 1,100 metric tons CO_2E/year threshold of significance. Therefore, project-related greenhouse gas emissions would not exceed the significance criterion and would result in a **less than significant** impact.

b. *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

The UCSB 2014 Climate Action Plan outlines a range of energy-, transportation- and building-related measures intended to reduce campus-related emissions of greenhouse gases. As described in response "a" above, the Project would not result in substantial long-term energy use or result in the construction of buildings that would increase campus-wide energy use. Traffic that would be generated by the Project, estimated to be 78 average daily trips, would not be a substantial source of mobile emissions of greenhouse gases. Therefore, the Project would not interfere with the greenhouse gas emission targets identified by the 2014 Climate Action Plan, and the Project's greenhouse gas emission impacts would be **less than significant**.

In addition to very low project-related emission of greenhouse gases, funding for the Project includes a grant from the California Department of Fish and Wildlife Wetlands Restoration for Greenhouse Gas Reduction Program, which was developed in response to the Global Warming Solutions Act of 2006 and the California Cap and Trade program. The grant outlines several research and environmental benefit objectives of the Project, including:

- Intermittently tidal systems are relatively common along the coast of California, however, data regarding those systems is lacking in the literature. The grant provides funding to define baseline soil carbon conditions on the project site and to monitor the rate of soil and organic matter accretion in the wetlands to determine the rate of carbon sequestration in the salt marsh.

- The Project would document all fuel use associated with construction activity and calculate actual greenhouse gas emissions.

- It was estimated that Phase 1 of the grant-funded portion of the Project, which is approximately one-half of the total proposed restoration project, would sequester 549 net metric tons of carbon over 100 years. This calculation reflects a consideration for climate change impacts and existing soil carbon conditions, construction-related emissions and projected carbon sequestration by native salt marsh and native perennial grassland habitats after a period of 100 years.

- Other environmental benefits of the Project would include:

    - Provide sea level rise adaptation/migration space for habitats and species.
    - Provide habitat for federally endangered tidewater goby and to support recovery of other threatened and endangered species including California red-legged frog, western snowy plover, California least tern, Ventura marsh milk-vetch, and Belding's savannah sparrow.

- Support the enhanced use of project site by migratory shorebirds, waterfowl and resident wetland and upland bird species.
- Provide additional flood storage capacity.
- Educate and train UCSB students, community members and K-12 students in techniques of ecological restoration through focused field experience programs.
- Provide recreational and educational benefits to the community through trails, interpretive signage, guided tours, wildlife viewing, and restoration ecology.

5.7.4 Cumulative Impacts

The Project would not result in significant greenhouse gas emission. Therefore, the Project would not have cumulatively considerable effects related to greenhouse gas emission and its cumulative impacts would be **less than significant**.

5.7.5 Mitigation Measures

The NCOS Restoration Project would not result in significant impacts related to greenhouse gas emissions and no mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.8 HAZARDS AND HAZARDOUS MATERIALS – Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	✓	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	✓	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☐	✓
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	✓	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	✓	☐
f) For a project within the vicinity of a	☐	☐	☐	☐	✓

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
private airstrip, would the project result in a safety hazard for people residing or working in the project area?					
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	✓	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	✓	☐	☐

5.8.1 Setting

Hazardous Material Management

The UCSB Office of Environmental Health and Safety (EH&S) has the primary responsibility for coordinating the management of hazardous materials on campus. Environmental Health and Safety also develops and assists in the implementation of compliance strategies for all federal and state regulations related to hazardous material and waste management.

Former Oil Field Operations

Extensive oil and gas exploration and production activities were conducted in the project region in the 1920s and 30s. Most of the oil production facilities were removed from the area in the 1970s, however, some facilities located on and near the project site still exist.

Two oil wells were developed on the project site. Petan Well #2 is located north of Devereux Creek on the eastern portion of the Ocean Meadows Golf Course property. This test well was a dry hole that was drilled and abandoned in 1965. The Bishop Ranch # 1 well is located on the western portion of the golf course property. This test well was drilled and abandoned in 1964 and was also a dry hole.

The Ellwood Marine Terminal is located on the UCSB West Campus and is located south of and adjacent to the project site. The terminal was developed to load crude oil produced from Platform Holly in the South Ellwood Oil Field, located offshore from the community of Isla Vista, onto barges for transportation to Los Angeles and Bay Area refineries. The Ellwood Marine Terminal is now closed and an onshore oil transportation pipeline (Line 96 Modification Project) that became operational 2012 transports oil previously delivered to the terminal. The terminal operated under a lease agreement with UCSB, and that agreement requires that upon closure of the facility the site be restored to its natural condition.

Venoco formerly operated the terminal and is now required to obtain a Demolition and Reclamation permit from the County of Santa Barbra for the abandonment of the Ellwood Marine Terminal. Approval of abandonment activities must also be approved by the UC Regents and California Coastal Commission. Abandonment activities will include the identification of equipment that is to be removed and any equipment that will remain, and the remediation of contamination.

Wildfire Hazards

The UCSB Campus is not located within a designated high fire hazard zone, however, the 2010 LRDP Final EIR states that areas of the campus have a “moderate” wildfire risk. Large, grassy open areas on the campus, such as the project site, are considered to have a moderate wildfire risk.

The UCSB Fire Protection Division of the Environmental Health and Safety Department has the responsibility to ensure consistency between the campus and state fire regulations. In addition to the review of proposed development plans, the Fire Protection Division is responsible for monitoring vegetative growth near buildings in compliance with Public Resources Code Section 4291, which requires the establishment and maintenance of a 100-foot wildfire defensible space around buildings. The District conducts an annual weed abatement program that includes mowing and other fuel reduction activities. Consistent with these requirements, grass areas on the project site are mowed annually to reduce vegetation growth and the potential for associated wildfire hazards.

Airport Hazards

The western end of the main east-west runway at the Santa Barbara Municipal Airport is approximately 1.2 miles northeast of the project site.

LRDP Requirements

The following 2010 LRDP policy describes actions that would be implemented if grading activities on the project site encountered contaminated soil or groundwater. The areas on the project site where soil contamination would have the highest potential to occur would be located

in the vicinity of the former dry hole oil wells that were developed on the project site in the 1960's.

Policy HAZ-5. If contaminated soil and/or contaminated groundwater are encountered during excavation and/or grading activities, except where such activities are implementing a Commission-approved remediation plan, the following steps shall be taken:

(a) The construction contractor(s) shall stop work and immediately inform Environmental Health and Safety (EH&S);

(b) An on-site assessment shall be conducted to determine if the discovered materials pose a significant risk to the public or construction workers;

(c) If the materials are determined to pose such a risk, a remediation plan shall be prepared and submitted to EH&S to comply with all federal and state regulations necessary to clean and/or remove the contaminated soil and/or groundwater;

(d) Soil remediation methods could include, but are not necessarily limited to, excavation and on-site treatment, excavation and off-site treatment and/or disposal, and/or treatment without excavation;

(e) Remediation alternatives for contaminated groundwater could include, but are not necessarily limited to, on-site treatment, extraction and off-site treatment, and/or disposal; and

(f) The construction schedule shall be modified or delayed to ensure that construction will not obstruct remediation activities and will not expose the public or construction workers to significant risks associated with hazardous conditions.

5.8.2 Checklist Responses

a. *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

The NCOS Restoration Project would restore former habitat conditions on the project site. Small amounts of appropriate herbicides may be used during project development to eradicate invasive plant species such as yellow fennel and wild mustard, and small amounts of fertilizer may be used when new plants are being established. The short-term use of limited amounts of herbicides and pesticides on the project site would not result in significant hazardous material management impacts. The creation and maintenance of native habitats would not use extensive amounts of herbicides, pesticides, fertilizers, or

generate other types of "household" hazardous wastes. Therefore, the Project would not result in a substantial increase in the use, transport or disposal of hazardous materials and would have **less than significant** hazardous material or related health and safety impacts.

b. *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Short-Term Impacts. Construction-related activities required to develop the NCOS Restoration Project would primarily include the use of construction vehicles to excavate soil from the Ocean Meadows Golf Course parcel and to transport it to the South Parcel. The potential for a major release of fuel, oil or other construction-related materials would be very low, however, if a major release were to occur, potentially significant health and safety impacts and/or environmental impacts to the Devereux Slough could result as runoff water from the project site drains to the slough. Compliance with existing regulations, such as the preparation and implementation of a construction site Storm Water Pollution Prevention Plan, would reduce the potential for a substantial release of construction materials to a **less than significant** level.

The Project includes the demolition of the small (approximately 2,400 square foot) golf course clubhouse building. The structure was built in was constructed in 1965 and due to its age, it is possible that asbestos containing materials were used in its construction. Exposure to asbestos-containing materials has the potential to result in health impacts to construction workers and other persons at the project site. The management of asbestos-containing waste is regulated by a number of local, state and federal agencies. The Occupational Safety and Health Administration (OSHA) regulates the potential for work-place exposures to asbestos; the U.S. Department of Transportation regulates the transportation of asbestos-containing waste; and the disposal of asbestos materials is regulated by the California Department of Toxic Substances Control (DTSC). The Santa Barbara County Air Pollution Control District (APCD) also issues permits for building renovation/demolition projects that involve the removal of asbestos-containing materials. APCD Rule 1001, National Emission Standards for Hazardous Air Pollutants – Asbestos, provides notification and reporting requirements related to potential emissions of asbestos fibers. Compliance with existing regulations would reduce potential asbestos exposure impacts should the clubhouse structure have asbestos containing materials to a **less than significant level**

Long-Term Impacts. As described in response "a" above, the Project's short- and long-term use of hazardous materials would be limited to small quantities of appropriate herbicides and fertilizers. Therefore, the project would have a low potential to result in a release of hazardous materials or waste and project-related related health and safety impacts would be **less than significant**.

c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

At its closest point (the southeast corner of the project site) the project site is approximately 0.25 miles from the Isla Vista Elementary School. As described in response "a" above, the Project would not result in hazardous emissions, would not handle substantial quantities of hazardous materials, and would not use any acutely hazardous materials. Therefore, the project would have **no impact** to school facilities related to the use of hazardous materials.

d. *Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

A recent query of the California State Water Resources Control Board GeoTracker data base (http://geotracker.waterboards.ca.gov) indicated that there are no hazardous material sites or hazardous material sites regulated by the State Water Resources Control Board or the California Department of Toxic Substances Control located on the project site. The closest cleanup program site is at the Ellwood Marine Terminal. The terminal is located south of and adjacent to the project site and former operations resulted in known contamination of soil and groundwater. As indicated in Section 5.8.1 above, the Ellwood Marine Terminal is to be formerly abandoned, which will include the remediation of contamination. Policies of the 2010 LRDP address the remediation of contamination at the terminal. Specifically, Policy ESH 50 requires, in part:

> **Policy ESH-50 –** The Ellwood Marine Terminal (EMT) Facilities shall be removed and the site shall be restored to maximize habitat values. The EMT site shall be evaluated for soil and groundwater contamination, and a remediation plan shall be prepared and submitted to campus Environmental Health and Safety that complies with all federal and state regulations to clean and/or remove the contaminated soil or groundwater.

With the implementation of an abandonment plan that has been approved by the University, the California Coastal Commission and the County of Santa Barbara, contamination that is known to exist at the Ellwood Marine Terminal would have **less than significant** impacts on the proposed restoration project.

Additional information regarding other on-site conditions that have the potential to result in a significant hazard to the public or the environment is provided below.

A Phase I Environmental Site Assessment (ESA) (URS, 2003) was prepared to identify and evaluate Recognized Environmental Conditions affecting the 652-acre Ellwood-

Devereux Open Space Area, which includes the project site; the Ellwood Mesa, which is west of and adjacent to the project site; and other open space parcels located near the project site. Recognized Environmental Conditions are defined as "*the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water on the property*."

The ESA describes historic oil production activities that occurred in project region and identified 18 known abandoned oil production and exploratory wells on the study area (the Ellwood-Devereux Joint Management Area) properties. Two of the known wells, Petan Well #2 and Bishop Ranch # 1, are located on the Ocean Meadows Golf Course property (Figure 5.8-1). Both wells were dry holes and they were abandoned the same year they were drilled. The ESA stated that the dry holes located on the project site "are not considered to be a concern unless a residential development footprint is constructed over the wellhead." The Project would not result in any residential development on or near the existing on-site oil wells.

Grading that would occur in the vicinity of Petan Well #2 would lower the existing ground surface elevation to conditions similar to those that existed before the Ocean Meadows Golf Course was constructed. The on-site wells were drilled before the golf course was constructed, therefore, it is unlikely that proposed project's grading would encounter the wells. In 2011, the State of California Division of Oil, Gas, and Geothermal Resources (DOGGR) determined that based on their review of drilling records for the on-site wells, no additional well abandonment work was necessary for the proposed open space land use (Campbell Geo, Inc., 2015). The existing on-site wells would be located prior to the start of grading activities and the elevation of the wells would be determined. In the unlikely event that a well casing is encountered during site grading, it would be plugged and abandoned in accordance with requirements specified by California Code of Regulations Title 14, Division 2, Chapter 4. Compliance with these regulations should a former well be encountered during grading operations would reduce health and safety impacts to a **less than significant level**.

A feature commonly associated with drilling sites is a sump, which is a depression in the ground near the well that is used to contain drilling fluid, debris and waste produced by the drilling operation. Since the on-site wells were dry holes the potential for contamination may be reduced when compared to the potential for a producing well, but the potential to encounter localized contamination could exist. Soil testing would occur in the vicinity of the abandoned oil wells prior to the start of grading and in the unlikely event that contamination is detected, or if excavations at the project site uncover any suspected waste product or residue, the UCSB Office of Environmental Health and Safety (EH&S) would be contacted. EH&S would conduct the necessary assessments of the contamination site to determine if the suspected material is hazardous, and if necessary, the material would be removed or remediated in accordance with federal,

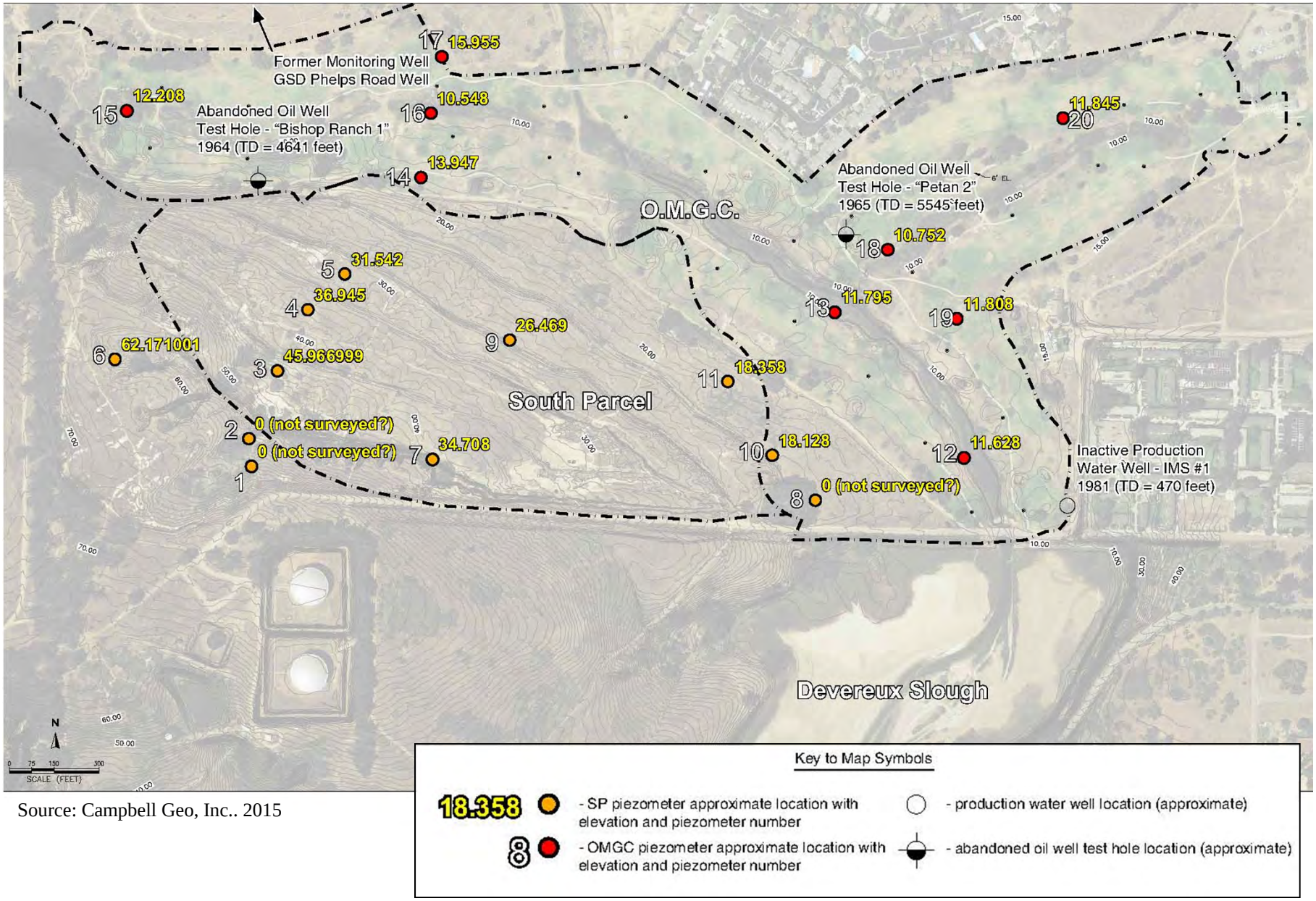
state, and University regulations and policies as required by 2010 LRDP Policy HAZ-5. With the implementation of existing regulatory and policy requirements, the potential for hazardous material-related impacts associated with the abandoned oil wells located on the project site would be **less than significant**.

Other Recognized Environmental Conditions identified by the ESA included areas with known subsurface contamination; the potential for contamination associated with the operation of the Ocean Meadows Golf Course; and water wells known to be located in the study area. Additional information regarding these conditions is provided below.

Areas with known subsurface contamination identified by the ESA included the Santa Barbara Shores and Ellwood Mesa parcels, which are located west of the project site; and portions of the Ellwood Marine Terminal. The State Water Resources Control Board GeoTracker website (accessed November 17, 2015) indicates that contamination cases located on or near the Santa Barbara Shores and Ellwood Mesa parcels have been closed. The Ellwood Marine Terminal contamination case was described above.

The ESA states that based on the observed conditions of the maintenance facility on the Ocean Meadows Golf Course, there is a potential for contamination impacts to subsurface soils from hazardous substances (e.g., fuels and lubricants, battery acids, paints, solvents, etc.) in the maintenance facility area. The golf course was closed in 2013 and maintenance-related substances such as those identified by the ESA are no longer stored on the project site. In the event that contamination is detected on the golf course property, the UCSB Office of Environmental Health and Safety (EH&S) would be contacted. EH&S would conduct the necessary assessments of the contamination site to determine if the suspected material was hazardous, and if necessary, the material would be removed or remediated in accordance with federal, state, and University regulations and policies as required by 2010 LRDP Policy HAZ-5. With the implementation of existing regulatory and policy requirements, the potential for hazardous material-related impacts associated with the former operation of the golf course would be **less than significant**.

The ESA identified nine known water wells on the study area properties. One of the identified wells is located near the southeast corner of the project site adjacent to the West Campus Apartments (Figure 5.8-1). Proposed grading for trail construction would occur adjacent to the location of the well but the well would not be disturbed. In addition to the on-site water well, 20 piezometers have been installed on the project site to measure groundwater levels (Figure 5.8-1). All of the piezometers located within proposed grading areas (17 of the existing piezometers) would be removed prior to the start of proposed grading operations. The three piezometers that would be retained are



Source: Campbell Geo, Inc.. 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.8-1

Well and Piezometer Locations

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located on areas of the South Parcel that would not be graded. Therefore, potential impacts associated with the disturbance of the on-site water well and piezometers, such as introducing contaminants to groundwater resources, would be **less than significant**.

e. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

The Project would not result in the development of any new buildings or result in large concentrations of people on the project site, and structures developed as part of the project would consist primarily of pedestrian bridges. Therefore the Project would not result in structure height conflicts with aircraft operations, and the project would not provide lights or reflective surfaces that could adversely affect aircraft operations. Therefore, the project would result in **less than significant** airport-related safety impacts.

f. *For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

There are no private airstrips located in the vicinity of the UCSB campus. Therefore, the project would have **no impact** related to airstrip operation safety.

g. *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

The project site is located near Storke Road, which is an arterial roadway in the project area. The Project would not result in any short- or long-term modifications to Storke Road or other roadways in the project area, or result in construction activities that would temporarily close roadway travel lanes. As described in Section 5.15.2 (Transportation and Traffic) of this IS/MND, the Project would generate approximately 78 average daily vehicle trips. This limited amount of traffic would not result in long-term impacts related to emergency access into or out of the project area. Therefore, the Project would have a **less than significant** impact related to emergency response or evacuation plans.

h. *Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Vegetation on the project site is primarily non-native grassland, which presents a moderate wildfire hazard. Annual mowing of the grasses on the project site is conducted to reduce fuel loads and minimize wildfire risk.

Proposed grading activities would remove most of the non-native grassland from the project site and site clearing and grading would occur during the dry summer season, which extends from May into October. The operation of construction equipment in

grassland areas would have the potential to create sparks or other ignition sources that could result in a grass fire. The highest potential for fire-related impacts would be in the late summer when vegetation moisture and humidity is low, and when high temperatures and wind conditions exist. When these types of conditions occur, the Santa Barbara County Fire Protection District may issue a Red Flag Warning and recommends that persons use extreme caution when operating spark of flame producing machinery in hazardous grass or brush areas. The operation of mechanical equipment in grassland areas during high risk weather conditions could have the potential to result in a significant wildfire risk impact. This potential impact is **significant and mitigable** and would be reduced to a less than significant level by suspending on-site vegetation clearing operations when a Red Flag Warning is in effect.

The Project would establish native 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. Plant communities proposed for the project site that would have an elevated fire risk potential would be limited in size (e.g., only 16.1 acres of coastal sage scrub habitat would be created) and would be located primarily on the southern and eastern portions of the project site, which are generally adjacent to undeveloped open space. Therefore, habitat restoration on the southern and eastern portions of the site would not substantially increase the potential for or the severity of wildfires when compared to existing conditions. Proposed habitat restoration on the northern and eastern portions of the project site would create a mosaic of wetland and upland habitats that would be located near areas developed with residential uses. The creation of native habitat areas along the northern and eastern perimeters of the project site would increase fuel loading (the amount of vegetation) located near residential areas, which would have the potential to increase existing wildfire risk impacts. This would be a potentially **significant and mitigable** impact that would be reduced to a less than significant level. A 100-foot wide defensible space would consist of a 30-foot wide area adjacent to buildings or structures that is cleared of flammable vegetation, although single specimens of trees or other vegetation may be retained provided they are maintained in a condition that avoids spread of fire to other vegetation or to a building or structure; and a 70-foot wide area where spacing (horizontal and vertical clearance) is provided between trees and shrubs planted in this area that minimizes the potential for the spread of flames.

5.8.3 Cumulative Impacts

Hazardous material use on the project site would be very limited and the potential for a major release during site construction or long-term operations would be very low. Any existing contamination encountered during on-site grading would be remediated under the direction of the UCSB Office of Environmental Health and Safety. The potential for any Project-related remediation efforts that may be required to result in significant off-site impacts, such as air quality impacts from soil excavation and treatment, would also be very low and would not

substantially contribute to remediation effort impacts that may occur at the Ellwood Marine Terminal in the future. Therefore, the Project's contribution to hazard-related impacts in the project region would not be cumulatively considerable and the Project's cumulative hazard-related impacts would be **less than significant**.

5.8.4 Mitigation Measures

Impacts Reduced to a Less Than Significant Level with Proposed Mitigation

Implementation of the following mitigation measures would reduce to a less than significant level potential wildfire impacts that may result from land clearing activities and the establishment of native plant communities on the project site.

IMPACT HAZ-1 The operation of construction equipment in non-native grassland areas has the potential to introduce ignition sources that could cause a grass fire.

HAZ-1a. Vegetation clearing activities shall not occur on the project site when the Santa Barbara County Fire Department has issued a Red Flag Warning for the project region.

IMPACT HAZ-2 The proposed project would result in the establishment of native plant communities that could create a moderate to high wildfire risk.

HAZ-2a. A 100-foot wide defensible space shall be established and maintained around the northern and eastern perimeters of the project site. The UCSB Fire Protection Division of the Environmental Health and Safety Department shall review and approve proposed planting and maintenance plans to ensure that appropriate defensible space is provided and maintained on the project site.

The establishment and maintenance of defensible space on the northern and eastern perimeters of the project site adjacent to existing development and consistent with the requirements of Public Resource Code Section 4291would substantially reduce the potential for wildfire impacts of the Project. In addition, the UCSB Fire Protection Division would inspect the defensible space area as part of their campus-wide annual weed abatement program. With the implementation of proposed mitigation measures HAZ-1a and 2a the potential wildfire impacts of the Project would be reduced to a less than significant level.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.9 HYDROLOGY AND WATER QUALITY - Would the project:					
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	✓	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	✓	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	✓	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	✓	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	✓	☐

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?	☐	☐	☐	✓	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☐	✓
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	✓	
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☐	✓
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	✓	

5.9.1 Setting

Regional and Project Site Conditions

Devereux Watershed. The project site is located at the downstream end of the Devereux Watershed, which is a 3.5 square mile watershed that includes Devereux Creek, Phelps Creek and several unnamed tributaries. Devereux Creek and Phelps Creek are the main sources of freshwater flow on the project site. Devereux Creek extends from east to west 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 mostly 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.

Storm Drain and Sewer Infrastructure. Storm water outfalls enter Phelps Creek from the east and west, just upstream of its confluence with Devereux Creek on the golf course parcel. The outfall on the west side of the creek discharges storm water from the North Campus Faculty Housing project (Ocean Walk), and the outfall on the east side of the creek discharges runoff from Ocean Walk and 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 the West Campus Apartments flow in a storm drain to an outlet on the southeast wingwall of the Devereux Creek Bridge, directly into Devereux Slough. Existing drainage infrastructure in the project area is shown on Figure 1.4-9.

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.

The entire South Parcel drains southeasterly to two 24-inch corrugated metal pipes under Venoco Road 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. 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. Since much of the lower portion of the Devereux Creek watershed has been developed with urban uses, rainstorms lead to rapid flooding that quickly subsides to low flows.

FEMA Flood Plain: 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 5.9-1 shows the 100-year floodplain for the project area.

Project Site Topography. The natural topography of the project site has been extensively modified. Land on the project site was cleared for grazing and agriculture starting in the 1800's and site modifications for agricultural and oil exploration operations continued through the early 20th century. More substantial changes to the site resulted from the removal of topsoil and filling of the northern portion of the Devereux Slough to construct the Ocean Meadows Golf Course and for other land development. Grades on the golf course parcel range from zero to 10 percent, and elevations range from five to 15 feet above sea level. The South Parcel slopes generally to the northeast, and the Project area ranges in elevation from approximately fifteen feet above sea level along the property's eastern border, and approximately 72 feet above sea level near the southwest portion of the project site. Average slopes range between five to 30 percent.

LRDP Policy Requirements

The 2010 LRDP includes policies and project approval requirements related to the reduction of potential water quality impacts that the Project would be required to implement. Water quality policies applicable to the Project include WQ-1, WQ-2, WQ-5, WQ-9 and WQ-10. These policies are listed in IS/MND Section 5.6.1.

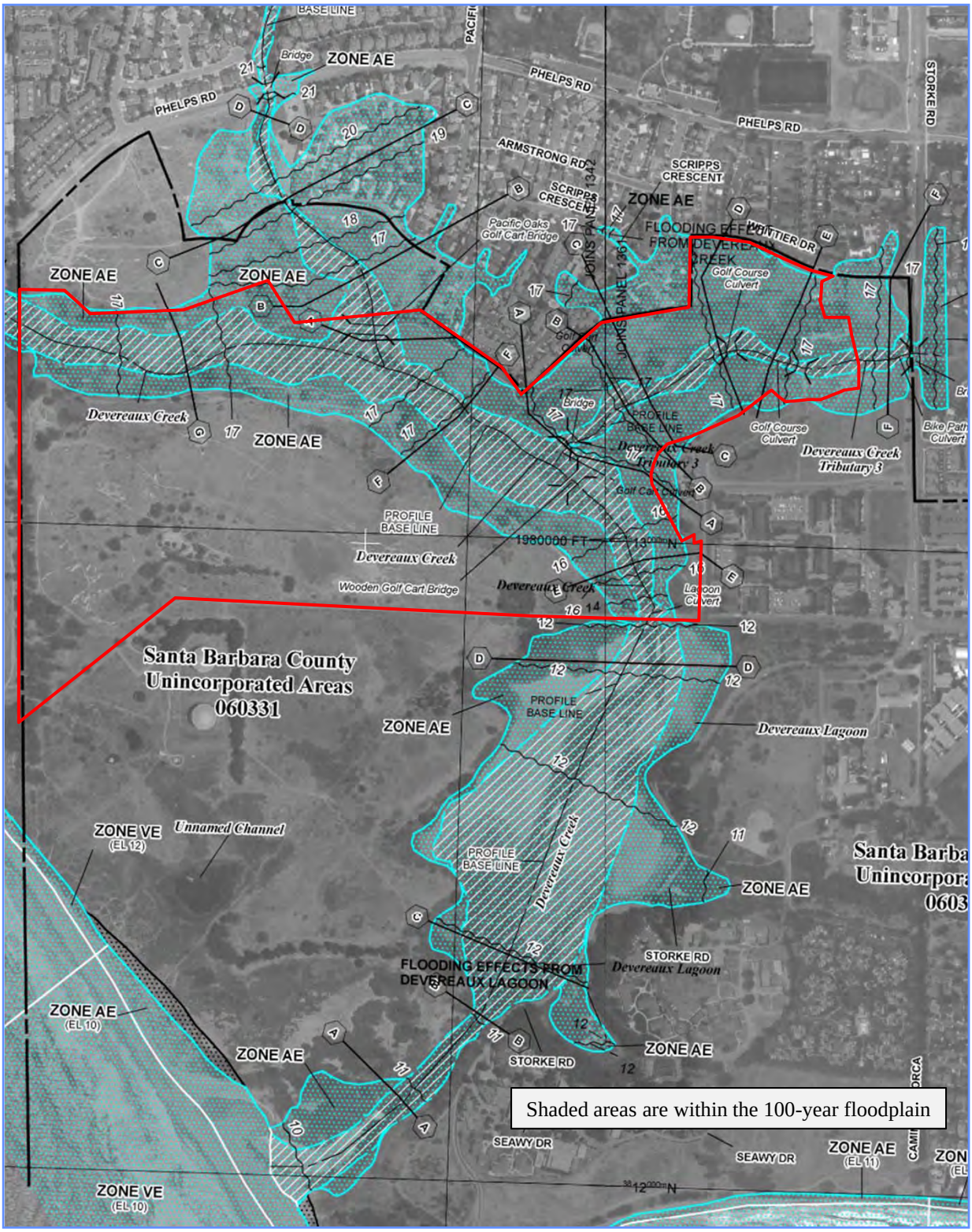
5.9.2 Checklist Responses

a. *Would the project violate any water quality standards or waste discharge requirements?*

The NCOS Restoration Project would result in the restoration of Devereux Creek and the Devereux Slough. Devereux Creek is listed on the State of California's List of Impaired Waterbodies 303(d) for dissolved oxygen and fecal coliform.

Short-Term Construction Water Quality

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 greater of soil. Construction sites that qualify must submit a Notice of Intent (NOI) to



Source: FEMA, 2012

Project Site

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.9-1

Existing 100-Year Floodplain

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gain permit coverage or otherwise be in violation of the CWA and California Water Code.

The GCP requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for each individual construction project greater than or equal to one acre of disturbed soil area (regardless of the site's Risk Level). 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, and the BMPs must meet the Best Available Technology and Best Conventional Pollutant Control Technology performance standards. Additionally, the SWPPP must contain a visual monitoring inspection program; a chemical monitoring program for sediment and other "non-visible" pollutants to be implemented based on the Risk Level of the site, as well as inspection, reporting, training and record-keeping requirements.

In addition to the requirements described above, Order No. 2012-0006-DWQ contains requirements for construction sites based on the sites risk of discharging construction-related pollutants, as well as additional monitoring and reporting requirements. Each construction project must complete a Risk Assessment prior to commencement of construction activities, which assigns a Risk Level to the site and determines the level of water quality protection/requirements the site must comply with. The Permit also includes provisions for meeting specific Numerical Effluent Limits and Action Levels for pollutants based on the sites' Risk Level.

The NCOS Restoration Project would disturb more than one acre of land area, therefore, the entire Project would be subject to the storm water discharge requirements of the GCP. The Project will require submittal of a Notice of Intent, SWPPP, Risk Assessment, and other Project Registration Documents required by the GCP prior to the commencement of soil disturbing activities. In the Santa Barbara Region, the State Water Resources Control Board is the permitting authority, while the Central Coast Regional Water Quality Control Board provides local oversight and enforcement of the GCP.

The project must obtain a Waste Discharge Identification Number (WDID) and upload project documentation to the Stormwater Multiple Application and Report Tracking System (SMARTS). Conformance with the CGP requirements includes the following:

- On-going erosion control, sediment control and tracking controls for the entire duration of the project.
- Perimeter protection and dust control protection.
- Weekly inspections.

- Rain Event Action Plans each time the forecast calls for 50% chance of rain or greater.
- Water quality field monitoring for pH and turbidity for runoff leaving the site.
- Evaluation of BMPs following a rain event and corrective action plans to remedy any deficiencies.
- Annual report summaries on the SMARTS website.

In addition to conformance with the CGP, the Project would be required to develop and implement a project specific Construction Pollution Prevention Plan (CPPP) as required by LRDP Policies WQ-2, WQ-9 and WQ-10. The CPPP puts a high emphasis on erosion and sediment control. Additional short-term water quality protection measures would be identified in the CPPP, such as rainy season grading restrictions and incorporation of sediment basins downstream of actively graded areas to protect downstream resources. In addition, routine inspections are required to ensure the CPPP is kept up to date with the changing field conditions and performance of the implemented BMPs. Additional information regarding the requirements of a CPPP are provided in IS/MND Section 5.6 (Geology and Soils).

The Project would also implement other water quality protection measures required by LRDP Policies WQ-1, WQ-2, WQ-5, WQ-9 and WQ-10. Additional information describing how the Project would implement the requirements of these policies is provided in IS/MND Section 5.10 (Land Use and Planning).

As a result of proposed and required construction-related water quality measures, including conformance with LRDP policies, GCP requirements and CPPP requirements, and implementation of the post-construction habitat restoration plan, the Project would not violate any water quality standards or waste discharge requirements and short-term water quality impacts would be **less than significant.**

Post-Construction Water Quality

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 on public or private land that fall under the planning and permitting authority of UCSB. Furthermore, to supplement the Phase II Small MS4 Permit, Central Coast Regional Water Quality Control Board issued Resolution No. R3-2013-0032 to further specify the applicability of post-construction stormwater management requirements for these development projects in the Central Coast Region. According to this Resolution No. R3-2013-0032, all ‘Regulated Projects require (1) site design and runoff reduction measures,

(2) water quality treatment via Low Impact Development (LID) treatment systems, and/or (3) runoff retention using LID development standards.

The NCOS Restoration Project does not meet the definition of a Regulated Project and is, therefore, not required to implement these post-construction standards. The restoration of the golf course, which includes non-native habitat (i.e. remnant golf course vegetation) and previously required maintenance activities (fertilizers, pest control, etc.), would result in water quality improvements over existing conditions. The Project would result in increased tidal action and a reduction in stagnant water ponding, which would act to increase oxygen levels and reduce fecal coliform concentrations.

The potential to include additional Low Impact Development (LID) controls on the project site was evaluated as a method to treat runoff from off-site areas prior to discharging onto the site. Several constraints were identified including insufficient space to incorporate LID features at the required size (a size adequate to treat runoff from the 95th percentile storm event) due to setbacks from existing habitat and vernal pools, desire for elevated trails for coastal access, grade constraints of the existing storm drain system, and implementation of additional LID features would reduce the total habitat area created. Based on these constraints, full implementation of the LID features is considered infeasible. In addition, a significant portion of off-site runoff that enters the project site either runs through natural drainage channels prior to entering the site or is treated by upstream water quality BMP control measures. Upstream BMPs include the large bioswale system designed to treat then entire commercial development north of the project site (Costco/Home Depot Shopping Center) and Girsh Park, water quality BMPs associated with the Courtyard Mariott Hotel at Phelps/Storke) and the LID features integrated within the North Campus Faculty Housing project. Based on the significant level of treatment for upstream runoff prior to entering the project site, the need for additional LID features at the transition points is not warranted. However, the Project design includes pre-treatment bioswales to transition flows from the existing upstream drainage areas into the project site.

This approach is consistent with 2010 LRDP Policy WQ-01, which requires the implementation of specific LID features when associated with new development. As noted above, the project does not include new development as defined by local regulations and therefore, LID requirements to not apply.

Implementation of the Project could result in an increase in trash production when compared to existing conditions if an increase in use of the site for recreation purposes was to occur. To ensure that trash is kept out of receiving waters, a trash management strategy would be implemented, including the placement of trash receptacles in the project site parking and gathering areas. In the event trash accumulation occurs within the site, additional receptacles would be provided and educational messages would be incorporated at kiosks and along the trails. Based on the trash management strategy, trash impacts are expected to be less than significant.

Overall, the Project would have a **less than significant** effect on the long-term quality of water on and leaving the project site.

b. *Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Davis et al. (1990) found that groundwater levels within the project area were generally higher than in the lower Slough by several feet. In the lower Slough, groundwater levels were closely related to slough water levels. More recent groundwater measurements collected by CCBER (2015) in the project area generally show a seasonal pattern with higher groundwater levels immediately after rainfall events and a slow decline of groundwater levels throughout the rest of the year. At the northwestern corner of the project area, there is persistent and steep gradient in groundwater levels between the adjacent mesa to the south and the creek bed. This gradient may be a source of groundwater to this corner of the site throughout the dry season.

The Project does not propose any actions that would require groundwater pumping or lowering of groundwater levels. The Project would result in more ponding of water throughout the project site as compared to existing conditions, which would likely increase groundwater recharge. In addition, the site is located in an estuarine area where groundwater is not a resource for drinking water supply due to salinity levels.

Opportunities for additional groundwater recharge would occur on the South Parcel. The South Parcel contains very high sand content soils that provide the opportunity for the creation of high percolation zones. These zones would help with groundwater recharge and to support higher elevation freshwater wetlands.

Based on the return of the slough and creek to be more consistent with the historical flooding conditions, and that the Project would not result in ground water pumping, impacts to groundwater supplies would be **less than significant**.

c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

Implementation of the Project would not substantially alter existing drainage patterns on the project site or on adjacent areas in a manner that would result in substantial erosion or siltation on- or off-site. The Project would result in modification of the bed and banks of Devereux Creek and the unnamed eastern tributary by removing fill and restoring flow depths and profiles to conditions more similar to conditions that existed before the golf

course was constructed. The proposed grading plan would facilitate the creation of aquatic/subtidal and mudflat/salt flat habitat, however, the course of Devereux Creek and the tributaries would remain unchanged.

The Project would lower the elevation of the Devereux Creek bed on the western portion of the project site. The reduced creek bed elevation would result in an increase in the gradient of the segment of Phelps Creek between where it enters the project site and where it joins Devereux Creek. An increase in the gradient of Phelps Creek 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. Construction of the two grade control structures would transition Phelps Creek and control the potential for scour-related impacts.

Sediment deposition was also studied under the existing and proposed conditions to determine if project-related grading would adversely impact sediment deposition and sediment accumulation in the Devereux Slough. Under existing conditions, the low lying areas of the project site experience sediment deposition during winter floods, but overall, suspended sediment delivery to the site is limited (Ferren et al, 1987, Davis et al. 1990, Schaaf and Wheeler 2006).The sill at Venoco Road traps most of the sediment delivered by Devereux Creek and its tributaries including Phelps Creek (Goodman, 2008).

Sediment deposition within Devereux Creek is a naturally occurring phenomenon and can be beneficial to habitat. Sediment deposition will continue to occur under the proposed condition. With the Project, Devereux Creek and the adjoining tributaries would be lowered, which would increase flood capacity but also increase opportunities for ponded water and storage. Increases in ponding and storage would result in sediment deposition and trapping of sediment during storm flows, which is consistent with existing conditions. Devereux Creek is expected to trap sediment at rates existing to or slightly greater than existing conditions based on various sediment modeling analyses which includes analysis of the slough mouth (open or closed) and marsh accretion due to sea level rise (UCSB, 2015). Marsh accretion is the process of gradual rise in the elevation of the marsh plain caused by deposition of sediment and/or organic material over time. Slight increases in sediment deposition as compared to existing conditions are considered to beneficial to habitat and the long-term site conditions.

The impacts of the Project on erosion and scour have been evaluated through the use of numerical modeling tools including HEC-RAS (ESA, 2015). One of the primary functions of the HEC-RAS model is to evaluate changes to flow conditions within Devereux Creek including peak flow, water surface elevations, velocity and scour potential. The analyses showed that under the proposed condition, flow velocities and scour potential would be lowered when compared to existing conditions. Based on the modeled conditions, existing average flow velocities range from four to six feet per second during a 100-year storm event. Average flow velocities would be reduced to one

to three feet per second under the proposed conditions. Due to the reduced flow velocities within the creek, erosion and scour of the channel bed and banks are anticipated to be less than existing conditions and result in a less than significant impact. Implementation of the Project would continue to result in some erosion, which is a natural process and beneficial to the creek. In addition, the analysis shows that removal of the golf course culverts (with the exception of the culvert crossing at the eastern end near Storke Road) would also serve to reduce flow velocities and scour potential within Devereux Creek.

The Project would also result in the removal of the sheet pile sill located near the Devereux Creek Bridge. The sill was installed when the golf course was constructed to reduce tidal flow onto the golf course property and to capture sediment from Devereux Creek prior to discharging into Devereux Slough. The sill would be removed to increase hydraulic connectivity between the Devereux Slough and the project site. 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. Without riprap or other protection, scour caused by the concentration of flow at the bridge may pose a risk to the bridge's abutments and pilings. 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 consistent with established guidelines and protocols published by the Federal Highway Administration.

Implementation of the Project would result in more flood storage capacity and slower flow rates while maintaining naturally occurring sedimentation processes within Devereux Creek. Potential erosion and scour impacts would be minimized by proposed project design features, including grade control structures and scour protection in the vicinity of the Devereux Creek Bridge. Therefore, potential on- and off-site erosion-related impacts are considered **less than significant**.

d. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

Existing and Proposed Flood Conditions

The goal of the NCOS Restoration Project is to restore the hydrologic regime of the project site and increase tidal connection within the downstream reach of Devereux Creek. The drainage pattern of the project site would not be altered and would remain similar to existing conditions.

Under existing conditions the 100-year flood plain, as defined by the approved FEMA FIRM map (2012), shows water surface elevations at 12 feet in the lower slough, 16 feet at the Devereux Creek Bridge, and increasing to 17 feet at Phelps Creek. All elevations are in NAVD '88. The HEC-RAS modeling shows that the Project would lower flood levels (i.e. water surface elevations) 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. In addition, the sheet pile sill at Venoco Road would be removed, which would improve the channel conveyance capacity and also reduces water surface elevations and 100-year flood plain area. Reductions in water surface elevations within Devereux Creek would also likely improve flooding conditions within the residential neighborhoods to the north and may result in existing residences being removed from the FEMA floodplain.

Lastly, the Project does not include any improvements on-site or upstream that would result in an increase in surface flows within Devereux Creek or Phelps Creek. Based on the Project's design, including more storage capacity and increased conveyance capacity that results in lower water surface elevations during flood events, impacts to the rate or amount of surface runoff on flooding conditions would be **less than significant**.

Sea Level Rise

Due to the proximity of the coast and the tidal influence on the project site, the Project has been designed to account for a climate change-related rise in sea level conditions. All coastal cities and entities subject to California Coastal Commission jurisdiction must address sea level rise through their General Plans, Local Coastal Programs (LCPs), Long Range Development Plans (LRDP's) and Coastal Development Permits (CDP's). In August 2015, the Coastal Commission unanimously approved their *Sea Level Rise Policy Guidance* document, which provides guidance on how local entities should incorporate sea level rise into their planning efforts. The document identifies several objectives for Specific Plans and CDP's including establishment of the following parameters:

- Projected time frame for the Project;
- Projected sea-level rise range for the proposed project;
- Determine how impacts from sea-level rise may constrain the project site;
- Determine how the project may impact coastal resources, considering the influence of future sea-level rise upon the landscape;
- Identify alternatives to avoid resource impacts and minimize risks; and

- Finalize project design and submittal for CDP approval.

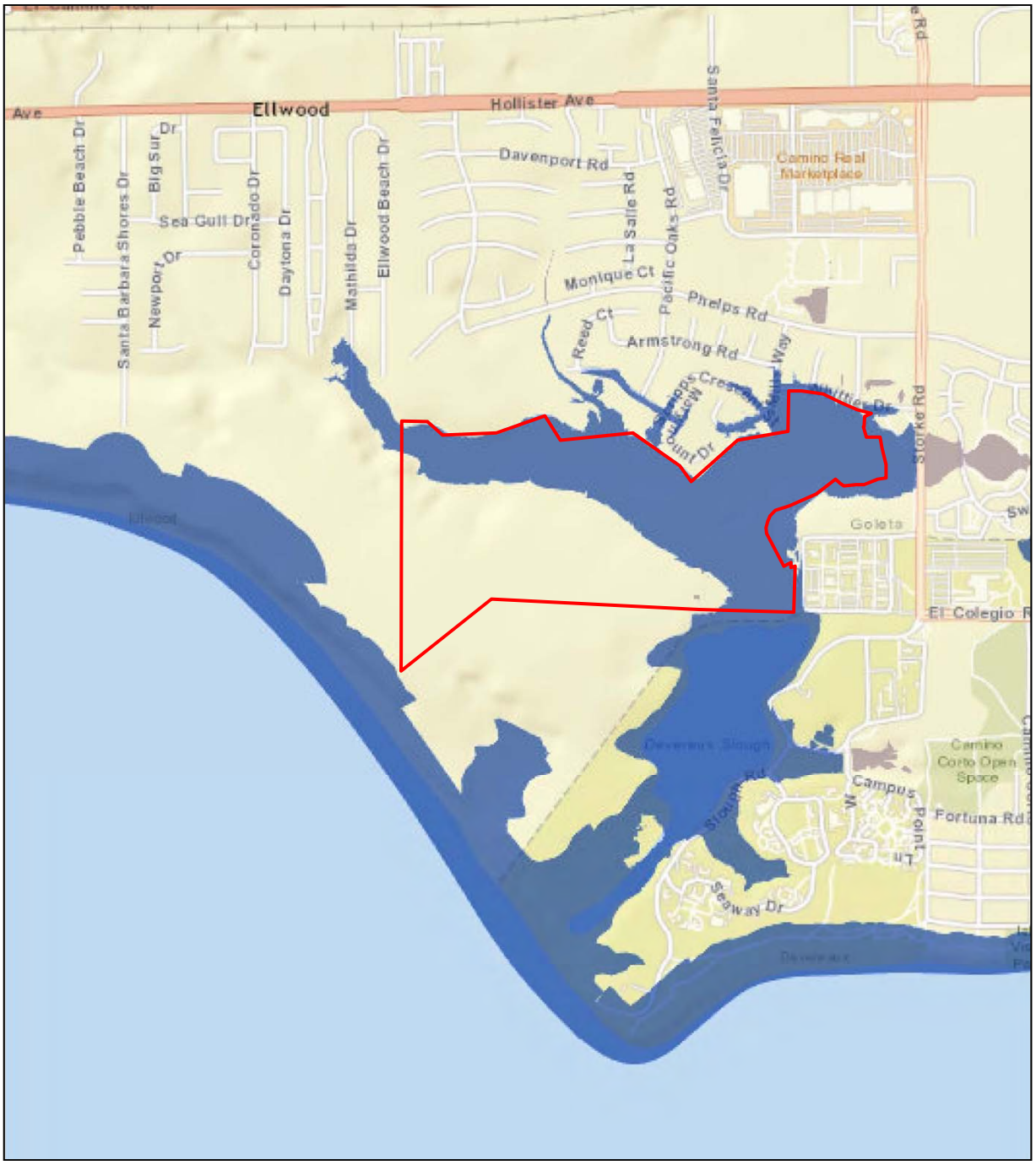
An extensive evaluation of the Project with respect to sea level rise has been conducted (ESA, 2015). That analysis included the evaluation of the following parameters:

- A sea level rise of three feet above 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.

- A coastal numerical model that takes into account tidal dynamics of the lagoon 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).

The impacts of sea level rise have been studied at both the regional scale and at the project scale. At the regional scale, Santa Barbara County is participating in the Coastal Resiliency Project and analyzed impacts based on a maximum sea level rise of five feet by 2100, combined with elevated waters due to maximum high tides and 100-year storm events. The inundation analysis depicted on Figure 5.9-2 shows a maximum inundation of the project area based on the factors noted above and indicates that the majority of residential homes remain out of the inundation zones with the exception of a few residences along Marymount Way, Mills Way and Whittier Drive. This analysis also assumes that beach berm elevation at the mouth of Devereux Creek (+12 feet) rises equally with sea level rise. This assumption is highly conservative and results in maximum inundation levels and water surface elevations upstream.



Source: Coastal Resilience http://maps.coastalresilience.org/

Project Site

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North Campus Open Space Restoration Project

Figure 5.9-2

Coastal Storm Flood Hazard Zone – 2100

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When evaluating sea level rise at the project level, a more detailed analysis was conducted that went beyond the level of detail used for the County-wide analysis. Sea level rise scenarios remained consistent with the Coastal Commission Sea Level Rise Policy Guidance document but were adjusted to reflect more medium range sea level rise projections and also accounted for uplift of the coastline, which is a naturally occurring process. Figure 5.9-3 shows the sea level rise projection used to evaluate the Project.

The detailed analysis included the development of a quantified conceptual model (QCM) of the Devereux Slough. The QCM accounts for (1) hydrology of the slough, (2) coastal influences of the beach and (3) the morphology and hydraulics of the slough mouth. The QCM model serves to predict slough responses to Project conditions and future environmental conditions, such as sea level rise. A variety of data sources were used to create various sub-models for the beach, the slough mouth and the slough itself, including data regarding:

- Coastal Influences
  - Offshore waves
  - Nearshore waves
  - Tide stage

- Beach and Lagoon Mouth
  - Inlet condition (open/closed)
  - Inlet shape
  - Beach Crest/Profile
  - Beach Sediment

- Lagoon Hydrology
  - Precipitation
  - Runoff
  - Evapotranspiration
  - Groundwater levels

The modeling effort also included comparison and calibration with real data collected over the past 15 years and demonstrated a high correlation between the modeling results and the field data. Additional details on the modeling are provided in a separate technical appendix to the North Campus Open Space Restoration Project - Appendix E - Hydrodynamic Modeling of the Lagoon (ESA 2015).

Upon validation of the model, a series of analyses were performed to evaluate a variety of existing and proposed conditions including sea level rise. Three major 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) proposed project conditions with sea level rise with closed and open slough mouth conditions. The

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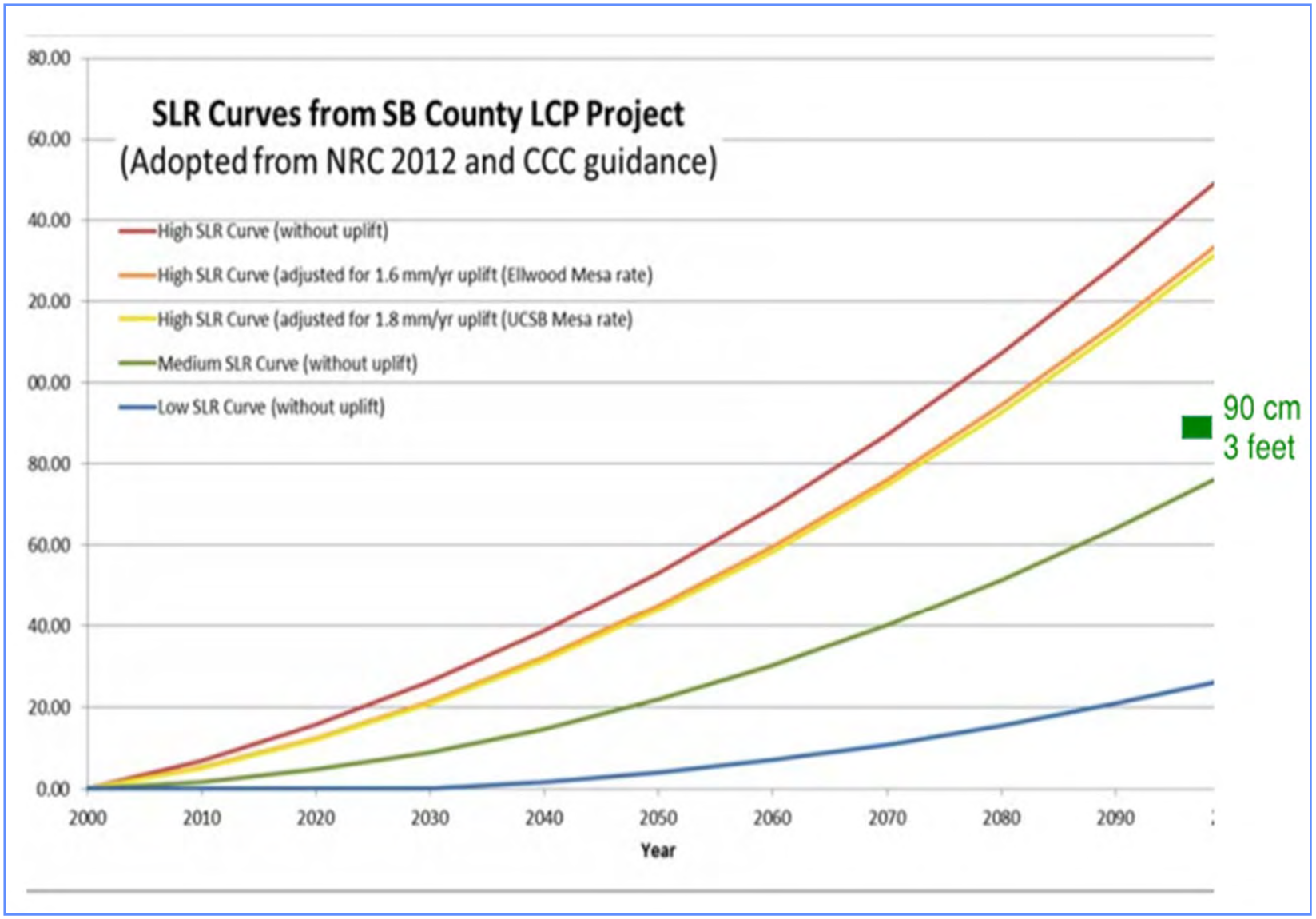

Source: ESA, 2015

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Figure 5.9-3

Sea Level Rise Scenarios

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results on the analyses are shown in Figure 5.9-4 and clearly demonstrate the Project would increase tidal waters entering Devereux Creek within the limits of the project site.

The project-specific modeling also indicated 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 and upstream neighborhoods.

In addition, the design of the Project allows for future adaption measures to accommodate sea level rise. For example, proposed Secondary and Tertiary trails could be relocated to higher elevations if sea level rise resulted in the inundation of the trails. The proposed Primary trail elevation (15 feet) is set to accommodate most or all future sea level rise by 2100. The Project's grading design also provides the capability for proposed habitat modifications as sea level rise occurs.

Based on these findings, implementation of the Project would serve to reduce existing and proposed water surface elevations, reduce flooding, and help mitigate the potential effects of sea level rise. In addition, the site-specific analysis shows that inundation levels would likely be less than the County's maximum inundation scenario based on the site-specific characteristics and the influence of the tidal exchange and the Project's grading design. Implementation of the Project with sea level rise projected out to 2100 would not negatively impact flooding and the modeling results and analysis shows water surface elevations and flooding would actually be reduced as a result of the Project. Therefore, impacts of the project related to sea level rise are considered **less than significant**.

e. *Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

The Project would not require the construction of storm drain infrastructure on the project site and potential scour and erosion impacts to the Devereux Creek Bridge are evaluated in response "c" above. Existing storm drain systems upstream of the project site would not be altered and the proposed in-stream grade control structures on Phelps Creek would be designed and constructed to control storm flow within the creek. All project-related construction activities would comply with the requirements of the Construction General Permit and no additional sources of polluted runoff are anticipated for the proposed project not previously described for both construction and post-construction. Therefore, impacts are **less than significant**.

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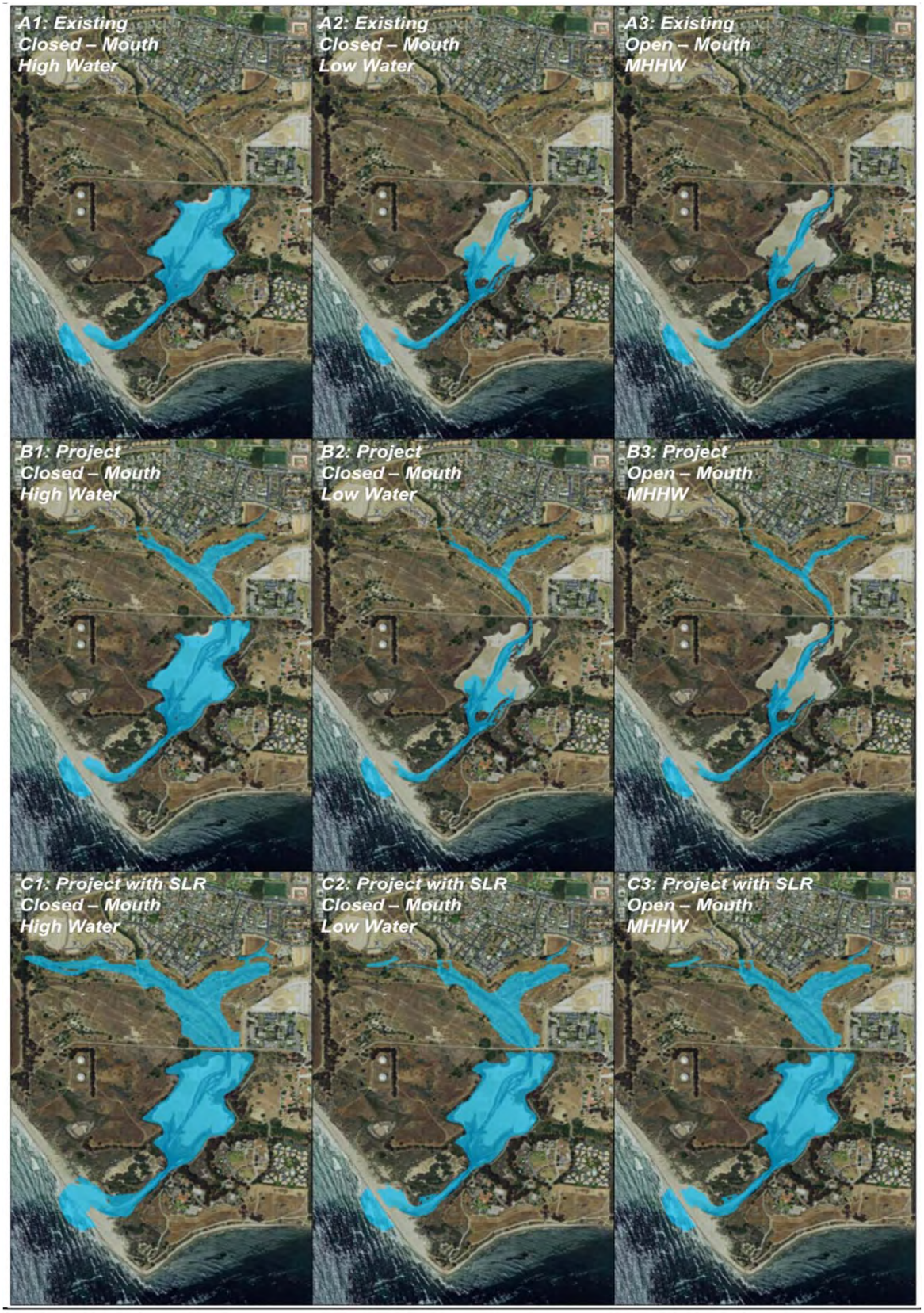

Source: ESA, 2015

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.9-4

Project Site Future Inundation Scenarios

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f. *Would the project otherwise substantially degrade water quality?*

Implementation of the Project would require a wide variety of measures and techniques to provide water quality control water during the construction process. Two important measures include temporary dewatering and the use of temporary haul roads.

Temporary Dewatering. Grading within the confluence of Phelps Creek and 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 suitable for tidewater goby. Existing ground surface elevations in this area would be lowered a maximum of approximately three to 10 feet and the pond would have a design depth of about two feet. High water flows in Phelps Creek would be directed southward through the pond and a new spillway at the southern end of the pond, and two ungrouted rip rap grade control structures would be constructed to minimize the potential for erosion-related impacts.

Construction of the grade control structures may require temporary dewatering of the Phelps Creek channel, which would be accomplished using a pump and hose. Water removed from the creek would be discharged back into the creek downstream of the construction site in a non-erosive manner. Construction of the grade control structures may require excavation and temporary slope stabilization within the creek channel. Slopes would be stabilized using steel sheet piles, which would be removed after the grade control structure provides adequate support. Turbidity of the water would be sampled in the field to determine if levels are above or below action levels (250 NTU[1]) identified in the Construction General Permit. If turbidity levels exceed 250 NTU, additional BMPs may be required to reduce sediment within the confluence area or filtering of the water prior to discharge back into the creek would be required.

Temporary Haul Roads and Staging Area. Access to the project site for construction vehicles would be from Whittier Drive and Venoco Road. Soil excavated from the golf course and Whittier Parcel would be transported by truck to the South Parcel, and temporary haul roads that cross on-site creeks would be located where there are existing golf cart path culverts, or where a temporary dry season culvert would be installed. Creation and use of the temporary haul roads has the potential to cause localized sedimentation impacts to the on-site creeks. Temporary BMP measures would be required at all the haul route crossing to minimize disturbances and impacts to the creek, and would be installed as specified in a site specific SWPPP and CPPP as required by LRDP Policies WQ-2, WQ-9 and WQ-10. Temporary control measures would likely include the use of gravel bag berms, fiber rolls and slope stabilization.

[1] Nephelometric Turbity Units, a metric used for measuring water turbidity.

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 areas will require perimeter controls to control runoff from those 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.

Implementation of the noted BMP measures would protect water quality during the construction process and impacts to water quality degradation would be **less than significant**.

g. *Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No housing development would occur as a part of the Project. As a result of the implementation of the Project, some existing homes north of the project site may benefit from reductions in water surface elevations during a 100-year flood. The Project would have **no impact** related to the placement of new housing within a 100-year flood hazard area.

h. *Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?*

Existing creek channels on the project site would be excavated to create subtidal and mudflat habitat that would periodically be inundated. The Project includes two pedestrian bridges, one pedestrian boardwalk, one pedestrian culvert and one overlook to enhance the public access component of the Project and provide educational opportunities. The proposed Primary trail system is designed to remain out of the 100-year floodplain while secondary and tertiary trails may be inundated after large storm events or through sea level rise. The proposed trail system would be designed to accommodate periods of temporary inundation and can be relocated to higher elevations as necessary.

The proposed trail system would also include the following bridge facilities. The location of the bridges are depicted on Figure 2.7-1.

- Bridge A. This pedestrian crossing culvert would be located near the Sierra Madre Housing project and would cross 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 low-rise timber boardwalk would be approximately 100 feet long by 12 feet wide. It is expected that this crossing would be a shallow crossing and would be inundated during larger storms. No vehicle loads would be placed on the structure.

- Bridge C. This bridge 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 cast in drilled hole piles 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 bridge 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 cast in drilled hole piles placed at approximately 100-foot intervals. The bridge would be inundated during larger storms and would 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.

Bridges C and D would be span bridges that would minimize impacts to the proposed tidal channel and Phelps Creek, respectively, and would also minimize impacts to biological resources. Bridge pilings would be sized and located to minimize intrusion into proposed subtidal channels while providing the structural integrity necessary for load requirements. All bridge pilings would be included in 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, such as the use of ungrouted rip rap. Bridges C and D would be located above the 100-year flood event (approximately one foot of freeboard) so flows would not be impeded during large storm events.

The final design for proposed bridges A & B will account for overtopping of flood waters during large storm events. Appropriate scour and erosion measures would be designed on both sides of the bridge to protect the channel bed and banks around the crossing.

All proposed 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. Based on the design of the bridges consistent with applicable design standards to either avoid flood waters or incorporate design that can withstand temporary inundation, impacts to flood water and structures within the 100-year floodplain would be **less than significant**.

i. *Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

The project site is not located in an area subject to impacts related to a levee or dam failure. Therefore, the Project would have **no impact** to people or structures as a result of a levee or dam failure.

j. *Would the project be subject to inundation by seiche, tsunami, or mudflow?*

Seiche. Based on the proposed grading plan, anticipated water depths on the project site would be too shallow to allow seiche (a wave or wave-link movement in a standing body of water) of noticeable amplitude.

Tsunami. The project site is mapped within the state of California's Tsunami Inundation Map for Emergency Planning and falls within two different maps including the Tsunami Inundation Map, Dos Pueblos Canyon Quad (January 31, 2009) and the Goleta Quadrangle (January 31, 2009). The tsunami inundation limits extend into the restoration site and with the lowering of the channel profile, the proposed project may allow for further or increased inundation limits. The increased inundation limits would correspond to the excavated restoration areas and would not adversely impact existing residential communities to the north or east where existing ground surface elevations would not be changed.

Mudflow. The proposed grading plan would include low-gradient slopes and a shallow bed profile, which would reduce the potential for mudflows. In addition, the proposed fill areas would be designed to achieve stability against the shear stress of tidal and flood waters under static and dynamic loadings to prevent mudflows.

Based on a review of the proposed project, inundation by seiche, tsunami or mudflow would be **less than significant**.

5.9.3 Cumulative Impacts

Cumulative impacts related to hydrology, flood control, erosion and scour and water quality are highly dependent upon the watershed and governing general plan which identifies how much potential land development and additional conversion of permeable undeveloped surfaces may be developed into impervious surfaces. Based on a review of the City of Goleta's Proposed Land Use Map of their approved General Plan, there are no major undeveloped areas tributary to Devereux Creek that may be developed in the future in accordance with existing General Plan Requirements. Therefore, there are no anticipated projects that would significantly alter the hydrology and flood flows within the watershed. In addition, any redevelopment projects that occur within the City or County would be subject to water quality treatment requirements consistent with the local MS4 storm water permit. Therefore, over time, as redevelopment projects occur within the Devereux Creek watershed, the water quality of runoff into the project site should improve over time. Based on limited development opportunity within the watershed and the long-term improvements to water quality over time, cumulative impacts to hydrology, flood control, erosion and scour and water quality are considered less than significant.

5.9.4 Mitigation Measures

The potential hydrology and water quality impacts of the Project would be reduced to a less than significant level through proposed project design features and the implementation of LRDP policies and applicable structure design standards. Therefore, no mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.10 LAND USE AND PLANNING - Would the project:					
a) Physically divide an established community?	☐	☐	☐	☐	✓
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	✓	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☐	✓

5.10.1 Setting

2010 LRDP. Land use planning requirements for the UCSB campus are provided by the 2010 Long Range Development Plan (LRDP), which was approved by the Regents in September 2010 and the California Coastal Commission in November, 2014. The LRDP identifies and describes the physical development needed to achieve the campus's academic goals through 2025; is a land use plan for the development of future campus facilities; and addresses the requirements of the California Coastal Act of 1976. The 2010 LRDP applied an "Open Space" land use designation to the project site (IS/MND Figure 1.4-2).

A portion of the project site, including Devereux Creek, is within the California Coastal Commission original jurisdiction and will not be subject to the LRDP policies and will be permitted in accordance with the Coastal Act and a Coastal Development. The South Parcel is covered under a permanent conservation easement managed by the Santa Barbara County Land Trust.

5.10.2 Checklist Responses

a. *Physically divide an established community*?

The NCOS Restoration Project is located on three existing parcels: the former Ocean Meadows Golf Course, South Parcel and Whittier Parcel. The 136.4-acre project site is presently open space that is generally used for a variety of active and passive recreation uses. Land uses adjacent to the project site include residences in the City of Goleta and UCSB faculty housing to the north; UCSB student residences to the east; the Devereux Slough, former Ellwood Marine Terminal and open space associated with the Coal Oil Point Reserve to the south; and permanent open space in the City of Goleta to the west.

The upper portion of the Devereux Slough was formerly located on the project site and was filled during the mid-1960's to create the Ocean Meadows Golf Course. Approximately 500,000 cubic of soil was used to fill the slough and most of the fill soil was obtained from the South Parcel portion of the project site. The Project would result in the restoration of conditions similar to those that existed on the project site before the golf course was constructed. Restoration of the former slough and associated habitat resources would require that approximately 355,000 cubic yards of soil be removed from the golf course property and the excavated soil would be returned to the South Parcel.

Proposed grading and restoration activities would be confined to the project site and would not occur in any adjacent residential or open space areas. Vehicle access to the project site would continue to be provided from Whittier Drive to the north of the site, and from Venoco Road to the south of the site, and no changes to existing access or circulation patterns in the Project area would be required to implement the Project. Therefore, the Project would not divide or isolate any uses on or near the project site and would have **no impact** related to this significance criterion.

b. *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

The 2010 LRDP identifies five major goals and identifies how elements of the LRDP implement each of the goals. The five goals of the 2010 LRDP are:

- Mature the academic programs
- Strengthen the campus form
- House students, faculty and staff
- Integrate sustainable practices
- Contribute to regional solutions

The NCOS Restoration Project site is part of the 652-acre Ellwood-Devereux Open Space Area, which was established in 2004 through a cooperative effort by UCSB, the City of Goleta and the County of Santa Barbara. The purpose of the Ellwood-Devereux Open Space Area is to comprehensively plan the preservation, management, and development of the Ellwood-Devereux coastal area. The specific development, open space management and public access strategies for the Open Space Area are described in the *Ellwood-Devereux Coast Open Space and Habitat Management Plan* (2004), which was prepared by the City of Goleta, UCSB, and the County of Santa Barbara to comprehensively plan the land use of the Ellwood-Devereux coast.

Project-related restoration efforts would expand the Devereux Slough and associated wetland, transitional and upland habitats. The Project would also provide public access and recreation amenities, and promote educational opportunities that would be available to UCSB and the general community. Therefore, the Project would be consistent with the regional solutions goal of the 2010 LRDP by furthering the goals of the community-wide open space preservation and planning efforts that were conducted as part of the creation and adoption of the *Ellwood-Devereux Coast Open Space and Habitat Management Plan.*

Proposed development projects undertaken at UCSB must be consistent with the policies of the 2010 LRDP. An evaluation of the NCOS Restoration Project's consistency with applicable LRDP policies is provided on Table 5.10-1.

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Land Use	
LU-01 - A maximum of 3.6 million gross square feet (GSF) of additional academic and support uses may be developed on the UCSB campus where designated on Figure D.3, Potential Development Areas, and provided that it is consistent with all other policies and provisions of the LRDP.	**Consistent.** The Project does not propose any academic or support buildings that would contribute to the maximum building area allowed on the campus.
LU-05 - Development shall be planned to fit the topography, soils, geology, hydrology, and other conditions existing on the site so that grading is kept to a minimum. Campus development shall protect, and where feasible restore, natural hydrologic features such as natural stream corridors, groundwater recharge areas, floodplains, vernal pools, and wetlands.	**Consistent.** The Project would restore 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 before the construction of the Ocean Meadows Golf Course. The Project would create and enhance a variety of habitat types, including estuarine, seasonal wetland, riparian, vernal pool and native upland habitats. To achieve the Project's restoration objectives, the topography and hydrology of the project site would

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	not be retained but instead be restored to conditions similar to what previously existed before the site was modified to construct the golf course.
LU-19 – The North Campus Open Space shall be used for purposes of open space preservation, coastal wetland and wildlife habitat conservation and restoration, public access, passive recreation, research and environmental education. Development on the North Campus Open Space – Ocean Meadows site (formerly the Ocean Meadows Golf Course) shall be consistent with the following standards: **a.** Development at the North Campus Open Space - Ocean Meadows site shall include the enhancement, maintenance, and restoration of wildlife habitat. **b.** Restoration includes, but is not limited to, the completion of projects to control existing erosion and sediment transfer into the Devereux Slough and eliminate non-native invasive plants, creating new wetland and riparian areas, and enhancing wetland and riparian buffer zones. Restoration should create a complex of complementary resources, and ensure food and refuge are available at the times the target animals need them. Restoration and enhancement improvements may be implemented as mitigation for development projects or as voluntary projects as funding becomes available. **c.** The University shall implement restoration of North Campus Open Space – Ocean Meadows in phases, consistent with the deed restriction recorded on March 29, 2013 (Deed Restriction Document No. 2013-0021895) required pursuant to California Coastal Commission issued Coastal Development Permit No. 4-12-044. **d.** Public coastal access shall be maintained and enhanced. Coastal access parking shall be maintained generally within the developed parking lot. Trail improvements shall be undertaken through the site to link the North Campus Open Space – Ocean Meadows site and coastal access parking with the surrounding trails and open space on South Parcel and Coal Oil Point Reserve. **e.** The clubhouse, or similar structure in approximately the same location, shall serve as a visitor or interpretive center for the express purpose of providing environmental educational opportunities to the general public. Parking near the	**Consistent.** The Project would create and enhance a variety of native habitats, including estuarine, seasonal wetland, riparian, vernal pool and native upland habitats. Those habitats would replace what is now predominately non-native grassland and remnant golf course-related ornamental landscaping. The native habitats to be provided would enhance the value of the project site as wildlife habitat. Grading that occurred on the South Parcel to obtain soil for the construction of the Ocean Meadows Golf Course has result in long-term erosion and sedimentation impacts to the Devereux Slough, and past efforts to correct the problem, such as the construction of water diversion berms and a sedimentation basin, have been unsuccessful. The Project would correct existing drainage and erosion issues by providing soil on the South Parcel that would support vegetation growth, which will reduce long-term sedimentation impacts to the slough. The Project would result in the creation of a variety of native habitats that would support a wide variety of plant and animal species, including the federally endangered tidewater goby and other threatened and endangered species including California red-legged frog, western snowy plover, California least tern, Ventura marsh milk-vetch, and Belding's savannah sparrow. Grading and subsequent revegetation of the project site would be conducted in two phases. In general, grading on the northern, eastern and western perimeters of the project site is proposed to occur in the summer of 2016, and grading on the central portion of the site would occur in summer of 2017. Grading may occur on the project site for a third year (2018) if weather or other conditions prevent the completion of grading activities over a two-year period. The Project would provide a network of trails on the project site (IS/MND Figure 2.7-1) and parking for approximately 30 vehicles would be located on the

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clubhouse shall serve both the visitor (or interpretative) center and general coastal access purposes. **f.** No development shall occur on the North Campus Open Space - Ocean Meadows site except for the following, and then only if approved pursuant to a Coastal Development Permit or Notice of Impending Development: **1.** Demolition and removal of existing structures, and rehabilitation of the existing clubhouse and storage structure provided it is limited to approximately the same size, footprint, and development areas; **2.** Habitat restoration and enhancement, including associated grading and drainage improvements for such purposes; **3.** Installation, repair or upgrading of utilities, including sewer lines, storm drains, water lines, irrigation lines, and similar facilities; **4.** Construction of water quality management structures; **5.** Erosion control and flood control management activities; **6.** Improvements for public access, recreation, and/or environmental education and research including, but not limited to, trails, public parking facilities, public bathrooms, fencing along designated pathways, and associated appurtenances and necessary signage; and **7.** Reconstruction of existing drains or maintenance and repair activities pursuant to an approved management and maintenance program.	former golf course parking lot. The proposed trail system would provide links to the Phelps Trail north of the project site, and the De Anza/Coastal Trail, which is south and west of and adjacent to the project site. Several of the project site trails would be accessed from Venoco Road, which would continue to provide access to the Coal Oil Point Reserve. The existing golf course clubhouse structure would not be retained, however, the Project would implement the environmental education requirements of policy subsection "e" by providing interpretive signs in the proposed "gathering area," which would be located near the former clubhouse building location. The Project would require approval of a Notice of Impending Development and a Coastal Development Permit, and would provide development identified by Policy subsection f, such as but not limited to: habitat restoration and enhancement, water quality bioswales, public access trails, and environmental education and research opportunities.
LU-21 – The North Campus Open Space - South Parcel shall remain open space available for habitat conservation and public access in perpetuity. Development on North Campus Open Space – South Parcel shall be consistent with the following standards in addition to the Commission approved Notice of Impending Development No. 1-06 unless otherwise modified below: **a.** The University shall be responsible for the enhancement, maintenance, and restoration of the North Campus Open Space - South Parcel. **b.** The University shall restore and enhance at least 11 acres of habitat and implement at least 4 acres of drainage and erosion control improvements on the South Parcel concurrent with the construction of	**Consistent.** The South Parcel property is included in the NCOS Restoration Project and shall remain open space that is restored by the Project. The proposed restoration activities would be conducted in conjunction with existing restoration activities that have been implemented as part of the previously approved South Parcel Habitat Restoration Plan (NOID 1-06). Proposed South Parcel restoration activities included in the NCOS Restoration Project include: correcting existing erosion and sedimentation transfer into the Devereux Slough by placing soil on the site that would correct existing drainage deficiencies and support native vegetation growth; the removal of invasive plants such as wild mustard and yellow fennel; creating new wetland

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North Parcel/Ocean Walk Faculty Housing. These restoration and enhancement efforts shall be in accordance with the approved Habitat Restoration Plan (NOID 1-06). Any remaining restoration and improvements shall be implemented as funding becomes available, either as mitigation for development projects or as voluntary projects **c.** Restoration includes, and is not limited to, the completion of projects on the North Campus Open Space - South Parcel to control existing erosion and sediment transfer into the Devereux Slough and the elimination of non-native invasive plants, creating new wetland areas, enhancing wetland buffer zones, trail closures, and trail improvements. **d.** The University shall implement, in phases, restoration of North Campus Open Space - South Parcel. **e.** Public coastal access shall be maintained and enhanced. **f.** Access roads and/or parking shall not be developed on this site.	areas; eliminating trails that are contributing to erosion-related impacts; and providing public access trail improvements. The proposed restoration activities on the South Parcel would be conducted in a phased manner as described in the evaluation of Policy LU-19 above, and no roads or parking areas would be located on the South Parcel.
Scenic and Visual Resources	
SCEN-03 – New development shall be sited and designed to minimize adverse impacts to the greatest extent feasible on scenic resources, including places on, along, within, or visible from public viewing areas such as public parklands, public trails, beaches, and state waters that offer scenic vistas of mountains, coastline, beaches, and other unique natural features, as identified as viewpoints, scenic routes, and trails on Figure F.4. The University shall seek to enhance primary and secondary view corridors where feasible to the ocean and scenic coastal areas shown in Figure F.4 such as by the removal of temporary buildings.	**Consistent.** The Project would the change the visual character of the project site from an open space area predominately covered with ornamental and non-native vegetation to an open space that supports a variety of native habitats. As described in IS/MND Section 5.1.2, the Project would not result in significant impacts to scenic vistas of the project site that are provided from on- and off-site locations, including the views from the locations identified by LRDP Figure F.4. Also, the Project would not result in significant impacts to scenic vistas of the Santa Ynez Mountains.
SCEN-07 - For trees with significant scenic value, the first priority shall be to avoid tree removal where feasible. If tree removal cannot be avoided, the second priority shall be relocation of the tree. If the scenic tree cannot feasibly be retained in place, the tree removal shall be conducted and mitigated consistent with the Tree Trimming and Removal Program in Appendix 2. Where a scenic tree is located within ESHA or Open Space the tree trimming and removal shall be subject to Policy ESH-29.	**Consistent with Proposed Mitigation.** As described in IS/MND Section 5.1.2, trees on the project site are considered to be "scenic" if an individual tree or a group of trees are visually distinctive and a focus of attention for reasons such as a unique appearance or size in relation to surroundings. The eucalyptus and pine trees along the northern perimeter of the project site adjacent to the University Village residential neighborhood are considered to be scenic due to their large size in relation the adjacent residences. The trees would be retained, however, project-related grading and

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	ground disturbance would have the potential to adversely affect the health of the trees. Proposed mitigation measure AES-1a requires the implementation of temporary tree protection measures that would reduce the potential for construction-related impacts to the trees to a less than significant level. It is not anticipated that the Project would result in long-term impacts to the trees. Other trees on the project site are also non-native landscape trees and most are small- to moderately-sized and many are dead or in poor health. A total of five non-native trees located on the former golf course property are considered to be scenic trees based on their size and unique appearance. Retaining the trees would not be consistent with the habitat restoration objectives of the Project, therefore, avoidance of the trees is not feasible and relocating the trees is not feasible due to their size. The Project would comply with the requirements of this policy (and the requirements of Policy ESH 29) by replacing the removed scenic trees at a 1:1 ratio. Proposed mitigation measure AES-2a implements compliance with this policy by requiring that five replacement trees be provided, preferably on the project site.
SCEN-10 - Contours of finished surfaces on the North and West Campuses are to be blended to achieve a consistent grade and natural appearance. Borders of cut slopes and fills are to be rounded off to a minimum radius of five feet so as to blend with the natural terrain.	**Consistent.** As shown on IS/MND Figure 2.3-1 (Proposed Grading Plan), cut and fill slopes that would be developed on the project site would have a rounded appearance. Proposed slopes would generally have gradients ranging between 3:1 (h:v) to 50:1 or shallower.
Safety, Stability, Pollution, Energy Conservation, Visitors	
GEO-01 - New development proposals shall be supported by geotechnical and soil studies conducted by a California-licensed geologist or geotechnical engineer, as appropriate, to determine technical requirements for adequate building foundation and infrastructure designs; such studies shall include an appropriate evaluation of seismic or liquefaction hazards that may affect the subject site. The results of such studies, and the recommendations of the preparing professional, shall be submitted in support of the pertinent Notice of Impending Development.	**Consistent.** The conclusions of a preliminary geotechnical feasibility report (Earth Systems Pacific, 2015) prepared for the Project are summarized in IS/MND Section 5.6 (Geology and Soils) and in general the report concluded "*the development of the site is feasible from a geotechnical standpoint…provided the preliminary recommendations of a future engineering report are successfully implemented"* Consistent with the recommendations of the 2015 report, building code requirements and this policy, additional site investigations and geotechnical evaluations are to be conducted as part of the Project's Stage 2 design

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	effort described in IS/MND Section 2.7 (Project Implementation). Therefore, the Project would implement the requirements of this Policy.
GEO-11 - New development shall comply with Federal Emergency Management Agency (FEMA) requirements for development in an A1-30 flood hazard zone provided that the development fully complies with all other provisions of the certified LRDP.	**Consistent.** The Project would not increase flood water levels and would reduce existing 100-year flood water levels by one to two feet by providing additional storage area for flood water on the project site.
Public Services and Infrastructure	
PS-01- In recognition of the need to conserve and manage its water resources to achieve the LRDP land use planning objectives, the University shall implement a water conservation program as follows: **A**. Water consumption in existing and new development shall be minimized by using the best available water-conserving plumbing fixtures. **B**. Landscaping practices shall minimize potable water use by: planting locally native plant species and/ or non-invasive, drought tolerant species; using reclaimed water for landscaping to the maximum extent feasible; designing efficient irrigation systems that use the minimum amount of water necessary for the applicable landscaping; and maintaining and managing irrigation systems to ensure continued water efficiency.	**Consistent.** The Project does not propose to construct any structures or uses that would result in the installation of plumbing fixtures. Should future improvements be provided on the project site, such as a restroom or drinking fountain, such uses would be required to implement the water conservation requirements of this policy. Proposed restoration of the project site would include the creation of various habitat types that would be planted with appropriate native species. As described in IS/MND Section 2.7.2 and Section 5.17 (Utilities and Service Systems), irrigation of approximately 70 percent of restoration plantings would use recycled water, and approximately 30 percent of the restoration plantings would be irrigated with potable water to limit potential salt accumulation impacts. Restoration planting irrigation would occur over a period of approximately one year and would be conducted in an efficient manner to minimize the potential for weed growth.
PS-02- Future development provided for in the LRDP land use plan will only be authorized after the University demonstrates at the time of NOID submittal that adequate water supplies, water mains, reclaimed water distribution systems, water treatment facilities, sewer services, utility lines, parking lots and structures, roadways and bicycle/pedestrian corridors, fire suppression facilities, and other essential infrastructure services will be available to supply the existing and proposed development.	**Consistent.** As described in IS/MND Section 5.17.2 there would be adequate potable and recycled water supplies to meet the Project's short-term irrigation requirements. The Project would not have a substantial long-term water supply demand and would not generate any wastewater. Should a restroom facility be constructed on the project site in the future, adequate collection and treatment capacity would exist to serve the minimal amount of wastewater that may be generated. As described in IS/MND Section 5.16.3 the Project would not generate a substantial amount of traffic (approximately 78 average daily trips) and would not result in significant traffic or circulation impacts.

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	Approximately 30 parking spaces would be provided on the project site and the project would have a beneficial effect on local circulation by providing and new primary trail that would connect on-campus and adjacent off-campus housing to Storke Road and the regional bicycle path network. As described in IS/MND Section 5.14 the Project would not result in additional population growth or building development that would result in significant fire protection and law enforcement service impacts.
Public Access & Circulation	
PA-01 - Public access to campus beaches, coastal access stairways, and coastal trails shown in Figures E.3 and E.4 shall remain open to protect the permanent right of the public for pedestrian access and recreational uses of the beach at all times, except as provided in Policy PA-06.	**Consistent.** None of the beach access facilities depicted on 2010 LRDP E.4 are located on or near the project site. IS/MND Figure 2.7-1 depicts the proposed locations of public access trails on the project site, and IS/MND Figure 5.16-5 provides 2010 LRDP Figure E.3, which depicts the locations of the certified trail routes on the project site. As described in IS/MND Section 5.16.3, the locations of proposed trails on the project site would be similar to the trail locations shown of LRDP Figure E.3. In addition, the Project would expand the trail system shown on LRDP Figure E.3 to include a primary multi-use trail on the northern portion of the site, as well as other trails and bridges. All of the proposed trail would be available for public use. A minor LRDP Amendment may be required to add the public access components to LRDP Figures E.3 and E.4.
PA-11 - Public access trails and bicycle routes shall be provided to maximize access to the coast and provide recreational opportunities. Figures E.2 and E.3 identify existing and planned routes for bicycle and trails routes, including trail types, allowed users, and locations. The alignments shown in Figures E.2 and E.3 are approximate. The final alignments shall be designed based on topographic constraints and shall be sited to minimize impacts to coastal resources to the maximum extent feasible. Where such trails or routes are in or near ESHA or natural open space areas, the siting and design of such routes shall be subject to Policy ESH-03.	**Consistent.** None of the planned bicycle routes depicted on 2010 LRDP Figure E.2 are located on the project site. As shown on IS/MND Figures 2.6-1 (Public Access Concept Plan) and 2.6-2 (Proposed Trail Types) the proposed primary trail on the northern portion of the project site would be a multi-use trail that would expand the planned network of bicycle paths depicted on LRDP Figure E.2. As described in IS/MND Section 5.16.3 (Transportation and Circulation), the locations of proposed project site trails would be similar to and expand the trail locations shown of LRDP Figure E.3. The proposed trail locations have been integrated into the design of the NCOS Restoration Project and have been designed to avoid and

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	minimize significant impacts to restored habitat areas. A minor LRDP Amendment may be required to add the public access components to LRDP Figures E.3 and E.4.
PA-12 - Motor vehicle traffic generated by new development shall not restrict or impede public access to or along the coast by exceeding the roadway capacity of existing coastal access routes on Campus. Should any proposed development significantly impact the roadway capacity of existing coastal access routes on Campus, the University shall implement or pay its fair share of costs to the City of Goleta and/or County of Santa Barbara to implement improvements to roadways and intersections or other traffic control measures necessary to mitigate the impacts.	**Consistent.** The Project would generate approximately 78 new average daily vehicle trips. As described in Section 5.16.3 the Project would not result in significant traffic-related impacts that would restrict or impede public access to the coast. In addition, UCSB will continue to implement the requirements of the Mitigation Implementation and Settlement Agreement that UCSB entered into with the County of Santa Barbara and the City of Goleta, which among other things specifies that UCSB will provide "fair share" payments for specified roadway and intersection improvements.
TRANS-08 - The University will provide interpretive signs, as funding allows, to highlight environmentally sensitive areas which could be damaged by excessive or unauthorized access. The University shall continue to sign, maintain and improve authorized bicycle and pedestrian accessways to the beach to protect sensitive habitat areas and public safety.	**Consistent.** The Project would provide interpretive signs in the proposed gathering area and along the proposed primary trail that would be located along the northern perimeter of the site. The Project site is not near any beach area and would not provide access to any beach access improvements.
TRANS-09 - The University will work with the County of Santa Barbara, City of Goleta and others, including the Coastal Commission staff, to create a sensitively-designed comprehensive network of trails to link the University's housing developments to each other and to publicly accessible open space and recreational areas. Implementation of trail segments may be undertaken in accordance with a Notice of Impending Development for specific locations and subject to all other provisions of the certified LRDP, including siting and design criteria near open space and environmentally sensitive habitat areas. The University shall submit evidence of coordination with the County and the City, including comments received, at the time of the subject Notice of Impending Development submittal.	**Consistent.** The proposed primary trail on the project site would be a multi-purpose (used by pedestrian and bicycles) all-weather trail that would provide an alternative transportation route that would connect the UCSB Ocean Walk, Sierra Madre Apartments and West Campus Apartments, and residences in the City of Goleta, to Storke Road. Storke Road provides access to existing bicycle paths that connect to the regional bicycle path system, as well as connections to existing sidewalks that lead other local destinations such as shopping, the Isla Vista Elementary School and the UCSB Main Campus.

TRANS-22 - Site planning for the North and West Campuses shall ensure that trails through the North and West Campuses (Figure E.3) are aligned to connect with existing and planned public trails in the adjoining Ellwood-Devereux open space.	**Consistent.** The trail locations depicted on LRDP Figure E.3 (IS/MND Figure 5.16-5) are approximate and as described in IS/MND Section 5.16.3 (Transportation and Circulation), the locations of proposed project site trails would be similar to and would expand the trail system shown on LRDP Figure E.3. A trail plan for the project site and surrounding areas is also depicted on Figure 12 of the *Ellwood-Devereux Coast Open Space and Habitat Management Plan* (2004). Figure 12 from the *Habitat Management Plan* is provided as IS/MND Figure 5.16-6 and it shows the conceptual locations of trails on the NCOS Restoration Project site, the Coal Oil Point Reserve to the south, and the Ellwood Mesa area to the west. A variety of trail types exist and/or have been planned for the Ellwood-Devereux area, including the combined Juan Bautista de Anza Trail and Coastal Trail. This trail currently extends east to west along Venoco Road and north to south along the western perimeter of the site. In addition to being a regional trail, the Anza/Coastal trail provides connections to many of the existing and proposed trails on the Ellwood-Devereux area. As shown on IS/MND Figure 2.7-1, the NCOS Restoration Project would enhance access to the Anza/Coastal trail by providing a new secondary trail in the southern portion of the site that would connect Venoco Road to the north-south segment of the trail; and a new tertiary trail that would connect a proposed project site secondary trail to the north-south segment of the trail. A minor LRDP Amendment may be required to add the public access components to LRDP Figures E.3 and E.4.
Land Resources/Environmentally Sensitive Habitat	
OS-04: The University shall provide for the comprehensive planning, tracking, management, and monitoring of the OS-designated lands in accordance with the following: **1.** To offset the increased intensity of development associated with the build-out of the 2010 LRDP, the University shall fully restore the North Campus Open Space – Ocean Meadows site. The University's responsibility to restore the site shall not preclude community involvement or community restoration projects on the site. 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 NOID approved subsequent to the 2010 LRDP and shall be fully installed by 2030, and monitored and maintained until successful. The restoration of the	**Consistent.** This policy requires the restoration of the Ocean Meadows Golf Course property and requires that the restoration include habitat restoration and on-site parking and trails. The restoration the former golf course property is the primary objective of the NCOS Restoration Project and the proposed project plans include an on-site parking area and the development of a network of trails. The Project does not include the development of a visitor center, which is an optional requirement of the Policy. The policy also requires that site restoration activities by monitored and maintained until successful. The Project would be consistent with this requirement by implementing the maintenance, monitoring and adaptive management requirements included in IS/MND Project Description Section 2.7.

Ocean Meadows site shall begin prior to completion of the comprehensive LRDP Open Space Management Plan required in Policy OS-09 if the Plan is not complete prior to the required initiation period (prior to occupancy of the first housing project). In this interim period, the University shall submit individual restoration projects as a Notice of Impending Development.	The proposed restoration of the Ocean Meadows site is being comprehensively planned in the conjunction with the proposed restoration of the South Parcel and Whittier Parcel. Therefore, it is anticipated that only one Notice of Impending Development would be required to implement the Project, rather than planning and permitting for individual restoration projects.
OS-08: Except for the purpose of habitat restoration and emergency vehicles responding to an emergency, motorized vehicles shall not be allowed on paths and trails located within OS-designated lands. New pedestrian or bicycle facilities within Open Space shall be located and designed in a manner to minimize potential impacts to environmentally sensitive habitat areas to the maximum extent feasible.	**Consistent.** The Project would not allow general public vehicles to be operated on proposed trails and fences, bollards or other similar structures would be provided to preclude unauthorized vehicles from the project site. The location of the proposed trails on the project site has been planned concurrently with the identification of existing sensitive habitat areas that are to be retained and the location of proposed habitat areas. Therefore, the location of proposed trails would avoid direct (i.e., removal) impacts to sensitive habitat that is to be retained, and indirect impacts (i.e., human intrusion) to proposed sensitive habitat areas. Should on-going monitoring of the project site indicate that indirect impacts to a sensitive habitat area is occurring, methods that would be implemented to minimize those effects may include but are not limited to the installation of additional landscape barriers, post and cable and/or split rail fencing, or other similar barriers that do not interfere with animal movement.
ESH-03 – Trails shall be sited, designed, constructed, signed and maintained in a manner that limits disturbance of ESHA and open space to the maximum extent feasible. Where necessary and no alternative exists, limited use of ESHA buffer areas may be authorized for such trails provided the trail is aligned along the outermost area of the pertinent buffer and the intrusion of the trail route is minimized through design and landscaping features. Lighting shall be subject to Policy OS-7.	**Consistent.** The location of the proposed trails on the project site has been planned concurrently with the identification of existing sensitive habitat areas that are to be retained and the location of proposed habitat areas. Therefore, the location of all on-site trails would avoid direct (i.e., removal) impacts to existing sensitive habitat and buffer areas that are to be retained. Proposed trails would be located within the buffer areas of ESHA that would be created by the Project (i.e., within the buffer of wetlands, brackish marsh and coastal saltmarsh). Should on-going monitoring of the project site indicate that indirect impacts to a sensitive habitat area is occurring, methods that would be implemented to minimize those effects may include but are not limited to the installation of additional landscape barriers, post and cable and/or split rail fencing, or other similar barriers that do not interfere with

	animal movement. The Project does not propose to install any new lighting near EHSAs.
ESH-05 – Nature trails, intended for the passive enjoyment of the open space/ESHA resource, shall be restricted to pedestrian use and sited to afford the user an experience of the resource, provided that such trails are designed to protect the resource.	**Consistent.** The Project has proposed to develop several types of trails on the project site. The proposed primary trail would be a multi-use (pedestrian and bicycles) trail that would provide nature viewing as well as a circulation connection between residences adjacent to the project site to the north and east and Storke Road. The proposed secondary and tertiary trails would be located on the South Parcel and are intended to be used primarily by pedestrians and to allow users the opportunity to experience the natural character of the restored project areas (refer to trail descriptions provided on IS/MND Figure 2.6-2). Should on-going monitoring of the project site indicate that indirect impacts to a sensitive habitat area is occurring, methods that would be implemented to minimize those effects may include but are not limited to the installation of additional landscape barriers, post and cable and/or split rail fencing, or other similar barriers that do not interfere with animal movement.
ESH-06 – Operational noise levels shall not exceed state standards. The following operational noise sources are not subject to the maximum sound levels: **(a)** Noise of safety signals, warning devices and emergency pressure relief valves; and **(b)** Noise from moving sources such as tractors, automobiles, trucks, airplanes, etc. For all special events where the proposed event or activity is expected to generate significant noise in close proximity to sensitive receptor locations, the campus shall impose limitations on the hours of the event or activity.	**Consistent.** The restored habitats and trails that would be provided by the Project would not be a substantial source of noise that would result in conflicts with on-site habitat values. Special events that may be conducted on the project site in the future would likely be guided trail walks and similar activities that would not result in significant noise-related impacts.
ESH-09 – Fencing and other types of barrier installations on campus shall be wildlife-safe and wildlife-permeable, except where such barriers are necessary to restrict unauthorized human entry, the restricted area has no habitat value, and the placement of the barrier does not have an adverse impact on wildlife. Development in or adjacent to environmentally sensitive habitat areas or open space shall be designed and constructed to ensure the safe movement by wildlife (such as through the clustering structures and the installation of bridged crossings of wetlands to replace culverts, etc.).	**Consistent.** Should on-going monitoring of the project site indicate that indirect impacts to a sensitive habitat area is occurring, methods to minimize those effects may include but are not limited to the installation of additional landscape barriers, post and cable and/or split rail fencing, or other similar barriers that do not interfere with animal movement. The Project would not result in the development of buildings that would interfere with wildlife movement. The Project would construct several types of bridge/channel crossings. Proposed bridges C and D would be raised steel bridges that would not restrict wildlife movement, and bridge B would be a boardwalk that would not interfere with wildlife movement. Proposed bridge A would be a pedestrian path over a culvert. This crossing would

	not substantially limit wildlife migration in the project region due to its location approximately 275 feet west of Storke Road, which is a major transportation corridor in the project area.
ESH-10 – The University shall use mosquito control methods with the least effect upon non-target organisms and shall use environmentally sensitive pesticides (such as VectoBac®). Wetlands shall not be drained for this purpose, nor shall native wetland vegetation be removed, nor shall non-native larval predators be introduced.	**Consistent.** UCSB would contract with the Santa Barbara County Mosquito and Vector Management District to provide mosquito control services on the project site, similar to the services they provide on the UCSB West Campus. The District conducts a program of mosquito trapping and live mosquito-borne virus surveillance. When deemed necessary to control mosquito populations, the District uses less toxic materials such as Bacillus thuringiensis israelensis, Bacillus sphaericus, and Methoprene. These chemicals are selective, have minimal to no effect on the non-target environment, and are approved for aquatic use by the U.S. EPA and the California Department of Pesticide Regulation (http://mvmdistrict.com/Vector-Control-Summerland-CA.hmtl).
ESH-11 – The use of any noxious and/or invasive plant species listed as problematic, a 'noxious weed' and/or invasive by the California Native Plant Society, the California Exotic Pest Plant Council, the State of California or the U.S. Federal Government shall be prohibited in all campus landscaping.	**Consistent.** The proposed restoration of the project site includes the use of native plant species to create a variety of aquatic, wetland and upland habitats.
ESH-13 – New development shall be sited to ensure that vegetation management (including clearing, landscaping/irrigating, and thinning) associated with fire reduction/fuel modification activities (including mowing of grasslands) required by the Fire Department for long-term fire safety does not intrude within environmentally sensitive habitat areas (ESHA) or wetlands. Fire reduction/ fuel modification activities may occur within ESHA buffer or wetland buffer areas, provided that: (1) the fire reduction/fuel modification activities are the minimum necessary to meet fire department requirements, and (2) the fire reduction/fuel modification activities are implemented pursuant to a Commission-approved fire reduction/ fuel modification plan that ensures the long-term protection of habitat values. Where fuel modification intrudes into the ESHA buffer, the impact shall be mitigated pursuant to Policy ESH -23.	**Consistent.** The Project would not result in new structural development that would require vegetation management for fire risk reduction. EHSA habitat would be created in the vicinity of residential structures located adjacent to the project site, and buffer areas established for Project-created ESHA could be located within 100 feet of those residences. The Project-created buffer areas would be subject to annual vegetation management activities (i.e., plant trimming and thinning, removal of dead vegetation, etc.) for fire safety purposes. Buffer areas created by the Project that are adjacent to existing residential structures would not include sensitive habitat that would be disturbed by required annual vegetation management activities.
Policy ESH-14 – Topsoil that is excavated, stored, or moved as part of an approved development shall be managed to preserve the viability of the mycorrhizae by being stockpiled no higher than 3 feet to protect the viability of the mycorrhizae. To the extent feasible, topsoil should be reused on site or for restoration.	**Consistent.** Due to previous grading activities conducted on the project site to construct the Ocean Meadows Golf Course, there is no longer a soil horizon on the project site that would be considered "top soil" as referred to by this policy. However, certain soils would be preserved from the site to use in specific restoration areas for the different habitat creation areas.

ESH-16 – Night lighting shall be prohibited in environmentally sensitive habitat areas (ESHA) buffer and wetland buffer areas, except as required for public safety where an approved Notice of Impending Development specifically authorizes development within buffer areas pursuant to Policy ESH-22. In such cases the lighting shall be the minimum necessary to ensure public safety and shall be designed and implemented consistent with the lighting requirements of Policy ESH-15. Where lighting in a buffer area is proposed pursuant to this policy, the University shall submit a plan to screen nearby sensitive habitat from the effects of light pollution through landscaping with appropriate native plants or other measures.	**Consistent.** No night lighting is proposed for the project site.
ESH-17 – Environmentally sensitive habitat areas (ESHA) on campus shall be protected and, where feasible, enhanced and restored. Only uses dependent on such resources shall be allowed within such areas. Where ESHA has been degraded through habitat fragmentation, colonization by invasive species, or other damage, such areas shall be restored.	**Consistent.** Areas on the project site designated by the 2010 LRDP as ESHA are depicted on LRDP Figure D.2 (Certified Land Use Overlays). Figure D.2 is also provided as IS/MND as Figure 1.4-8. Proposed restoration activities and the re-creation of estuarine habitat that was formerly located on the project site as part of the Devereux Slough would require the removal of 12.4 acres of designated ESHA from the project site. The removal of existing ESHA from the project site, however, would facilitate the creation/restoration of 5.5 acres of subtidal/aquatic habitat, 9.5 acres of mudflat/salt flat habitat, and 17.4 acres of marsh plain habitat.
ESH-18 – Natural Open Space Areas and Environmentally Sensitive Habitat areas on campus shall be restored with native plant species of local genetic stock, appropriate to habitat type, such as riparian, wetland, and coastal sage scrub plant community.	**Consistent.** The proposed restoration of the project site includes the use of native plant species to create a variety of aquatic, wetland and upland habitats.
ESH-22 – Buffer areas from environmentally sensitive habitat areas (ESHA) and wetlands shall be maintained in a natural condition, except for the following potential uses: **A.** Habitat restoration; **B.** Bio-swales or other bioengineered water quality features; **C.** Discharge of clean water; **D.** Erosion control measures (e.g., energy dissipaters before water is dispersed); **E.** Public access trails; **F.** Repair and maintenance of existing roads, trails, and utilities; **G.** Minimal fire hazard reduction necessary to meet the Fire Code Defensible Space requirements for existing development; or **H.** Flood control or sediment management activities.	**Consistent.** As shown on IS/MND Figure 1.4-8, various ESHA habitat areas have been identified on the project site. Implementation of Project would convert some on-site ESHA to other habitat types that would also be eligible to be designated ESHA. For example: 9.5 acres of freshwater/brackish marsh located on the golf course property (Devereux Creek and its eastern tributary) would be removed and the areas within and adjacent the creek channels would be restored to provide 15.0 acres of aquatic/subtidal and mudflat/salt flat habitat. 0.4 acres of southern riparian scrub habitat on the South Parcel would be removed to facilitate the creation of native grassland and coastal sage scrub habitat.

	0.4 acres of native grassland on the golf course and South Parcel would be salvaged and relocated to another location of the South Parcel. 1.5 acres of coastal sage scrub on the South Parcel would be salvaged/replaced to create additional coastal sage scrub habitat on the South Parcel. 0.6 acres of seasonal wetland on the golf course and South Parcel would be converted to high marsh/transitional, and native grassland/coastal sage scrub habitat. New development that would be located in the buffer areas of existing and restored/created ESHA would include trails and bridges, bioswales, grade and erosion control rip rap. ESHA buffer areas located within 100 feet of existing residential areas to the north and east of the project site would also be subject to periodic vegetation management to minimize potential wildfire risk impacts.
ESH-27 – Raptor habitat, including nesting trees, roosting trees, perching locations, and foraging habitat, shall be protected and preserved.	**Consistent with Proposed Mitigation.** A eucalyptus tree located on the northern portion of the project site adjacent to the University Village neighborhood is known to be used for nesting purposes by Cooper's hawk. The nesting tree would be preserved and the potential for indirect impacts to the tree would be reduced to a less than significant level by the tree protection measures required by proposed mitigation measure AES-1a. Any trees on the project site that are subsequently determined to be nesting trees by preconstruction surveys and that would be removed by the Project would be replaced a 3:1 ratio consistent with the requirement of LRDP Policy ESH-28 and the Campus Tree Trimming and Removal Program in LRDP Appendix 2.
ESH-28 – **A.** The routine trimming and/or removal of trees on campus necessary to maintain campus landscaping or to address potential public safety concerns shall be exempt from the requirement to obtain a Notice of Impending Development (NOID), unless otherwise required pursuant to subparagraph B, below, and provided that the trimming and/or removal activities are carried out consistent with all provisions and protocols of the certified Campus Tree Trimming and Removal Program in Appendix 2, except that the following shall require a NOID: **1.** Trimming and/or removal of trees located within ESHA or on lands designated Open Space as covered in Policy ESH-29, **2.** The removal of any tree associated with new development, re-development, or renovation shall be	**Consistent with Proposed Mitigation.** The project site has an "Open Space" land use designation. There are approximately 235 trees located on the golf course property (178 live trees and 57 dead trees) and the Project would result in the removal of approximately 189 of those trees. There are approximately 65 ornamental landscape trees (62 live trees and three dead trees) on the South Parcel and the Project would result in the removal of approximately 10 of those trees. Removal of the trees to implement the proposed restoration project would require the approval of a Notice of Impending Development and a Coastal Development Permit by the California Coastal Commission as required by subsection A.1 of this policy. The Project would not remove any trees located near the Campus Lagoon on the Main Campus.

evaluated separately through the NOID process as detailed in subparagraph C, below; **3.** The removal of tree windrows, and **4.** Trimming and/or removal of egret, heron, or cormorant roosting trees proximate to the Lagoon. **B.** All tree trimming and tree removal activities, including trimming or removal that is exempt from the requirement to obtain a Notice of Impending Development, shall be prohibited during the breeding and nesting season (February 15 to September 1) unless the University, in consultation with a qualified arborist, determines that: **1.** Immediate tree trimming or tree removal action by the University is required to protect life and property of the University from imminent danger, authorization is required where such activity would occur in ESHA or Open Space through an emergency permit, **2.** Trimming or removal of trees located outside of ESHA or Open Space areas during June 15 to September 1, provided where a qualified biologist has found that there are no active raptor nests or colonial birds roosts within 500 feet of the trees to be trimmed or removed, or **3.** Is part of a development or redevelopment approved pursuant to a Notice of Impending Development. **C.** To preserve roosting habitat for bird species and monarch butterflies, tree(s) associated with new development, re-development, or renovation that are either native or have the potential to provide habitat for raptors or other sensitive species shall be preserved and protected to the greatest extent feasible. Where native, or otherwise biologically significant, trees are retained, new development shall be sited a minimum of five feet from the outer edge of that tree's canopy drip-line. The removal of such trees shall be evaluated pursuant to the Notice of Impending Development for the new development. Prior to the removal of any native and/or sensitive tree for development purposes, the University shall conduct biological studies to show whether the tree(s) provide nesting, roosting, or foraging habitat for raptors and sensitive bird species, aggregation or significant foraging sites for monarch butterflies, or habitat for other sensitive biological resources. The Commission may condition the subject Notice of Impending Development to secure the seasonal timing restrictions and mitigation requirements otherwise set forth in the Campus Tree Trimming and Removal Program in Appendix 2.	The removal of on-site ornamental landscape trees would be required to implement the objectives of the Project to **"**preserve, enhance, and restore a diversity of wetland and upland habits characteristic of the Devereux Slough system" as the existing landscape trees would not be consistent with native estuarine, palustrine and upland habitats that would be created on the project site. All proposed tree removals would comply with requirements specified by any conditions of approval of the approved Notice of Impending Development and Coastal Development Permit. This policy requires that proposed tree removals be conducted consistent with the requirements of the Campus Tree Trimming and Removal Program in LRDP Appendix 2, which requires raptor habitat surveys and preconstruction surveys of the trees to be removed for nesting birds. Proposed mitigation measures BIO-2a, 2b and 2c implement the requirements of this policy by providing project-specific tree survey requirements. Winter raptor habitat surveys are underway and spring raptor nesting surveys will commence after March 1.
ESH-29 – Trees located within ESHA or designated Open Space shall not be trimmed or removed unless	**Consistent.** Restoration of the project site is being conducted consistent with the requirements of 2010

determined by a certified arborist to pose a substantial hazard to life or property and authorized pursuant to an emergency permit, or where the proposed removal is part of a Commission-approved habitat restoration plan, and shall require a Commission-approved Notice of Impending Development. All tree trimming and removal activities shall be consistent with the seasonal timing restrictions and mitigation requirements set forth in the Campus Tree Trimming and Removal Program in Appendix 2. The following Open Space areas shall be subject to the requirements for routine campus tree trimming and removal practices and shall not be considered as "Open Space" for the purposes of this policy: Commencement Green, UCEN lawn, and Pearl Chase Garden.	LRDP Policy OS-4.1, which requires that the Ocean Meadows Golf Course property be "fully restored." The restoration of former wetland and upland native habitats on the golf course and South Parcel properties requires that existing non-native ornamental and landscape trees be removed because the existing trees would not be compatible with proposed restoration activities, including the restoration of topographic conditions similar to those that formerly existed on the project site, and the proposed creation of native habitats. Implementation of the Project would result in the removal of approximately 200 ornamental/landscape trees from project site. Trees to be removed generally consist of cottonwood, cypress, eucalyptus, melaleuca, myoporum, palm, pine, and other non-native trees. Three sycamore and two oak trees that were planted as landscape trees, and four willow trees in creek channels are also located on the project site and would be removed. The mostly landscape trees that would be removed from the project site would be removed as part of a Commission-approved habitat restoration plan that would provide a variety of native habitats and enhanced habitat value when compared to existing conditions. As required by this policy, the proposed removal of existing ornamental/landscape trees would require a Commission-approved Notice of Impending Development that would include a project-specific tree replacement requirement that is consistent with the habitat restoration objectives of the Project.
ESH-30 – New development shall avoid all special-status plant species, including Southern tarplant, to the greatest extent feasible. This policy applies to isolated individual plants that do not meet the definition of ESHA. Special-status species that are ESHA shall be afforded full protection under the ESHA provisions of the LRDP. Where the individual(s) do not meet the definition of ESHA and cannot be feasibly avoided, then it may be relocated provided that the impact to individual species shall be fully mitigated.	**Consistent with Proposed Mitigation.** Southern tarplant has been observed in the shallow vernal pools located on the Whittier Parcel. The Project proposes to enhance the function of the vernal pools by excavating those areas to increase the depth of the pools. The proposed habitat enhancement activities would have the potential to result in impacts to tarplant and tarplant seedbank. Proposed mitigation measure BIO-1a would reduce this impact to a less than significant level by requiring that surface soils in the vernal pool areas be retained and used in the restoration of the vernal pools. There are no other special status plant species known to exist on the project site.
ESH-32 – ESHA buffers and wetland buffers shall be planted with locally native species that are appropriate to protect and enhance the adjacent ESHA or wetland.	**Consistent.** The proposed restoration of the project site, including revegetation of ESHA and wetland buffers would use native plant species.
Archeological Resources	
ARC-01 - New development that requires ground	**Consistent.** A literature search, site survey and

disturbance shall be evaluated for its potential to impact archaeological resources. Site research, records reviews and archaeological surveys shall be undertaken by a Registered Professional. This documentation shall be submitted with the Notice of Impending Development.	extended phase 1 investigation of a portion of the project site that was not previously disturbed by grading activities were conducted as part of the evaluation of the Project's potential impacts to archaeological resources.
ARC-02 - The Department of Anthropology and Native American tribal groups approved by the Native American Heritage Commission for the area shall be consulted when development may adversely impact archeological resources.	**Consistent.** UCSB will consult with a Native American tribal representative approved by the Native American Heritage Commission. As described in more detail in IS/MND Section 5.5.2, the Project would not adversely impact archaeological resources.
ARC-03 - A mitigation plan shall be prepared by a Registered Professional Archaeologist when development may adversely impact archaeological resources. The mitigation plan shall be prepared in consultation with Native American tribal groups approved by the Native American Heritage Commission for the area, and the State Historic Preservation Officer, as applicable. Mitigation shall be designed in accordance with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission and shall, as the first priority, preserve the resources in place. Where in-situ preservation is not feasible, partial or total recovery of archaeological resources shall be undertaken.	**Consistent.** As described in more detail in IS/MND Section 5.5.2, the Project would not adversely impact archaeological resources.
ARC-04 - Archaeological monitors shall be on-site during all earth moving activities and/or other ground disturbances that have the potential to uncover or otherwise disturb archaeological resources. A Registered Professional Archaeological consultant and a Native American representative shall both be present.	**Consistent.** Due to the previous grading disturbances of the project site, it is very unlikely the Project-related earth moving activities would uncover or disturb potentially significant archaeological resources.
ARC-06 - Vehicle use, unauthorized collecting of artifacts, or other activities that have the potential to destroy or disturb archaeological resources shall be prohibited.	**Consistent.** The evaluation of potential impacts to archaeological resources determined that it would be unlikely that the Project would result in an increase in unauthorized collecting of artifacts or result in an increased potential for disturbance of resource sites located on and near the project site.
ARC-07 - Work shall be halted immediately when suspected human bone is discovered, regardless of context, until the coroner and a qualified archaeologist can examine the remains. University staff shall notify Coastal Commission staff of the nature of the discovery and that all work has been halted on the site. Activities shall not resume without written authorization from the Office of Campus Planning and Design that construction may proceed. Where Native American remains are discovered, further activities may require a Notice of Impending Development.	**Consistent.** In the unlikely event that human remains are encountered, UCSB will comply with the requirements of this policy, and will also comply with provisions of Public Resources Code Sections 5097.98 and 5097.99, and 7050.5 of the California Health and Safety Code, as amended by Assembly Bill 2641.
ARC-08 - New development shall be sited and	**Consistent.** No Project-related grading would occur

designed to avoid adverse impacts to archaeological and paleontological resources to the maximum extent feasible. If there is no feasible alternative that eliminates all impacts to these resources, then the alternative that would result in the fewest or least significant impacts to resources shall be selected. Impacts to archaeological or paleontological resources that cannot be avoided through siting and design alternatives shall be fully mitigated.	in or near known archaeology sites.
Marine Environment	
MAR-05 - Wetland and riparian vegetation enhancement shall be conducted, to the maximum extent feasible, along Devereux Creek and Devereux Slough, including the areas known as the North and South "Fingers" of the slough.	**Consistent.** Proposed restoration activities and the re-creation of estuarine habitat that was formerly located on the project site as part of the Devereux Slough would require the removal of wetland habitat located along Devereux Creek. The removal of the Devereux Creek wetland habitat, however, would facilitate the creation of 5.5 acres of subtidal/aquatic habitat, 9.5 acres of mudflat/salt flat habitat, and 17.4 acres of marsh plain habitat.
Coastal Waters	
WQ-01 - New development shall be sited, designed, and managed to prevent adverse impacts from stormwater or dry weather runoff to coastal waters and environmentally sensitive habitat areas. Sources of inflow to coastal wetlands shall be maintained so that the quality, volume and duration of flows do not diminish wetland hydrology.	**Consistent.** The Project does not meet the criteria for "new development" based on the regional stormwater permit and the University's Phase II Stormwater Permit and therefore, water quality features sized to collect, treat and retain a specific amount of runoff are not required. .However, water quality features would be provided to treat runoff from the residential neighborhood adjacent to the project site to the north prior to discharging into existing or future wetlands. The Project would include bioswales to transition flows from off-site areas into the project area and the bioswales would serve to improve water quality and protect flows into the future wetland areas. In addition, the project site is located in an area where a substantial amount of the upstream flows are either treated before arriving at the project site; or are conveyed in natural drainage channels, which provide indirect water quality benefits.
WQ-02 – A. Proposed campus development shall be sited, designed, constructed, operated and managed in accordance with the water quality protection requirements set forth in this LRDP, including Appendix 3, Water Quality Protection, which is hereby incorporated in full, by reference as part of this policy. Appendix 3 requires new development, which entails construction or other activities or land uses that have the potential to release pollutants into coastal waters, to submit a water quality protection plan (see Appendix 3 for Construction Pollution Prevention Plan, Post Development Runoff Plan, Water Quality and Hydrology Plan, as applicable) with the NOID. Appendix 3 provides	**Consistent.** The Project would be required to implement erosion control measures required by LRDP water quality policies, including a project-specific Construction Pollution Prevention Plan (CPPP) as described by LRDP Appendix 3. Consistent with the LRDP requirements, proposed grading activities would be conducted in phases and would not occur during the rainy season (grading would occur between May and October), and a variety of erosion and sediment control measures would be implemented, including but not limited to: the use of silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, jute or coir fabric, sandbag dikes, and temporary

implementation-level requirements to develop each type of water quality protection plan that may be necessary depending on the size and nature of the proposed development. Unless the Executive Director determines that future proposed changes to the contents of Appendix 3 are de minimis, such changes shall require an LRDP amendment. All revisions of Appendix 3 shall be timely published, including the date of the specific revision.	hydroseeding with native or sterile non-native seed mix to reduce runoff velocity, enhance infiltration and transpiration, trap sediment and to stabilize soil. Earthen dikes, drainage swales and ditches would also be used to intercept, divert and convey surface runoff and sheet flow to minimize erosion and reduce pollutant loading. Excavated soil would not be placed in or adjacent to open water channels, and roads used during construction would be swept and cleaned of accumulated earth and debris, and all required erosion control BMPs would be maintained.
WQ-05 - The University shall site, design, construct and manage development to preserve or enhance vegetation that provides water quality benefits such as transpiration, vegetative interception, pollutant uptake, shading of waterways, and erosion control. Native vegetation shall be prioritized for use in water-quality treatment facilities such as bioswales and vegetated filter strips. Removal of existing vegetation on campus shall be minimized and limited to a pre-approved area required for construction operations. The construction area shall be fenced to define project boundaries. When vegetation must be removed, the method shall be one that will minimize the erosive effects from the removal. Temporary mulching or other suitable interim stabilization measures shall be used to protect exposed areas during construction or other land disturbance activities.	**Consistent.** The Project includes the construction of bioswales along the northern portion of the site that would treat runoff from the adjacent residential neighborhood. Non-native vegetation that covers the majority of the proposed construction area would be removed and replaced with native vegetation appropriate to create proposed wetland and upland habitats. The Project would implement erosion control measures required by LRDP water quality policies including a project-specific Construction Pollution Prevention Plan (CPPP) as described by LRDP Appendix 3.
WQ-09 - Minimize water quality impacts from construction by implementing best management practices, in compliance with Appendix 3, Water Quality Protection Program, including: **A**. Construction shall be planned and managed to minimize impacts by such measures as limiting the project footprint, phasing grading activities to avoid rainy-season soil disturbance, implementing soil stabilization and pollution prevention measures, and preventing soil compaction unless required for structural support; **B**. Whenever practical, land on the North and West Campus where there is a risk of erosion that may affect ESHAs, plan the project in increments of workable size which can be completed during a single construction season; **C**. Erosion and sediment control measures are to be coordinated with the sequence of grading. Sediment basins, sediment traps, or similar sediment control measures shall be installed before extensive clearing and grading operations begin for campus development; and **D**. Fill areas shall have suitable protection against	**Consistent.** The Project would implement erosion control measures required by LRDP water quality policies and as identified in a project-specific Construction Pollution Prevention Plan (CPPP) as described by LRDP Appendix 3. Proposed grading activities would be conducted in phases and would not occur during the rainy season (grading would occur between May and October). A variety of erosion and sediment control measures would be used on the project site, including but not limited to: the use of silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, jute or coir fabric, sandbag dikes, and temporary hydroseeding with native or sterile non-native seed mix to reduce runoff velocity, enhance infiltration and transpiration, trap sediment and to stabilize soil. Earthen dikes, drainage swales and ditches would also be used to intercept, divert and convey surface runoff and sheet flow to minimize erosion and reduce pollutant loading. With the implementation of required erosion control measures, the proposed grading plan would not result in fill or significant sedimentation impacts to the Devereux Slough.

erosion and shall not encroach on Devereux Slough, Storke Campus Wetlands, Campus Lagoon or any other natural watercourses or constructed channels on campus.	
WQ-10 - Grading operations that have the potential to deliver sediment to wetlands, environmentally sensitive habitat areas, or coastal waters shall be scheduled during the dry months of the year (May through October). The construction timeline may be extended into the rainy season for a specific, limited length of time, based on an inspection of the site, and a determination that conditions at the project site are suitable for. Continuation of work may be allowed if appropriate erosion and sedimentation control measures are in place and will be maintained during the activity. If grading occurs during the rainy season (November through April), sediment traps, barriers, covers or other methods shall be used to reduce erosion and sedimentation in compliance with Appendix 3, Water Quality Protection Program.	**Consistent.** The Project would be required to implement erosion control measures required by LRDP water quality policies and as identified in a project-specific Construction Pollution Prevention Plan (CPPP) as described by LRDP Appendix 3. Proposed grading activities would be conducted in phases and would not occur during the rainy season (grading would occur between May and October).
WQ-11 - Excavated materials shall not be deposited or stored where the material can be washed away by storm water runoff. Topsoil removed from the surface in preparation for grading and construction is to be stored on or near the site, where the stockpile area(s) will not impact natural vegetation, and protected from erosion while grading operations are underway, provided that the topsoil is also managed consistent with Policy ESH-14. Appropriate measures shall be taken to protect the preserved topsoil from erosion and runoff through such measures as tarping, jute netting, silt fencing, and sandbagging soil. After completion of such grading, topsoil is to be restored to exposed cut and fill embankments of building pads so as to provide a suitable base for seeding and planting. These requirements shall be incorporated into applicable water quality protection plans (Construction Pollution Prevention Plan, Post-Development Runoff Plan, and/or Water Quality and Hydrology Plan as applicable) for processing during the NOID process as described in Appendix 3, Water Quality Protection Program.	**Consistent.** To provide conditions favorable to the establishment of restoration plantings, the Project would include a program of soil testing, sorting, and temporary stockpiling prior to the placement of selected soils on the South Parcel fill site. Excavated soil would not be placed in or adjacent to open water channels and temporary soil stockpiles would be located on portions of the project site that do not contain sensitive plants or habitat. Temporary seeding of stockpiled soils may be performed to prevent erosion during the storage period. If temporary planting is not used, other best management practices such as the use of silt fences or other sediment control methods identified in a project-specific CPPP would be implemented and maintained. Stored soils would be stockpiled as briefly as possible to prevent anaerobic conditions from developing.
HAZ-5 - If contaminated soil and/or contaminated groundwater are encountered during excavation and/or grading activities, except where such activities are implementing a Commission-approved remediation plan, the following steps shall be taken: **(a)** The construction contractor(s) shall stop work and immediately inform Environmental Health and Safety (EH&S); **(b)** An on-site assessment shall be conducted to determine if the discovered materials pose a	**Consistent.** As described in IS/MND Section 5.8.2(b), in the unlikely event that excavations at the project site were to uncover any suspected waste product or residue, UCSB Environmental Health and Safety (EH&S) would be contacted. EH&S would conduct the necessary assessments of the site to determine if the suspected material was hazardous, and if necessary, the material would be removed or remediated in accordance with federal, state and University regulations and the requirements of this

significant risk to the public or construction workers; **(c)** If the materials are determined to pose such a risk, a remediation plan shall be prepared and submitted to EH&S to comply with all federal and state regulations necessary to clean and/or remove the contaminated soil and/or groundwater; **(d)** Soil remediation methods could include, but are not necessarily limited to, excavation and on-site treatment, excavation and off-site treatment and/or disposal, and/or treatment without excavation; **(e)** Remediation alternatives for contaminated groundwater could include, but are not necessarily limited to, on-site treatment, extraction and off-site treatment, and/or disposal; and **(f)** The construction schedule shall be modified or delayed to ensure that construction will not obstruct remediation activities and will not expose the public or construction workers to significant risks associated with hazardous conditions. The Ellwood Marine Terminal Facility has a known contamination risk and shall be subject to Policy ESH-46.	policy
FIL-1 - The diking, filling, or dredging of open coastal waters, wetlands, or estuaries may be allowed only where there is no feasible less environmentally damaging alternative and limited to only the following types of development: incidental public services; mineral extraction except in ESHA; restoration purposes; nature study, aquaculture, and similar resource dependent activities. Impacts associated with such development shall be fully mitigated.	**Consistent**. Restoration of the project site is being conducted consistent with the requirements of 2010 LRDP Policy OS-4.1, which requires that the Ocean Meadows Golf Course property be "fully restored." The restoration of former wetland and upland native habitats on the project site requires that soil imported to the site for the construction of the Ocean Meadows Golf Course be removed, which would result in grading operation in wetland areas. Existing wetlands removed by the project would be replaced by habitat that formerly occupied the project site, such as aquatic/subtidal, mudflat/salt flat, marsh plain, and other upland habitats.
SH-02 - New development shall be sited to avoid potential flooding, inundation, and erosion hazards created or exacerbated by long-range sea level rise. New development that is potentially subject to the effects of sea level rise shall require a current (prepared within the past 2 years) coastal hazards assessment as described in Policy SH-04. Based on the coastal hazards assessment, new development and redevelopment shall be sited: to avoid any hazards anticipated during the life of the structure and to avoid the need for bluff retaining or shoreline protection devices. Hazard avoidance efforts shall not result in impacts to coastal resources or encroachment into coastal habitats and shall not undermine broader ecosystem sustainability, for example, siting and design of new development must not only avoid sea-level rise hazards, but also ensure that the development does not have unintended	**Consistent.** The Project has been designed to provide aquatic/subtidal and mudflat/salt flat habitat that would periodically be inundated by tidal flow. Potential erosion hazards would be reduced to less than significant levels by proposed design measures, such as the construction of on-site grade control structures on Phelps Creek, and if necessary installing rock rip rap to minimize potential scour impacts to the Devereux Creek Bridge. The Project has been designed to accommodate anticipated sea level rise conditions by placing the proposed Primary trail and associated bridges above elevations that may be impacted by sea level rise, and through the adaptive management/relocation of Secondary and Tertiary trails should it become necessary due to rising sea level conditions. The Project would also provide sea level rise adaptation/migration space for habitats and species.

adverse consequences that impact sensitive habitats or species in the area. The assessment must also consider the potential need for larger setbacks near ESHA and natural open spaces to allow for habitat sustainability and migration.	
SH-04 - A site-specific coastal hazards study shall be prepared by technical experts (e.g., geologic, geo-technical, hydrologic, and engineering professionals, as appropriate) in combination with planning professionals to address the potential hazards from erosion, flooding, wave attack, scour and other conditions created or exacerbated by sea level rise. The study shall use the best available science and consider multiple sea level rise scenarios including best available scientific projections of sea level rise such as by the Ocean Protection Council, National Research Council, Intergovernmental Panel on Climate Change, and the West Coast Governors Alliance. All input parameters for hazard analysis shall be clearly described in the analysis and, if judgment was used to choose between a range of values, the basis for the selection should be provided. The study shall identify the anticipated economic life of the structure(s), assess the ease of removal or adaptation, and recommend applicable adaptation management strategies, including siting and design measures, that eliminate or reduce hazards and that are consistent with all policies and provisions of the certified LRDP.	**Consistent.** The Project has been designed to accommodate anticipated sea level rise conditions by placing the proposed Primary trail and associated bridges above elevations that may be impacted by sea level rise, and through the adaptive management/relocation of Secondary and Tertiary trails should it become necessary due to rising sea level conditions. The Project would also provide sea level rise adaptation/migration space for habitats and species. The evaluation of potential sea level rise conditions was based on a sea level rise of 3 feet above 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 Local Coastal Plans and Coastal Development Permits.

c. *Conflict with any applicable habitat conservation plan or natural community conservation plan?*

No habitat conservation plans or natural community conservation plans have been adopted for the UCSB Campus. Therefore, the proposed project would have **no impact** related to this significance criterion.

5.10.3 Cumulative Impacts

The Project would have no impact related to dividing a neighborhood or community, and would have no impact related to conflicts with a habitat conservation plan. The project would also implement/be consistent with the applicable policies of the 2010 LRDP. Therefore, the Project would have **no impact** related to land use- and planning-related cumulative effects.

5.10.4 Mitigation Measures

Consistency with 2010 LRDP policies applicable to the NCOS Restoration project would be achieved with the implementation of the following mitigation measures identified by this IS/MND.

- Mitigation Measure AES-1a would reduce to a less than significant level the potential for impacts to scenic trees located along the northern portion of the project site adjacent to the University Village neighborhood (LRDP Policy SCEN-7); and would also reduce to a less than significant potential impacts related to the protection of a known raptor nesting tree, which is also located on the northern portion of the project site (LRDP Policy ESH-27).

- Mitigation Measures BIO-1a and 1b would reduce to a less than significant level the potential for impacts to southern tarplant that could result from proposed vernal pool restoration activities (LRDP Policy ESH-30).

- Mitigation measures BIO-2a, 2b and 2c would reduce to a less than significant level the potential for project-related construction to result in impacts to active bird nests (LRDP Policy ESH-28).

No other mitigation measures are required to ensure that the NCOS Restoration Project would be consistent with the policy requirements of the 2010 LRDP.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.11 MINERAL RESOURCES -- Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☐	✓
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☐	✓

5.11.1 Setting

There are no mineral resources or existing mineral resource recovery operations located on or near the UCSB campus.

5.11.2 Checklist Responses

a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

See response provided below under item "b."

b. *Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

The Project would not limit the availability of mineral resources to the project area or region, or interfere with mineral resource recovery operations. Therefore, the project would have **no impact** on mineral resources.

5.11.3 Cumulative Impacts

The Project would have no impact to mineral resources and would have **no impact** related to potential cumulative effects.

5.11.4 Mitigation Measures

The NCOS Restoration Project would have no impact to mineral resources. No mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.12 NOISE - Would the project result in:					
a) Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	✓	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	✓	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	✓	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (including construction)?	☐	☐	✓	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	✓	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☐	✓

5.12.1 Setting

Noise Characteristics. Noise may be described as "unwanted or objectionable sound." It is common to measure sound magnitude in decibels (dB), which is a logarithmic scale. A doubling of sound intensity is represented by a 3 dB increase in sound level. Generally, a 1 dB increase is barely perceptible to the human ear, a 3 dB increase is clearly noticeable, and a 10 dB increase is perceived as a doubling in sound.

Noise levels typically attenuate (decrease) at a rate of 6 dBA per doubling of distance from point sources. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures. For example, a single row of buildings between the receptor and the noise source can reduce the noise level by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units and office buildings is generally 30 dBA or more.

One method that is used to express a measured noise value is the "equivalent noise level" (Leq). The Leq is defined as the single steady noise level that is equivalent to the same amount of energy as that contained in the actual fluctuating noise levels over a period of time. Typically, Leq is summed over a period of approximately one-hour. Another method to express a noise measurement is to use a day-night average sound level (Ldn). Ldn is the time average of noise levels for a 24-hour period with a 10 dB addition to noises occurring between 10:00 PM and 7:00 AM. This adjustment accounts for the increased sensitivity of people to nighttime noise. The Community Noise Equivalent Level (CNEL) is similar to the Ldn, except the CNEL adds 5 dB to evening noise levels (7:00 PM to 10:00 PM).

Groundborne Vibration Characteristics. The operation of heavy equipment can generate vibration waves that propagate through the various soil and rock strata to nearby buildings. The vibration of floors and walls may be perceptible to building occupants and cause rattling of items such as windows or dishes on shelves, or a rumble noise. The rumble is the noise radiated from the motion of the room surfaces. The ground motion caused by vibration is measured as particle velocity in inches per second and in the U.S. is referenced as vibration decibels (VdB).

The background vibration velocity level in residential areas is usually 50 VdB or lower. This level is well below the threshold of perception by humans, which is around 65 VdB. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or slamming doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Rubber-tire vehicles rarely create ground-borne vibration problems unless there

is a discontinuity or bump in the road that causes the vibration. Groundborne vibration is almost never annoying to people who are outdoors. In extreme cases, vibrations can cause damage to buildings. The vibration threshold that may result in minor damage to fragile buildings is approximately 100 VdB. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin (Federal Transit Administration, 2006). Table 5.12-1 provides a summary of typical human responses to different levels of groundborne vibration

Table 5.12-1
Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find vibrations at this level to be annoying.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Source: Federal Transit Administration, 2006.

Existing Noise Sources. 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 (Figure 5.15-1). Authorized vehicle use on the project site is generally for maintenance and other related activities conducted or approved by UCSB. Other existing sources of noise that affect the project area include traffic on local streets, primarily traffic along Storke Road; on- and off-campus construction activities; and aircraft operations at the Santa Barbara Municipal Airport.

Noise Sensitive Receptors. Noise sensitive receptors are land uses considered more sensitive to ambient noise levels than others. Noise sensitive uses are generally considered to include residential development, schools and classrooms, public assembly, libraries, hotels and motels, outdoor recreation, and offices (UCSB, 2010). 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. Other noise sensitive land uses near the project site include the San Joaquin student apartments, approximately 2,000 feet from the southeast corner of the project site; the Isla Vista Elementary School, approximately 1,750 feet from the southeast corner of the project site; and the Storke Ranch residential neighborhood, a minimum of approximately 400 feet east of the project site.

5.12.2 Noise Thresholds

Based on thresholds used by the 2010 LRDP EIR, a project would result in a significant noise impact if it would:

a. Generate outdoor noise levels in excess of 65 dBA CNEL that could affect existing sensitive noise receptors.

b. Expose noise sensitive uses to 65 dBA CNEL or greater in outdoor living areas or if indoor noise levels cannot be reduced to at least 45 dBA CNEL.

c. Increase ambient noise levels at noise sensitive receptors by 3 dBA or more when ambient noise levels are at or already exceed the 65 dBA outdoor CNEL.

d. Place active construction sites within 1,000 feet of noise-sensitive uses.

The CEQA Guidelines do not define the level at which groundborne vibrations is considered "excessive." The analysis in this EIR uses the Federal Transit Administration's vibration impact general assessment impact criteria for "residences and buildings where people normally sleep." These criteria are 72 VdB for frequent events, 75 VdB for occasional events, and 80 VdB for infrequent events.[7] For vibration impacts to structures, the Federal Transit Administration indicates that vibration levels in excess of 100 VdB could damage fragile buildings.

5.12.3 Checklist Responses

a. *Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?*

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. The Project would provide walking/biking trails that would replace the existing trail network on the project site, and would also result in the use of the western end of the parking lot that formerly served the Ocean Meadows Golf Course. The potential for the use of proposed trails and the parking lot to result in significant noise impacts is evaluated below.

[7] The Federal Transit Administration (2006) defines "frequent" events as more than 70 vibration events of the same source per day. "occasional" events are defined as between 30 and 70 vibration events of the same source per day. "infrequent" events are defined as fewer than 30 vibration events of the same kind per day.

Proposed Trail Use. This analysis has assumed that people using the project site for walking, bike riding and other related recreation activities would for the most part be located on or near the proposed trail network. The proposed Primary trail would be used by walkers and bike riders and would be located along the northern and eastern perimeters of the project site adjacent to the University Village neighborhood to the north and the UCSB Sierra Madre and West Campus Apartments to the east.

Starting from the Primary trail's connection to the Phelps Creek trail, it would extend eastward generally following the alignment of an existing concrete golf cart path and dirt path, although in places the proposed trail would be located further south than the existing concrete path. The distance between the proposed trail and adjacent residences in the University Village neighborhood would vary, but in general would be approximately 50 to 100 feet. The Primary trail would also have a minimum separation distance of approximately 100 feet from residences in the UCSB Sierra Madre and West Campus Apartments projects.

Noise measurements conducted for the UCSB San Joaquin Apartments and Precinct Improvements Project EIR (UCSB, 2014) measured the peak (i.e., maximum) sound created by bicycle operations on a paved bike path and evaluated the potential for bike path-related noise impacts to adjacent residences. That analysis determined that peak noise from a passing individual bicycle was 65 dBA adjacent to the noise source. A peak sound level of 65 dBA is also the standard noise level attributed to normal conversation at a distance of three feet.[8] Noise modeling for the San Joaquin Apartments EIR determined that a peak noise source on a bicycle path of 65 dBA would result in peak noise level of approximately 35-40 dBA at a distance of 50 feet. Residential noise receptors in the University Village neighborhood adjacent to the Primary trail would be a minimum of approximately 50 feet north of the trail. With this separation distance, peak noise levels at adjacent residences resulting from trail use (e.g., people on the trail having conversations and/or riding bicycles) would be approximately 35-40 dBA. Peak trail use sound levels at residences 100 feet from the trail would be approximately 29-34 dBA. No nighttime lighting would be provided along the Primary trail, which would substantially reduce the potential for trail use during more noise-sensitive nighttime hours. Therefore, peak noise levels resulting from use of the Primary trail would be substantially below the outdoor average noise level threshold of 65 dBA CNEL.

The proposed Secondary trail segment on the project site that would be located closest to sensitive noise receptors would be along the northwestern perimeter of the project site, south of and adjacent to the North Campus Housing project (Ocean Walk). Most residences in this project area would be more than 100 feet from the trail, however, the closest residences would be approximately 50 feet north of the trail. The Secondary trail would be primarily a pedestrian trail but may be used by some bicycles. Therefore, noise

[8] UCSB 2010 LRDP Final EIR, Table 4.9-1, Common Noise Levels

levels along the trail would be generally be similar to noise levels along the proposed primary trail, result in peak noise levels of 35-40 dBA at the closest residences. No nighttime lighting would be provided along the Secondary trail, which would substantially reduce the potential for trail use during more noise-sensitive nighttime hours. This noise impact would be substantially below the outdoor average noise level threshold of 65 dBA CNEL.

Other proposed trails on the project site would be located on the western portion of the South Parcel and would not be near any sensitive noise receptors, or would be primarily for the use of local residents to provide them with access to the Primary trail. Therefore, the other trails proposed for the project site would not result in exceedances of the 65 dBA CNEL noise threshold at sensitive receptor locations.

As described above, peak sound levels at sensitive noise receptors resulting from the use of proposed trails would not exceed the outdoor average noise level threshold of 65 dBA CNEL. Also, the proposed trails would generally be located along or near the alignment of existing paths and trails, therefore, the project would not establish a new recreation-related use or associated noise source on the project site. Therefore, the use of proposed trails on the project site would result in a **less than significant** noise impact.

Proposed Parking Lot Use. Sounds associated with parking lots generally include noise sources such as car alarms, radios, engines starting, radios, door locking "chirps," conversations, etc. Noise measurements conducted for the UCSB San Joaquin Apartments and Precinct Improvements Project EIR (UCSB, 2014) measured the sound levels in a parking lot, specifically the noise that resulted from the use of an automobile horn, as this would likely be the loudest sound resulting from use of a parking lot. The parking lot noise measurements determined the peak sound level from the use of a car horn was 70-75 dBA, which resulted in a sound level of approximately 55-65 dBA at a distance of 100 feet from the car.

Use of the existing parking lot by the Project would result in sounds that are generally similar to sounds associated by the former use of the parking when it was used by the Ocean Meadows Golf Course. Noise sensitive uses closest to the parking lot are residences in the University Village neighborhood and the UCSB Sierra Madre Apartments that are approximately 100 feet from the lot. Therefore, peak parking lot noise (a car horn) would result in sound levels of approximately 55-65 dBA at the closest receptors. Most parking lot-related sounds, such as engines starting, door lock chirps, radios, etc, would result in noise levels that are substantially lower than the noise caused by a car horn. Therefore, most peak noise events that may result from the use of the project site parking lot would be below the outdoor average noise level threshold of 65 dBA CNEL, and average parking lot noise conditions would be substantially below the noise threshold.

Overall, the Project would not result in a substantial change in existing noise levels at or near the project site, and resulting noise levels would generally be similar to existing conditions and conditions that existed when the Ocean Meadows Golf Course was in operation. The Project would not result in the generation of outdoor noise levels in excess of 65 dBA CNEL at existing sensitive noise receptors, and the Project's long-term noise impacts would be **less than significant**.

The potential for the Project to result in short-term construction-related noise impacts in excess of established standards is evaluated in response "d" below. The potential for the Project to result in long-term traffic noise impacts is evaluated in response "c" below.

b. *Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Equipment that would be used to excavate and transport soil, and to construct cast in drilled hole piles that would support proposed bridges on the project site, has the potential to generate low levels of groundborne vibration. Table 5.12-2 identifies estimated vibration levels for construction equipment likely to operate at the project site.

Table 5.12-2
Typical Vibration Levels for Construction Equipment

Equipment	Approximate VdB		
	25 Feet	50 Feet	100 Feet
Large Bulldozer	87	78	69
Loaded Truck	86	77	68
Caisson Drilling	87	78	69

Source: Federal Transit Administration, 2006

Residential uses are adjacent to the project site to the north and east and are within 50 feet of the project site. Although some grading operations would occur around the perimeter of the project site, such as construction of proposed bioswales along the northern perimeter of the site, most grading and the operation of vibration-producing heavy equipment would occur more than 100 feet from the adjacent receptors. As shown on Table 5.12-2, construction vibrations at nearby residences resulting from equipment operations at a distance of 100 feet would generally be 69 Vdb or less. Therefore, on-site construction-related vibrations would be less than the 72 Vdb criteria recommended by the Federal Transit Administration for activities that result in vibrations on a frequent basis. Therefore, potential construction-related vibration impacts would be **less than significant.**

c. *Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

Traffic Noise. Based on existing traffic levels described in Section 5.16.1, traffic noise conditions along Storke Road south of Phelps Road are estimated to be 66.5 dBA CNEL at a location 50 feet from the center of the roadway. Existing traffic noise conditions along Whittier Drive near the project site at a receptor 50 feet from the center of the roadway are estimated to be 54.5 dBA CNEL.

As described in Section 5.16.3, the Project would generate approximately 78 average daily vehicle trips. As shown on Table 5.16-6 (Existing + Project Roadway Operations) the Project would add approximately 24 average daily trips along Storke Road south of Phelps Road, and approximately 78 average daily trips to Whittier Drive near the project site. With the addition of project-generated traffic, traffic noise along Storke Road at a site 50 feet from the roadway centerline would be 66.5 dBA CNEL, which is the same as existing traffic noise conditions. With the addition of project-generated traffic, traffic noise along Whittier Drive at a site 50 feet from the roadway centerline would be 54.7 dBA CNEL, which would be a very slight (0.2 dBA) and imperceptible increase above existing traffic noise conditions. Therefore, the Project would result in a **less than significant** traffic noise impact.

Operation Noise. As described in response "a" above, the Project would not result in a substantial change in existing noise levels at or near the project site, and resulting peak noise levels at nearby sensitive receptors would not exceed the average outdoor noise level threshold of 65 dBA CNEL. Therefore, the project's long-term noise impacts would be **less than significant**.

d. *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

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. Overall, approximately 355,000 cubic yards of soil would be excavated in two phases. During the first grading phase, approximately 100,000 cubic yards of soil would be excavated from an approximately 40-acre portion of the project site and the soil would be transported to and placed on a 25-acre area on the western portion of South Parcel. During the second grading phase, approximately 255,000 cubic yards of soil would be excavated from an approximately 60-acre area and the soil would be transported and placed on the eastern half of South Parcel. The first grading phase would have a three month duration (August through October) and the second grading phase would have a six month duration (May through October). 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 and could result in the need for a third year of construction.

Temporary construction noise impacts to sensitive noise receptors resulting from the operation of construction equipment on the project site would vary substantially depending on the amount and type of equipment being used, and the distance between the active grading operation and location of the receptor. These conditions will change almost constantly throughout the project development process as grading operations move from location to location throughout the project site. Therefore, this analysis has quantified project-related construction noise impacts by estimating construction noise levels that would result from typical project-related construction operations that would be conducted at various locations on the project site, and has estimated the resulting construction noise at six noise receptor sites located around the northern and eastern perimeters of the project site. The typical project-related construction operations that were evaluated are described below. The assumed locations of the construction operations that were used to estimate project-related construction noise, and the location of noise receptor sites used in this analysis, are depicted on Figure 5.12-1. Project-related construction operations, receptor sites, and resulting temporary project-related construction noise conditions are summarized on Table 5.12-3.

Typical Construction Operations and Locations

- Grading Operation Area A: Clubhouse Area Demolition. This construction operation would result in the demolition of the clubhouse and associated features that were used by the Ocean Meadows Golf Course. This project area is identified as Area A on Figure 5.12-1.

- Grading Operation Areas B, C and D: Phase 1 Soil Excavation. Typical grading activities associated with this construction operation would be located adjacent to residences in the University Village neighborhood, and the UCSB Sierra Madre and West Campus Apartments. Grading in these areas would generally result in minor grade changes to modify existing drainage patterns, the creation/enhancement of habitat on the Whittier parcel, and bioswale construction on the northern portion of the project site. The typical project construction areas used for the noise analysis are identified as Areas B, C and D on Figure 5.12-1.

- Grading Operation Area E: Phase 1 Soil Excavation. This construction operation would result in more extensive soil removal and topography recontouring, and would generally occur adjacent to but outside of Devereux Creek. The typical construction area used for this analysis is identified as Area E on Figure 5.12-1.

- Grading Operation Location F: Phase 1 Fill Placement. This construction operation would transport excavated soil to the western portion of the South Parcel. The typical construction area used for this analysis is identified as Area F on Figure 5.12-1.

- Grading Operation Locations G and H: Phase 2 Soil Excavation. This construction operation would result in the excavation of mostly dry soil and topography recontouring, and would generally occur in areas in and adjacent Devereux Creek. The typical construction areas used for this analysis are identified as Areas G and H on Figure 5.12-1.

- Grading Operation Locations I and J: Phase 2 Soil Excavation. This construction operation would result in the excavation of mostly saturated soil and topography recontouring, and would generally occur in areas in and adjacent Devereux Creek. The typical construction areas used for this analysis are identified as Areas I and J on Figure 5.12-1.

- Grading Operation Location K: Phase 2 Fill Placement. This construction operation would transport excavated soil to the eastern portion of the South Parcel. The typical construction area used for this analysis is identified as Area K on Figure 5.12-1.

- Grading Operation Location L: Bridge Construction. This construction operation would result in the development of proposed Bridge D (refer to Figure 2.7-1) across Phelps Creek. This construction area is identified as Area L on Figure 5.12-1.

The analyses on Table 5.12-3 show that construction noise from grading equipment use would approach or exceed 65 dBA at nearby sensitive receptors when equipment is operated within approximately 1,000 feet of a receptor. Therefore, short-term construction noise would be a **potentially significant but mitigable** impact. Due to the short-duration of construction-related noise, and with the implementation of proposed mitigation measure NOI-1a, project-related construction noise impacts would be reduced to a less than significant level.

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. The proposed staging areas would be used primarily for the storage of material and would not include the use of continuous noise sources such as generators or pumps. The staging areas would not be a substantial source of short-term noise and potential noise conflicts with surrounding residential uses would be minimized by maintaining a minimum separation distance of 100 feet. Therefore, short-term construction noise related to the use of staging areas would be a potentially **significant and mitigable** impact.

Construction traffic on local streets would primarily be generated by construction equipment operators commuting to and from the project site. Therefore, only a small amount of construction-related traffic on local streets would be generated on a daily basis. Due to the low number of daily worker trips that would be generated by the Project, the additional construction traffic would not substantially increase existing traffic

Representative Noise Receptor Site

Typical Grading Area

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.12-1

Representative Noise Receptor Sites and Typical Grading Areas

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Table 5.12-3
Estimated Project-Related Construction Noise

Proposed Grading Operation	Typical Grading Area (1)	Approximate Distance (feet) Between Typical Grading Area and Representative Receptor Site (2)	Typical Equipment Use		Estimated Noise (dBA) Near Grading Area	Estimated Noise (dBA Leq) at Representative Receptor Sites Resulting From Grading at Typical Project Areas (2)
			Construction Equipment Likely to be Used	Typical Equipment Operation Noise (dBA) (3) (4)		
Golf Course Clubhouse Area Demolition	**Grading Area A:** This site includes the former golf course clubhouse and related facilities.	**Approximate Distance Between Grading Area A and Receptor Site:** 1. Ocean Walk: 3,400 2. University Village West: 2,200 3. University Village Central: 1,600 4. University Village East: 140 5. Sierra Madre: 170 6. West Campus Apts: 1,200	Backhoe Front End Loader Water Truck	80 80 84	85	**Estimated Average Construction Noise at Receptor Sites From Grading at Area A:** 1. Ocean Walk: 44 2. University Village West: 52 3. University Village Central: 55 4. University Village East: 76 5. Sierra Madre: 75 6. West Campus Apts: 58
Phase 1 Soil Excavation	**Grading Areas B, C, D:** These areas are near residences along the northern and eastern perimeters of the project site and are representative of grading that would occur near the edges	**Approximate Distance Between Grading Area B and Receptor Site:** 1. Ocean Walk: 2,000 2. University Village West: 800 3. University Village Central: 50 4. University Village East: 1,600 5. Sierra Madre: 1,750 6. West Campus Apts: 1,000	Front End Loader Dump Truck Backhoe Dozer	80 84 80 85	88	**Estimated Construction Noise at Receptor Sites From Grading at Area B:** 1. Ocean Walk: 56 2. University Village West: 64 3. University Village Central: 88 4. University Village East: 57 5. Sierra Madre: 57 6. West Campus Apts: 62

Table 5.12-3
Estimated Project-Related Construction Noise

Proposed Grading Operation	Typical Grading Area (1)	Approximate Distance (feet) Between Typical Grading Area and Representative Receptor Site (2)	Typical Equipment Use		Estimated Noise (dBA) Near Grading Area	Estimated Noise (dBA Leq) at Representative Receptor Sites Resulting From Grading at Typical Project Areas (2)
			Construction Equipment Likely to be Used	Typical Equipment Operation Noise (dBA) (3) (4)		
	of the project site.	**Approximate Distance Between Grading Area C and Receptor Site:** 1. Ocean Walk: 2,600 2. University Village West: 1,500 3. University Village Central: 750 4. University Village East:1,400 5. Sierra Madre: 1,300 6. West Campus Apts: 400 **Approximate Distance Between Grading Area D and Receptor Site:** 1. Ocean Walk: 3,000 2. University Village West: 1,750 3. University Village Central: 1,100 4. University Village East: 450 5. Sierra Madre: 600 6. West Campus Apts:1,100				**Estimated Construction Noise at Receptor Sites From Grading at Area C:** 1. Ocean Walk: 53 2. University Village West: 58 3. University Village Central: 64 4. University Village East: 59 5. Sierra Madre: 59 6. West Campus Apts: 70 **Estimated Construction Noise at Receptor Sites From Grading at Area D:** 1. Ocean Walk: 52 2. University Village West: 57 3. University Village Central: 61 4. University Village East: 69 5. Sierra Madre: 66 6. West Campus Apts: 61
Phase 1 Soil Excavation	**Grading Area E:** This area is representative of grading that would occur adjacent to but	**Approximate Distance Between Grading Area E and Receptor Site:** 1. Ocean Walk: 2,500 2. University Village West: 1,200 3. University Village Central: 600	Scaper Water Truck	89 84	89	**Estimated Construction Noise at Receptor Sites From Grading at Area E:** 1. Ocean Walk: 55 2. University Village West: 61 3. University Village Central: 67

Table 5.12-3
Estimated Project-Related Construction Noise

Proposed Grading Operation	Typical Grading Area (1)	Approximate Distance (feet) Between Typical Grading Area and Representative Receptor Site (2)	Typical Equipment Use		Estimated Noise (dBA) Near Grading Area	Estimated Noise (dBA Leq) at Representative Receptor Sites Resulting From Grading at Typical Project Areas (2)
			Construction Equipment Likely to be Used	Typical Equipment Operation Noise (dBA) (3) (4)		
	outside of Devereux Creek	4. University Village East: 1,100 5. Sierra Madre: 1,200 6. West Campus Apts: 800				4. University Village East: 62 5. Sierra Madre: 61 6. West Campus Apts: 65
Phase 1 Soil Placement	**Grading Area F:** This area is located near the center of the western portion of the South Parcel where fill soil would be placed.	**Approximate Distance Between Grading Area F and Receptor Site:** 1. Ocean Walk: 1,200 2. University Village West: 1,000 3. University Village Central: 1,250 4. University Village East: 2,800 5. Sierra Madre: 2,900 6. West Campus Apts: 2,000	Scraper Dozer Water Truck	89 85 84	90	**Estimated Construction Noise at Receptor Sites From Grading at Area F:** 1. Ocean Walk: 62 2. University Village West: 64 3. University Village Central: 62 4. University Village East: 55 5. Sierra Madre: 55 6. West Campus Apts: 58
Phase 2 Soil Excavation	**Grading Areas G and H:** Area G is near the confluence of Devereux Creek and its eastern tributary. Area H is near the West Campus Apts. These sites are	**Approximate Distance Between Grading Area G and Receptor Site:** 1. Ocean Walk: 2,100 2. University Village West: 1,100 3. University Village Central: 400 4. University Village East: 1,700 5. Sierra Madre: 1,800 6. West Campus Apts: 900	Scraper Water Truck	89 84	89	**Estimated Construction Noise at Receptor Sites From Grading at Area G:** 1. Ocean Walk: 56 2. University Village West: 62 3. University Village Central: 71 4. University Village East: 58 5. Sierra Madre: 58 6. West Campus Apts: 64

Table 5.12-3
Estimated Project-Related Construction Noise

Proposed Grading Operation	Typical Grading Area (1)	Approximate Distance (feet) Between Typical Grading Area and Representative Receptor Site (2)	Typical Equipment Use		Estimated Noise (dBA) Near Grading Area	Estimated Noise (dBA Leq) at Representative Receptor Sites Resulting From Grading at Typical Project Areas (2)
			Construction Equipment Likely to be Used	Typical Equipment Operation Noise (dBA) (3) (4)		
	representative of grading proposed to recontour the ground surface in the vicinity of Devereux Creek.	**Approximate Distance Between Grading Area H and Receptor Site:** 1. Ocean Walk: 2,900 2. University Village West: 1,900 3. University Village Central: 1,200 4. University Village East: 1,900 5. Sierra Madre: 1,900 6. West Campus Apts: 600				**Estimated Construction Noise at Receptor Sites From Grading at Area H:** 1. Ocean Walk: 54 2. University Village West: 57 3. University Village Central: 61 4. University Village East: 57 5. Sierra Madre: 57 6. West Campus Apts: 67
Phase 2 Soil Excavation	**Grading Areas I and J:** Area I is located along Devereux Creek South of the Ocean Walk. Area J is located south of University Village. These areas are representative of grading that would occur to excavate	**Approximate Distance Between Grading Area I and Receptor Site:** 1. Ocean Walk: 350 2. University Village West: 1,150 3. University Village Central: 1,800 4. University Village East: 3,400 5. Sierra Madre: 3,500 6. West Campus Apts: 2,800	Excavator Dump Truck Water Truck	85 84 84	88	**Estimated Construction Noise at Receptor Sites From Grading at Area I:** 1. Ocean Walk: 71 2. University Village West: 61 3. University Village Central: 57 4. University Village East: 51 5. Sierra Madre: 51 6. West Campus Apts: 53

Table 5.12-3
Estimated Project-Related Construction Noise

Proposed Grading Operation	Typical Grading Area (1)	Approximate Distance (feet) Between Typical Grading Area and Representative Receptor Site (2)	Typical Equipment Use		Estimated Noise (dBA) Near Grading Area	Estimated Noise (dBA Leq) at Representative Receptor Sites Resulting From Grading at Typical Project Areas (2)
			Construction Equipment Likely to be Used	Typical Equipment Operation Noise (dBA) (3) (4)		
	saturated soil.	**Approximate Distance Between Grading Location J and Receptor Site:** 1. Ocean Walk: 1,600 2. University Village West: 550 3. University Village Central: 400 4. University Village East: 2,100 5. Sierra Madre: 2,200 6. West Campus Apts: 1,500				**Estimated Construction Noise at Receptor Sites From Grading at Location J:** 1. Ocean Walk: 58 2. University Village West: 67 3. University Village Central: 70 4. University Village East: 55 5. Sierra Madre: 55 6. West Campus Apts: 58
Phase 2 Soil Placement	**Grading Area K:** This area is located near the center of the eastern portion of the South Parcel where fill soil would be placed.	**Approximate Distance Between Grading Location K and Receptor Site:** 1. Ocean Walk: 2,200 2. University Village West: 1,300 3. University Village Central: 800 4. University Village East: 2,100 5. Sierra Madre: 2,100 6. West Campus Apts: 950	Scraper Dump Truck Dozer Water Truck	89 84 85 84	91	**Estimated Construction Noise at Receptor Sites From Grading at Location K:** 1. Ocean Walk: 58 2. University Village West: 63 3. University Village Central: 67 4. University Village East: 58 5. Sierra Madre: 58 6. West Campus Apts: 65
Bridge Construction	**Grading Area L:** This area is where proposed Bridge D across Phelps Creek would be	**Approximate Distance Between Grading Location L and Receptor Site:** 1. Ocean Walk: 1,000 2. University Village West: 175 3. University Village Central: 900	Drill Rig Excavator Dump Truck Pump	85 85 84 77	88	**Estimated Construction Noise at Receptor Sites From Grading at Location L:** 1. Ocean Walk: 62 2. University Village West: 78 3. University Village Central: 63

Table 5.12-3
Estimated Project-Related Construction Noise

Proposed Grading Operation	Typical Grading Area (1)	Approximate Distance (feet) Between Typical Grading Area and Representative Receptor Site (2)	Typical Equipment Use		Estimated Noise (dBA) Near Grading Area	Estimated Noise (dBA Leq) at Representative Receptor Sites Resulting From Grading at Typical Project Areas (2)
			Construction Equipment Likely to be Used	Typical Equipment Operation Noise (dBA) (3) (4)		
	constructed. Bridge D is located the closest to a residential area.	4. University Village East: 2,400 5. Sierra Madre: 2,500 6. West Campus Apts 2,000:				4. University Village East: 55 5. Sierra Madre: 55 6. West Campus Apts: 56

(1) Refer to Figure 5.12-1 for the location of this typical grading area.
(2) Refer to Figure 5.12-1 for the location of the sensitive receptor analysis location.
(3) Sources: 2010 LRDP Final EIR; Federal Transit Administration, 2006.
(4) Typical equipment operation noise is measured at a distance of 50 feet from the noise source.

noise levels on streets near the project site. Therefore, the Project would result in a **less than significant** short-term traffic noise impact to sensitive receptors located on- and off-campus.

e. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

2010 LRDP EIR Figure 4.9-2 (Santa Barbara Municipal Airport CNEL Noise Exposure) depicts noise levels in the community surrounding the airport that result from aircraft operations. The project site is approximately 0.5 mile south west of the airport's 60 dBA CNEL noise contour. Therefore, airport-related noise would result in a **less than significant** impact to the recreation uses that would occur on the project site.

f. *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

The UCSB Campus is not located in the vicinity of a private airstrip. The proposed project would have **no impact** related to this significance criterion.

5.12.4 Cumulative Impacts

Construction Noise. The cumulative development project identified in IS/MND Section 1.8 that is located closest to the project site is the UCSB North Campus Housing project, which is also known as Ocean Walk. This up to 161-unit faculty housing project is being constructed in phases: 57 units are occupied, 30 units are almost completed, and the remaining units are in planning phases. The entire Ocean Walk development site has been graded and future structure development could occur while the NCOS Restoration Project is under construction. Construction operations at the Ocean Walk project site that occur simultaneously with the construction of the NCOS Restoration Project would incrementally increase construction noise in the project area, and would most likely effect existing units in the Ocean Walk project. Any increase in construction noise impacts that may result from the simultaneous development of the NCOS Restoration Project and the Ocean Walk project would be limited in duration, intermittent throughout daytime hours only, and would affect a limited area generally along the southern perimeter of the Ocean Walk project. Therefore, this potential cumulative construction noise impact is not considered to be a significant impact.

Another cumulative development project located near the NCOS Restoration Project site is the UCSB San Joaquin Apartments project, which is currently under construction. The San Joaquin project is located on the east side of Storke Road, approximately 2,000 feet east of the southeast corner of the NCOS Restoration project site. Construction noise at sensitive receptors east of Storke Road resulting from grading equipment operations on the NCOS Restoration Project site would be substantially reduced by shielding provided by structures on the Sierra Madre and West Campus Apartments sites. As a result, construction noise from the restoration

project equipment would have a minimal effect at sensitive receptors that may be affected by noise from the San Joaquin Apartments construction project, such as the Isla Vista Elementary School and the Storke Ranch residential neighborhood. Therefore, potential cumulative construction noise impacts that may result from the simultaneous construction of the NCOS Restoration Project and the San Joaquin project would be less than significant.

Long-Term Noise. Long-term use of the NCOS Restoration project site would include the continued use of the site for recreation uses such as walking and bicycle riding. These types of uses would not substantially increase noise on the project site when compared to the existing use of the site for similar recreation-related uses. The Project would not substantially increase ambient noise conditions on the project site and no other cumulative development projects are located near the project site that would substantially increase existing noise conditions in the project area.

Traffic Noise. Based on estimated cumulative traffic conditions described in Section 5.16.4, future traffic noise conditions along Storke Road south of Phelps Road are estimated to be 68.4 dBA CNEL at a location 50 feet from the center of the roadway. Future cumulative traffic noise conditions along Whittier Drive near the project site at a receptor 50 feet from the center of the roadway are estimated to be 55.3 dBA CNEL.

With the addition of project-generated traffic, cumulative traffic noise along Storke Road at a site 50 feet from the roadway centerline would be 68.4 dBA CNEL, which would be the same as cumulative traffic noise conditions without the project. With the addition of project-generated traffic, future cumulative traffic noise along Whittier Drive at a site 50 feet from the roadway centerline would be 55.5 dBA CNEL, which would be a very slight (0.2 dBA) and imperceptible increase above future traffic noise conditions. Therefore, the Project's contribution of future traffic noise conditions in would not be cumulatively considerable.

Overall, the Project would not result in a cumulative considerably increase in short-term construction noise or long-term ambient noise conditions in the project area. Therefore, the cumulative noise impacts of the Project would be **less than significant**.

5.12.5 Mitigation Measures

Impacts Reduced to a Less Than Significant Level with Proposed Mitigation

The following mitigation measures would substantially reduce the effects of construction noise impacts resulting from the Project and would reduce the potential effects of construction noise impacts to the extent feasible. Due to the short-term duration and intermittent nature of the project-related construction operations, the following measures would be adequate to reduce the project's construction noise impacts to receptors located near the project site to a less than significant level.

IMPACT N-1 Project-related construction activities would result in a substantial short-term increase in ambient noise levels at sensitive noise receptors near the project site.

N-1a. The following construction noise reduction measures shall be implemented when earth-moving construction equipment is operating on the project site.

1. Construction equipment shall be properly maintained and be outfitted with feasible noise-reduction devices to minimize construction-generated noise.

2. Stationary noise sources such as generators and pumps are to be located at least 200 feet away from noise-sensitive land uses as feasible.

3. Laydown and construction vehicle staging areas that do not include stationary noise sources such as generators and pumps are to be located at least 100 feet from noise-sensitive land uses.

4. Whenever possible, academic, administrative and residential areas that will be subject to construction noise will be informed in writing at least two weeks before the start of construction activities.

5. Loud construction activities, such as jackhammering, concrete sawing, asphalt removal, and trenching operations, within 200 feet of a residential or academic building shall not be scheduled during finals week.

6. Loud construction activity as described in item 5 conducted within 200 feet of an academic or residential use shall, to the extent feasible, be scheduled during holidays, Thanksgiving break, Winter break, Spring break, or Summer break.

7. Loud construction and vibration-causing activities within 200 feet of a residential building shall be restricted to the hours between 8:00 AM and 5:00 PM, Monday through Friday, and no work shall occur on weekends or federal holidays.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.13 POPULATION AND HOUSING – Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☐	✓
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☐	✓
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☐	✓

5.13.1 Setting

The NCOS Restoration Project site is primarily an open space area and there are no residences located the site. Access to the project site is provided by existing roadways (Whittier Drive and Venoco Road). Infrastructure required to serve the former Ocean Meadows Golf Course is located on the project site (i.e., power, water, wastewater services), however, the Project would not require the use of those utilities

5.13.2 Checklist Responses

a. *Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

The Project would not result in the development of homes or businesses that would directly or indirectly result in population growth in the Project region or on the UCSB

campus. The restoration of native habitats on the project site that were removed or disturbed by the construction of the Ocean Meadows Golf Course, and the development of the proposed trail system on the project site would result in the continuation of existing recreation uses that occur on the site such as walking and bike riding. Therefore, the Project would not result in or encourage population growth in the Project region and would have not impact related to potential growth inducing effects.

b. *Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

The Project would not result in the removal of any residential units and would have **no impact** related to the need for replacement housing.

c. *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

The Project would not result in the displacement of any people and would have **no impact** related to the need for replacement housing.

5.13.3 Cumulative Impacts

The Project would not result in any population or housing impacts and would have **no impact** related to potential cumulative effects.

5.13.4 Mitigation Measures

The NCOS Restoration Project would have no significant population and housing impacts and no mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.14 PUBLIC SERVICES - Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a) Fire protection?	☐	☐	☐	✓	☐
b) Police protection?	☐	☐	☐	✓	☐
c) Schools?	☐	☐	☐	✓	☐
d) Parks?	☐	☐	☐	✓	☐
e) Other public facilities?	☐	☐	☐	✓	☐

5.14.1 Setting

Fire Protection. UCSB is located within the service area of the Santa Barbara County Fire Protection District, and fire prevention and suppression services are provided by the Santa Barbara County Fire Department. Fire Station No. 17 is located on-campus on Mesa Road, approximately one mile east of the project site, and Fire Station No. 11 is located off-campus on Storke Road, less than 0.5 mile north of the project site.

The review and approval of campus development plans for compliance with fire protection-related requirements is the responsibility of the Fire Protection Division of the UCSB Environmental Health and Safety Department. An employee of the on-campus Fire Protection Division has been designated as a “Campus Fire Marshall” by the State Fire Marshall’s Office. The review of proposed development plans, such as access and hydrant locations, is also coordinated with the County of Santa Barbara Fire Department.

Police Protection. The UCSB Police Department is responsible for the safety and security of the UCSB campus as well as properties owned, controlled or occupied by the University. The Police Department is open 24 hours a day and is located in the Public Safety Building, which is approximately one mile east of the project site. University Police officers, Santa Barbara County Sheriff's Deputies and California Highway Patrol officers work together to staff the Isla Vista Foot Patrol, which has recently relocated to a new facility in Isla Vista along the western edge of the Main Campus.

Schools. UCSB is located within the Goleta Union School District and the Santa Barbara High School District.

Parks. Numerous and varied recreation facilities for UCSB students, faculty and staff, and the public are provided on the Main Campus. Other park facilities are provided in the project region by the cities of Santa Barbara and Goleta, the County of Santa Barbara and the Isla Vista Recreation and Park District.

5.14.2 Checklist Responses

a) *Fire protection*

The NCOS Restoration Project would not increase the number of or the area of any habitable structures, and proposed bridges and boardwalks would result in a small increase in structural development on the project site. The Project would not increase the population of the UCSB campus or the population of the Project area. The project site would remain vegetated open space that is used for active and passive recreation uses similar to existing conditions. The potential for short-term construction-related fire hazards would be reduced to a less than significant level by proposed mitigation measures HAZ-1a, which requires that vegetation clearing not be conducted when a Red Flag Alert is in effect; and the potential for long-term wildfire hazards would be reduced to a less than significant level with the implementation of proposed mitigation measure HAZ-2a, which requires the implementation and maintenance of defensible space areas adjacent to existing structures along the northern and eastern perimeters of the project site. The Project would not result in an increase in the demand for fire protection services, would not adversely change existing access to the site by firefighting equipment, and would not require or substantially contribute to a need to construct additional fire protection-related facilities necessary to maintain acceptable service ratios, response times, or other performance objectives. Therefore, the Project would have a **less than significant** impact to fire protection services.

b) *Police protection*

The NCOS Restoration Project would not increase the population of the UCSB campus or the population of the Project area. The project site would remain vegetated open space that is used for active and passive recreation uses similar to existing conditions. The

Project would not result in an increase in the demand for police services, and would not require or substantially contribute to a need to construct additional law enforcement-related facilities necessary to maintain acceptable service ratios, response times, or other performance objectives. Therefore, the Project would have a **less than significant** impact to police protection services.

c) *Schools*

The NCOS Restoration Project would not increase the population of the UCSB campus and would not result in an increase in the population of the Project area. Therefore, the Project would not generate any additional school-age children and would have **no impact** to local to schools.

d) *Parks*

An evaluation of impacts to park facilities in the Project area is provided in section 5.15 (Recreation) of this IS/MND. That analysis concluded that the Project's impacts to park facilities would be **less than significant**.

e) *Other public facilities.*

The Project would have a **less than significant** impact on other public facilities.

5.14.3 Cumulative Impacts

The Project would not substantially increase the demand for fire and law enforcement services and would have no impact related to school enrollment. Therefore, the Project's cumulative impact to those public services would not be cumulatively considerable and would be **less than significant**. The potential for the Project to result in cumulative impacts to park facilities is evaluated in IS/MND Section 5.15.3.

5.14.4 Mitigation Measures

The NCOS Restoration Project would not result in significant public service impacts. No mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.15 RECREATION - Would the project:					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	✓	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	✓	☐

5.15.1 Setting

Numerous recreation facilities and opportunities exist on the UCSB campus, including the Recreation Center, ball fields; tennis, basketball and volleyball courts; swimming pools; and open space areas that can be used for active and passive recreation activities. Numerous bicycle and pedestrian pathways and trails also provide access throughout the campus, and to adjoining beaches and other areas throughout the region. Other park facilities are provided by the Cities of Santa Barbara and Goleta, the County of Santa Barbara and the Isla Vista Recreation and Park District. The Ellwood Mesa open space area is located west of and adjacent to the project site and provides trails and other active and passive recreation uses similar to the recreation activities that are conducted on the project site.

The NCOS Restoration 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 that have been developed on the project site are used for recreation purposes and also to connect adjacent residents to the UCSB campus, Ellwood Beach, Isla Vista School, and the Ellwood Mesa open space to the west. Signage on the project site (Figure 5.15-1) informs visitors to the site of uses that are prohibited and indicates that the project site may be used during daylight hours only.

Since the closure of Ocean Meadows Golf Course in 2013, the community has "reclaimed" the golf course land and it is used extensively for recreational activities. Existing trails on the golf course property consist of golf cart paths that are often in poor condition (cracking, lifted/settling), several wide compacted earth trails, and numerous smaller footpaths. Existing paths and trails that have been developed on the golf course property can be seen on Figure 5.1-1.

After a rain event many of the paths are inundated. There are several culvert crossings across Devereux Creek, and a small wooden bridge across Phelps Creek. Small paths connect the concrete cart path at the western edge of the project site to the Ellwood Mesa north –south trail that leads to Ellwood beach. This junction is located within a low area supporting wetland, salt marsh, and transitional habitat vegetation, and is seasonally inundated. Project site visitors will also construct primitive "bridges" and "boardwalks" consisting of logs, plywood boards, or 2x4's to cross Devereux Creek during the rainy season. Numerous puddles also occur in the rainy season, causing bike riders to ride off trail over vegetation, effectively widening the trails and increasing the potential for erosion and disturbance. There are a few private trail connections to the existing residential neighborhood to the north, which consist of dirt and concrete paths leading to gates that provide access to the site. The existing trails and cart paths also provide access to sewer manholes that are maintained by the Goleta West Sanitary District.

Figure 5.15-1
Project Site Signage

The South Parcel property has been used by hikers and cyclists, particularly by mountain bikers and dirt-bike users, who created an extensive network of trails and jumps that have removed vegetation in areas that contribute to the erosion issues on the site. Numerous trails have been developed throughout the South Parcel and some of the trails provide connections to the Ocean Meadows Golf Course property and to Venoco Road.

There are no recreation facilities on the Whittier Parcel. Other open space areas near the project site include the Ellwood Mesa, which is adjacent to the site to the west and is extensively used by the community for recreation purposes. The Coal Oil Point Reserve is south of and adjacent to the project site and provides a limited number of trails.

5.15.2 Checklist Responses

a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

The Project would retain the project site as open space and would develop a varied network of on-site trails. The Project would remove many of the formal (i.e., former golf cart paths) and informal dirt paths that have been developed on the project site; would remove trails that are resulting in significant erosion and sedimentation impacts to on-and off-site resources; and would consolidate existing on-site trails to provide more than three miles of maintained trails available for public use.

Restoration of the project site, including the recontouring of existing topography, habitat creation/vegetation planting, and trail construction would require that public access be excluded from active grading and construction areas. Construction activities would be phased over a two year period, which would minimize the area of the project site that would temporarily be closed to the public. Temporary closures of the project site could result in an increase in the use of other parks and open space areas near the project site, however, this short-term impact would be limited in duration (approximately two years) and visitors that currently use the project site and that are temporarily "displaced" by Project construction would likely be distributed to other open space areas in the region rather than all of the displaced visitors using the same alternative open space and/or trail facilities. Therefore, temporary closures of the project site would not cause other parks and trail facilities in the region to be overburdened to the extent that substantial deterioration of those facilities would occur resulting in a significant environmental impact. Therefore, the Project's impacts to other recreation facilities would be **less than significant**.

The project site is extensively used by the public for various active and passive forms of recreation, and it is possible that the Project could increase the number of people that use the property. Proposed trails on the project site, however, would be maintained by UCSB and their use by the public would not result in a substantial deterioration impact. It is also possible that in the future uses may occur on the project site that are not allowed or compatible with proposed restoration efforts. These types of uses may include activities such as: horseback riding (potential water quality impacts and damage to trails), off-trail bicycle riding or motorcycles (vegetation damage and erosion), the unauthorized operation of drones (wildlife disturbance), paintball, etc. The Habitat Restoration and Monitoring Plan to be prepared for the Project would include requirements for on-going monitoring of the project site and should monitoring indicate that indirect impacts to project-related facilities (trails) or habitat areas are occurring, methods to curtail those activities on the project site would be implemented. Possible control methods may include but are not limited to: increased signage; landscape barriers; post and cable

fencing, split rail fencing, or other barriers that do not restrict wildlife movement; and enforcement by the UCSB Police Department. Therefore, the Project would result in **less than significant** physical deterioration impacts to proposed on-site facilities.

b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

Recreation facilities provided by the Project would consist primarily of the proposed trail system that would replace the existing trails on the project site. The construction and use of the proposed trails would not result in additional environmental impacts beyond those described and evaluated by this Initial Study. No additional evaluation of recreation-related facility impacts is required.

Please refer to IS/MND Section 5.16.2f for an evaluation of the Project's consistency with previous trail development planning efforts that have been completed for the project site, including the 2010 LRDP and the Ellwood-Devereux Coast Open Space and Habitat Management Plan.

5.15.3 Cumulative Impacts

The 2010 LRDP EIR concluded that population growth facilitated by the 2010 LRDP, along with other population growth throughout the project region, would have the potential to result in significant and unavoidable impacts to on- and off-campus recreation facilities. The 2010 LRDP EIR also concluded that the LRDP's contribution to this impact would result primarily from induced off-campus population growth, and that on- and off-campus projects that include recreation facilities would be less likely to contribute to cumulative recreation facility impacts.

The NCOS Restoration Project would have the beneficial effect of retaining the project site as open space that is accessible to the general public (the project site was not generally accessible to the public when was operated as a golf course), and would provide recreation facilities (trails) that would replace and enhance the existing trail network on the project site. In addition, the Project would not increase the student or staff population of UCSB, or the population of the project region. Therefore, the Project would not substantially contribute to the region-wide cumulative recreation facility impact identified by the 2010 LRDP EIR, and the potential for the project to result in cumulative impacts to recreation facilities **less than significant**.

5.15.4 Mitigation Measures

The NCOS Restoration Project would not result in significant impacts to recreation facilities. No mitigation measures are required.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.16 TRANSPORTATION/TRAFFIC- Would the project:					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	✓	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	✓	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☐	✓
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	✓	☐	☐

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?	☐	☐	☐	✓	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	✓	☐

The evaluation of project-related traffic impacts is based in part on a traffic and circulation study titled *UCSB North Campus Open Space Restoration Project, County of Santa Barbara, California*, prepared Associated Transportation Engineers (2016). The report is attached to this IS/MND as Appendix D.

5.16.1 Setting

Street Network

The project site is served by a network of highways, arterial roadways, and collector streets. The following text briefly describes the major components of the study-area street network.

Hollister Avenue, located north of the Project site, is a 4-lane east-west arterial roadway that extends through the Goleta Valley area from State Route 154 on the east to Calle Real on the west. This roadway serves as the primary east-west surface street route through the City of Goleta.

Storke Road – Glen Annie Road, located adjacent to the eastern frontage of the project site, is a 2-5 lane north-south arterial roadway that extends between Cathedral Oaks Road on the north and El Colegio Road on the south. Storke Road provides freeway access to the western portion of the Goleta Valley area via an interchange at U.S. Highway 101. Storke Road provides four travel lanes south of Hollister Avenue, three travel lanes south of Phelps Road, and two travel lanes south of Whittier Drive. North of the interchange, Storke Road becomes Glen Annie Road and extends as a 2-lane road to Cathedral Oaks Road.

El Colegio Road, located south of the project site, is a four-lane arterial roadway that provides access to the Isla Vista community and the UCSB campus. El Colegio Road extends east from Storke Road to its terminus at the Ocean Road intersection on the University campus.

Whittier Drive, located adjacent to the northern frontage of the project site, is a 2-lane roadway that serves the residential neighborhoods located west of Storke Road. A proposed driveway connection to Whittier Drive would provide access to the Project site.

Existing Traffic Volumes

Figure 5.16-1 presents the existing volumes for the study-area roadways and intersections. Existing traffic volumes were obtained from counts conducted by ATE in 2016, traffic count data collected by the City of Goleta in 2013, and traffic data presented in the EIR prepared by UCSB for the San Joaquin Apartments and Precinct Improvements Project[9]. Figure 5.16-2 presents the lane geometry and traffic controls for the study-area intersection.

Existing Roadway Operations

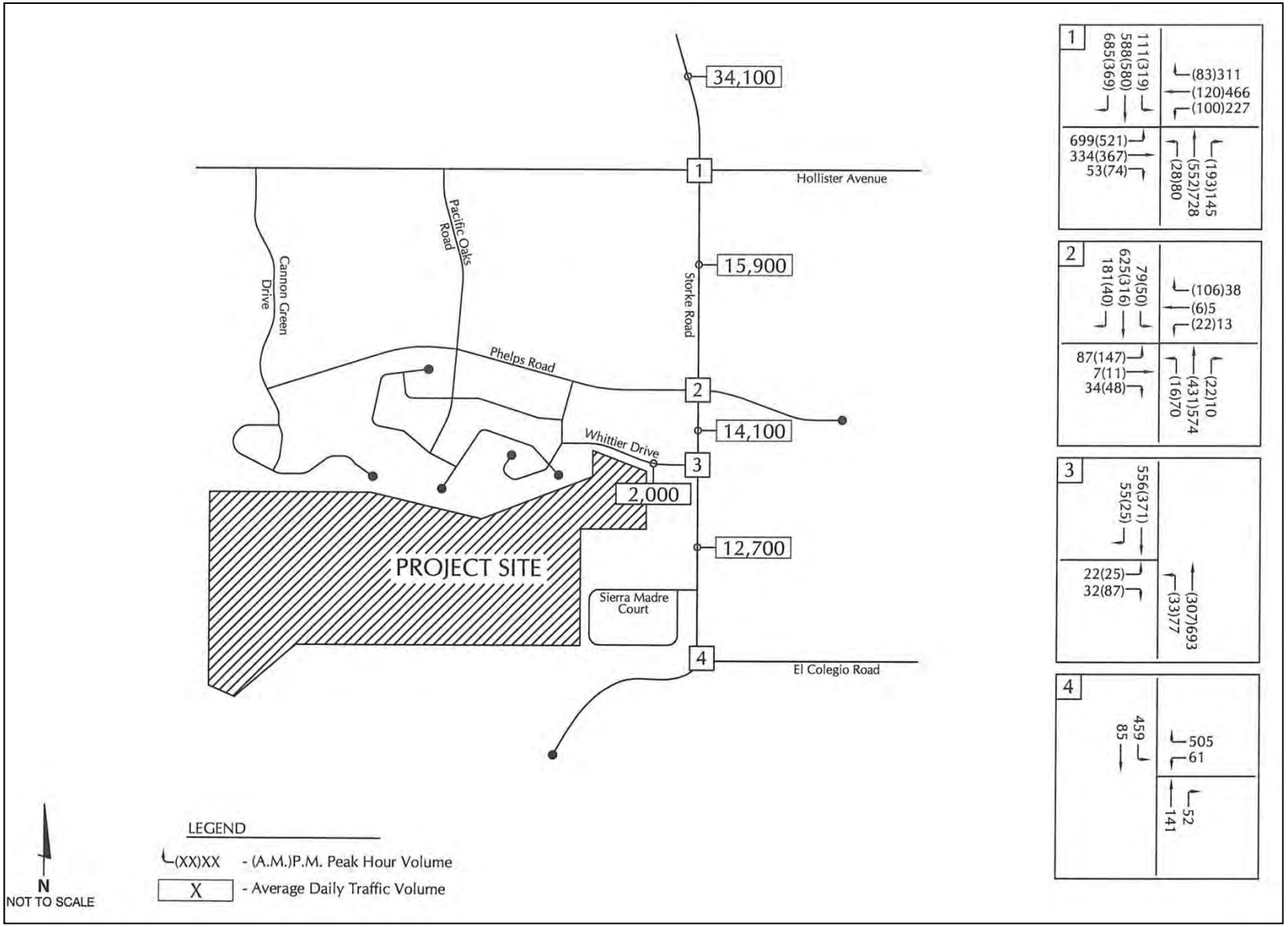
The study-area roadway segments are all located within the City of Goleta. The operational characteristics of the study-area roadways were therefore analyzed based on the City's engineering roadway design capacities (summarized in the Technical Appendix). Table 5.16-1 shows the existing ADT volumes and the Acceptable Capacity thresholds for the key roadways in the project study-area.

Table 5.16-1
Existing Roadway Operations

Roadway Segment	Roadway Classification	Geometry	Acceptable Capacity	Existing ADT
Storke Road s/o U.S. 101	Major Arterial	5 Lanes	47,000	34,100
Storke Road s/o Hollister Avenue	Major Arterial	4 Lanes	34,000	15,900
Storke Road s/o Phelps Road	Major Arterial	3 Lanes	25,500	14,100
Storke Road s/o Whittier Drive	Major Arterial	2 Lanes	14,300	12,700
Whittier Drive w/o Storke Road	Collector	2 Lanes	9,280	2,000

The data presented in Table 5.16-1 show that the study-area roadway segments currently carry traffic volumes within the City of Goleta's Acceptable Capacity ratings.

[9] San Joaquin Apartments and Precinct Improvements Project EIR, University of California, Santa Barbara. January 2014.



Source: ATE, 2016

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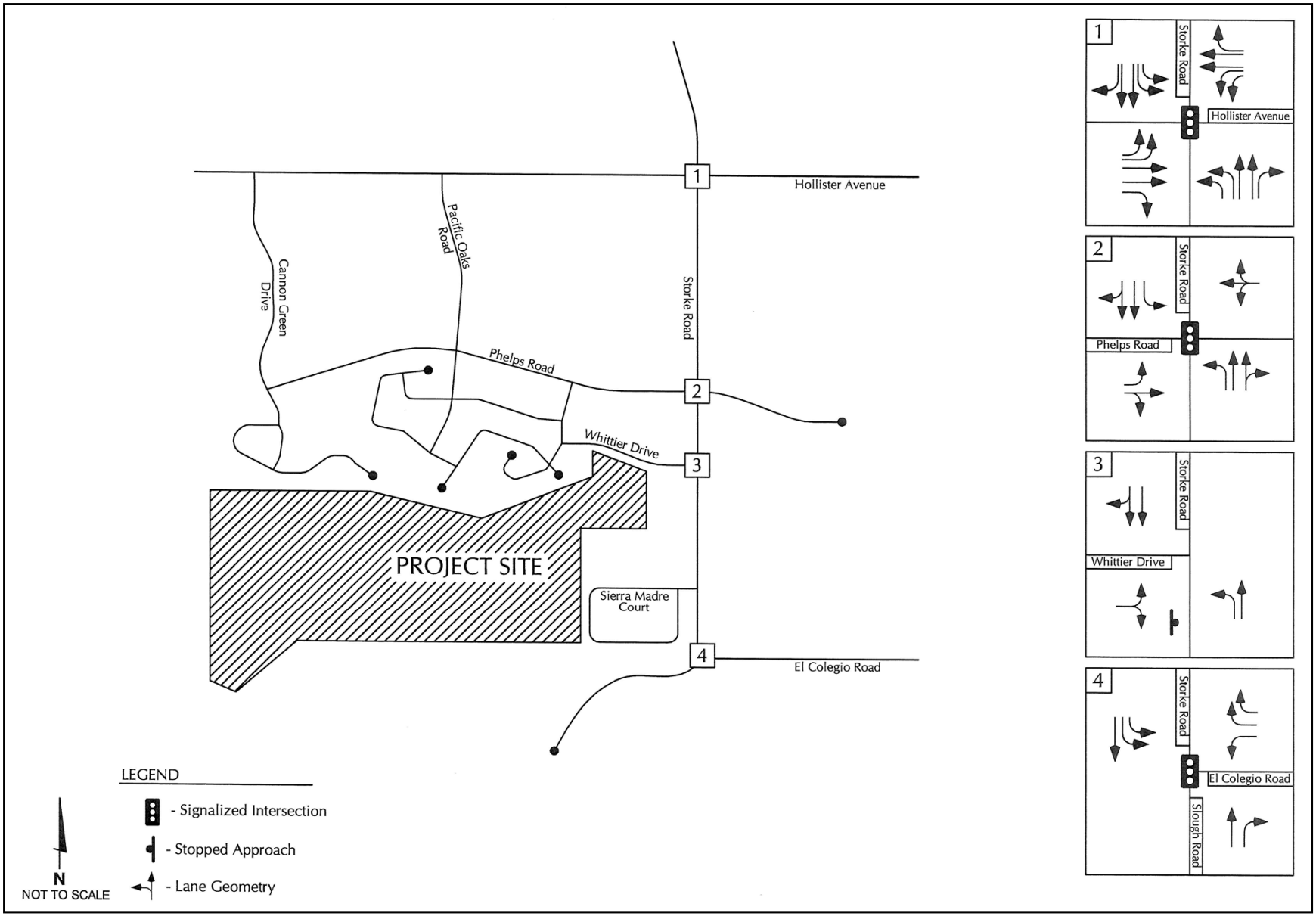
Figure 5.16-1

Existing Traffic Volumes



Source: ATE, 2016

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Figure 5.16-2

Intersection Lane Geometry and Traffic Controls

Existing Intersection Operations

Because traffic flow on urban arterials is most constrained at intersections, detailed traffic flow analyses focus on the operating conditions of critical intersections during peak travel periods. In rating intersection operations, "Levels of Service" (LOS) A through F are used, with LOS A indicating free flow operations and LOS F indicating congested operations. The City of Goleta and the County of Santa Barbara have established LOS C as the minimum acceptable operating standard for intersections.

Levels of service were calculated for the signalized intersections using the "Intersection Capacity Utilization" (ICU) methodology adopted by the City of Goleta. Levels of service for the unsignalized Storke Road/Whittier Drive intersection was calculated using the methodologies outlined in the Highway Capacity Manual (HCM)[10]. Table 5.16-2 presents the existing peak levels of service for the study-area intersections.

Table 5.16-2
Existing Intersection Operations

Intersection	Jurisdiction	Control	A.M. Peak Hour		P.M. Peak hour	
			V/C	LOS	V/C	LOS
Storke Road/Hollister Avenue	City	Signal	0.574	LOS A	0.711	LOS C
Storke Road/Phelps Road	City	Signal	0.449	LOS A	0.485	LOS A
Storke Road/Whittier Drive (a)	City	1-Way STOP	8.7sec.	LOS A	14.0 sec.	LOS B
Storke Road/El Colegio Road	County	Signal	N/A (b)	N/A (b)	0.489	LOS A

(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.
(b) A.M. peak hour count data is unavailable at this location. A.M. traffic approximately 50% lower than P.M. peak hour period.

The data presented in Table5.16-2 show that the study-area intersections currently operate acceptably at LOS C or better.

Alternative Transportation Modes

Pedestrian and Bicycle Facilities. The existing sidewalks along the Project frontage on Whittier Avenue and Storke Road would provide pedestrian access to the site. The existing sidewalks in the vicinity of the site connect to the extensive pedestrian network provided on the UCSB campus. A pedestrian crosswalk with flashing beacons has also been installed at the Whittier Drive/Storke Road intersection.

[10] Highway Capacity Manual, Transportation Research Board, 2010.

Existing Bicycle lanes are provided along both sides of Storke Road adjacent to the site. The existing bicycle lanes connect to the extensive bicycle network provided on the UCSB campus. Bicycle parking will also be provided at the trailhead adjacent to the Project's parking lot.

Transit. The Santa Barbara Metropolitan Transit District (MTD) provides local bus service for the region. MTD bus stops are currently located along Storke Road at Phelps Road and Whittier Drive and are served throughout the day by MTD lines 11, 24X, and 27. The existing bus routes would provide transit service to/from the site to Isla Vista, the UCSB campus, Camino Real Marketplace, and Hollister Avenue.

Santa Barbara County Settlement Agreement

In conjunction with the University's adoption of the 2010 LRDP, UCSB and Santa Barbara County entered into a Mitigation Implementation and Settlement Agreement related to off-campus traffic-related impacts. The objective of the Agreement is to avoid PM peak hour trip impacts to local roadways and intersections resulting from the implementation of LRDP development projects. The agreement requires UCSB to conduct long-term traffic monitoring of traffic conditions at specified locations in the vicinity of the campus, and to pay specified County and City of Goleta traffic impact fees for the improvement of certain roadways and intersections. The timing for the implementation of the specified improvements is to be determined by the County and City of Goleta.

5.16.2 Impact Significance Thresholds

The UCSB, Santa Barbara County, and City of Goleta impact thresholds were used to assess the significance of potential transportation impacts associated with the project. Impacts would be significant if the project would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

The following LOS thresholds apply to the study-area intersections located in the City Goleta and Santa Barbara County:

A. The project will result in a significant impact on transportation and circulation if proposed project traffic increases the volume to capacity (V/C) ratio at local intersections by the values provided in the following table:

Significant Changes in Levels of Service	
Intersection Level of Service (Including Project)	**Increase in V/C or Trips Greater Than**
LOS A	0.20
LOS B	0.15
LOS C	0.10
LOS D	15 Trips
LOS E	10 Trips
LOS F	5 Trips

B. The project's access to a major road or arterial road would require access that would create an unsafe situation, a new traffic signal, or major revisions to an existing traffic signal.

C. The project would add traffic to a roadway that has design features (e.g., narrow width, road-side ditches, sharp curves, poor sight distance, inadequate pavement structure) that would become a potential safety problem with the addition of project traffic.

D. Project traffic would utilize a substantial portion of an intersection's capacity where the intersection is currently operating at acceptable levels of service, but with cumulative traffic would degrade to or approach LOS D (V/C 0.80) or lower. Substantial is defined as a minimum change of 0.03 for an intersection which would operate from 0.80 to 0.85, a change of 0.02 for an intersection which would operate from 0.86 to 0.90 and a change of 0.01 for an intersection which would operate greater than 0.90 (LOS E or worse).

The City of Goleta's roadway impact threshold defines a significant roadway impact if a project would increase traffic volumes by more than 1.0 percent (either project-specific or project contribution to cumulative impacts) on a roadway that currently exceeds its Acceptable Capacity or is forecast to exceed its Acceptable Capacity under cumulative conditions.

5.16.3 Checklist Responses

a. *Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?*

Short-Term Impacts

Construction traffic impacts that would result from the NCOS Restoration Project would result primarily from construction personnel commuting to and from the project site.

The project would not require a substantial number of construction workers and would not generate a significant amount of construction-related traffic. Given the good existing traffic conditions in the project area, short-term traffic generation impacts would be **less than significant.**

Long-Term Impacts

Project Trip Generation. Weekday trip generation estimates for the day-to-day operations of the Project were developed based on traffic data collected by ATE staff at a parking area that serves an open space trailhead in the Santa Barbara foothills. This area was selected as it is a similar passive open space area that is used for recreational activities (dog walking, exercise, etc.) The data collected was used to develop trip generation rates that correlate to the number of parking spaces provided. Table 5.16-3 presents the trip generation estimates for the proposed project using the rates developed from the local studies.

Table 5.16-3
Weekday Project Trip Generation

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips (In/Out)	Rate	Trips(In/Out)
Open Space	30 Spaces	2.59	78	0.35	11 (9/2)	0.12	4 (2/2)

As shown in Table5.16-3, the Project is forecast to generate 78 average daily trips, 11 A.M. peak hour trips, and 4 P.M. peak hour trips. It is noted that the project site open space is currently used regularly by residents of the adjacent residential areas. It is anticipated that the project site would continue to be used by the local residents and would not generate a significant amount of new traffic from outside of the immediate vicinity of the site. The traffic analysis, however, assumes that the trip generation estimates presented in Table 5.16-3 would be new to the area, thus providing a "worst-case" analysis.

Golf Course Trip Generation Comparison. The project site was previously occupied by Ocean Meadows Golf Course until 2013 when the golf course was permanently closed. The site has been used as an open space recreational area since the closure. Table 5.16-4 presents a comparison of the trip generation estimates for the previous 9-hole golf course use with the trip generation estimates of the proposed open space area. Trip generation estimates for the previous site uses were developed based on rates contained in the Institute of Transportation Engineers (ITE) Trip Generation report for Golf Courses (ITE Land-Use #430).[11]

[11] Trip Generation, Institute of Transportation Engineers, 9th Edition, 2012.

Table 5.16-4
Trip Generation Comparison

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips	Rate	Trips
Open Space (Proposed Use)	30 Spaces	2.59	78	0.35	11	0.12	4
Golf Course (Previous Use)	9 Holes	35.74	322	2.06	19	2.92	26
Net Change:			**-244**		**-8**		**-22**

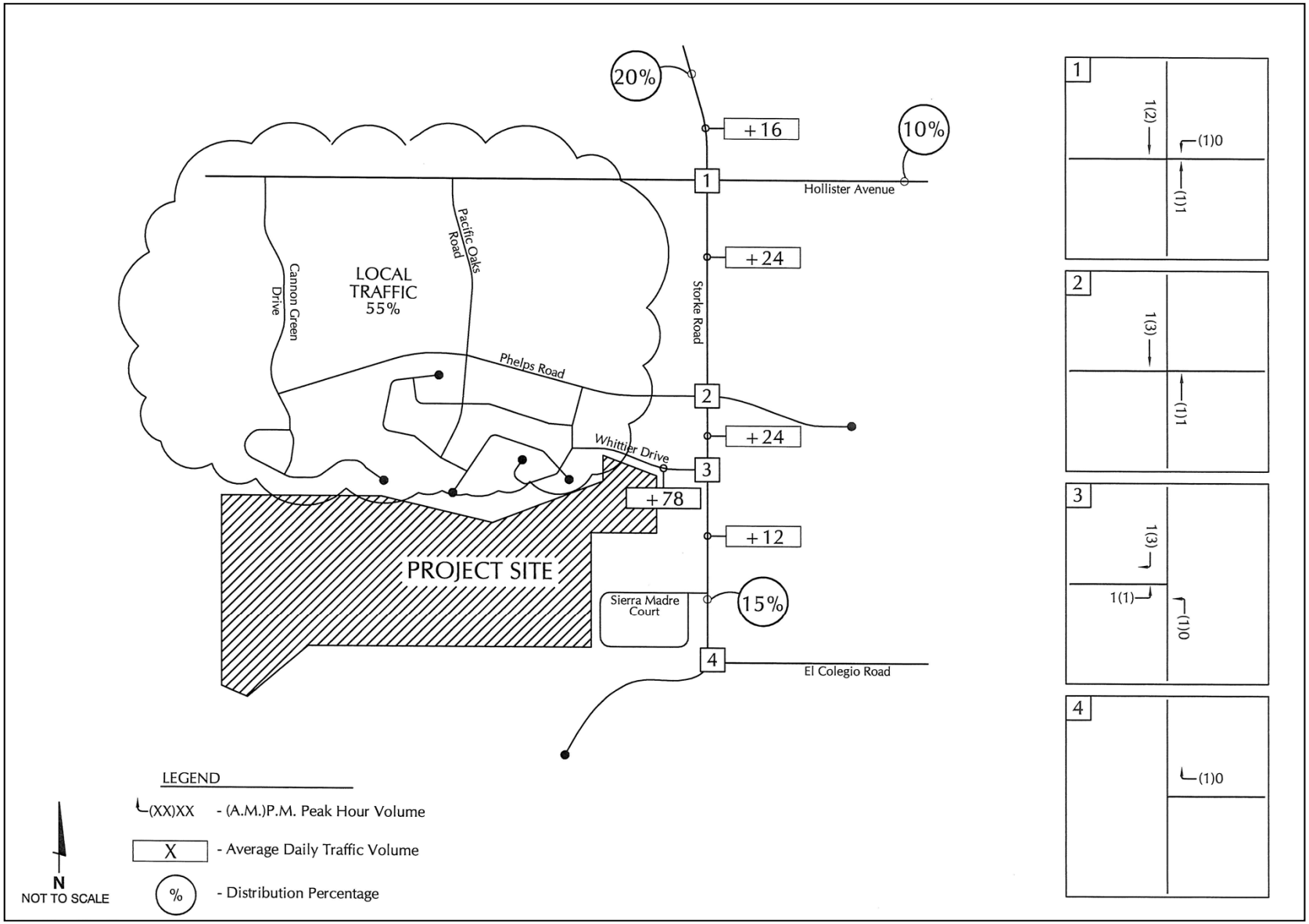
The data presented in Table 5.16-4 show that the proposed project would generate 244 less average daily trips, 8 less A.M. peak hour trips and 22 less P.M. peak hour trips when compared to the golf course that previously occupied the site. The traffic analysis does not assume credit for the previous golf course use.

Project Trip Distribution. The trip distribution pattern developed for assigning project-added traffic is based on existing traffic patterns in the vicinity of the site and consideration of the surrounding residential neighborhoods. Table 5.16-5 and Figure 5.16-3 present the trip distribution pattern developed for the Project. The assignment of project generated traffic is also shown on Figure 5.16-4.

Table 5.16-5
Project Trip Distribution

Origin/Destination	Direction	Distribution %
Storke Road	North (to U.S. 101) South (to Isla Vista)	20% 15%
Hollister Avenue	East	10%
Local Traffic	West	55%
Total:		**100%**

Existing+Project Roadway Operations. Existing+Project roadway volumes are shown on Figure 5.16- 4. Table 5.16- 6 compares the Existing and Existing+Project roadway operations and identifies project-specific impacts based on City of Goleta impact thresholds.



Source: ATE, 2016

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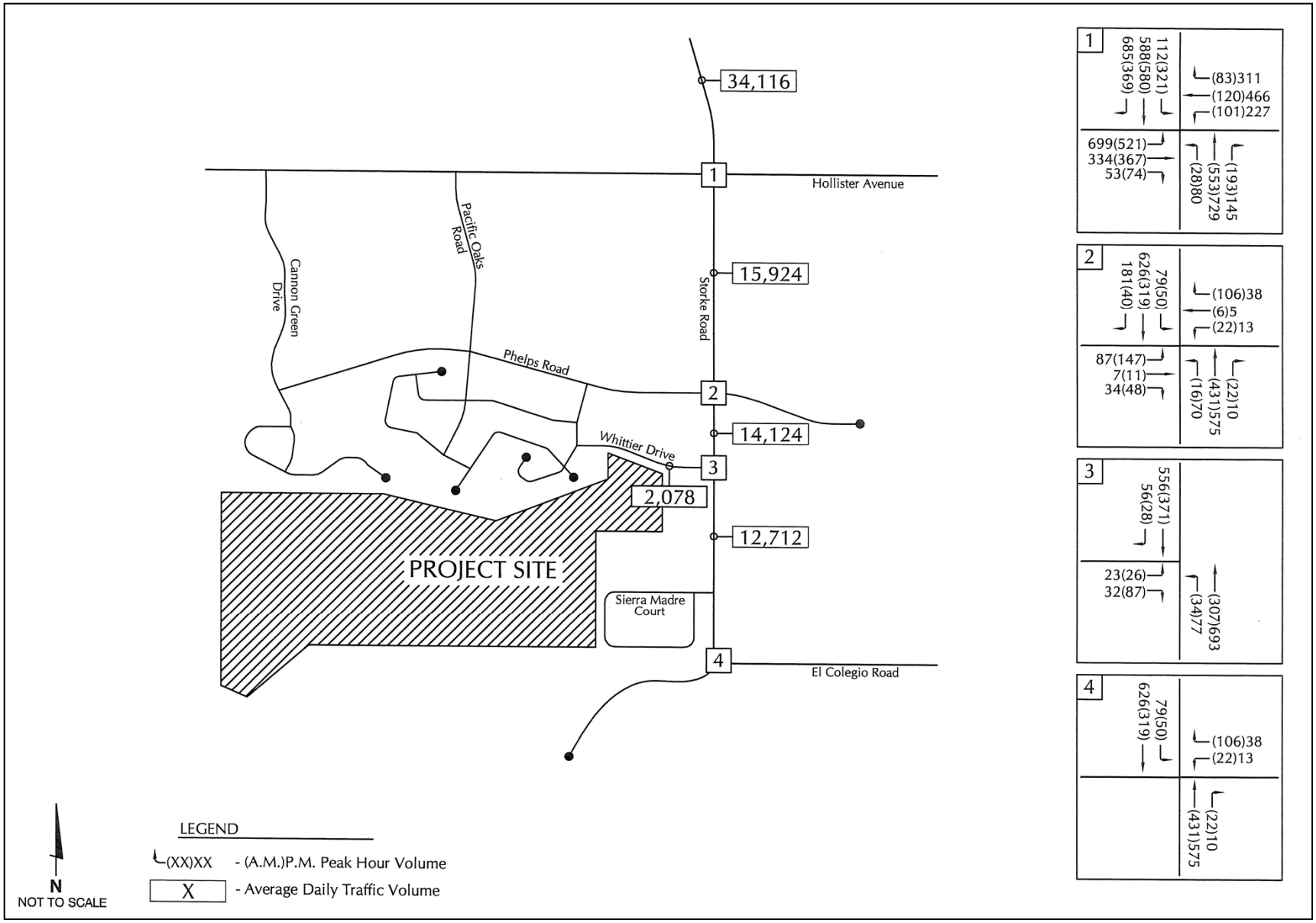
Figure 5.16-3

Project Trip Distribution and Assignment



Source: ATE, 2016

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Figure 5.16-4

Existing + Project Traffic Volumes

Table 5.16-6
Existing+Project Roadway Operations

Roadway Segment	Average Daily Trips				Project Impact?
	Acceptable Capacity	Existing ADT	Project Added ADT	Existing+ Project ADT	
Storke Road s/o U.S. 101	47,000	34,100	+16	34,116	No
Storke Road s/o Hollister Avenue	34,000	15,900	+24	15,924	No
Storke Road s/o Phelps Road	25,500	14,100	+24	14,124	No
Storke Road s/o Whittier Drive	14,300	12, 700	+12	12,712	No
Whittier Drive w/o Storke Road	9,280	2,000	+78	2,078	No

The data presented in Table 5.16-6 show that the study-area roadways are forecast to carry volumes within their Acceptable Capacity ratings under Existing+Project conditions. Therefore, the Project would result in a **less than significant** roadway impacts based on City of Goleta's impact thresholds.

Existing+Project Intersection Operations. Existing+Project levels of service were calculated for the study-area intersections assuming the traffic volumes presented on Figure 5.16-4. Tables 5.16-7 and 5.16-8 compare the Existing and Existing+Project levels of service and identify project-specific impacts based on City of Goleta and County of Santa Barbara thresholds.

Table 5.16-7
Existing+Project Intersection Operations – A.M. Peak Hour

Intersection	Existing		Existing+Project		Project-Added		Project Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	0.574	A	0.574	A	4	0.00	No
Storke Road/Phelps Road	0.449	A	0.449	A	4	0.00	No
Storke Road/Whittier Drive (a)	8.7 sec.	A	8.7 sec.	A	5	N/A	No
Storke Road/ El Colegio Road	N/A (b)	N/A	N/A (b)	N/A	1	0.00	No

(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.
(b) A.M. peak period not critical, P.M. peak hour volumes are approximately 50% higher.

Table 5.16-8
Existing+Project Intersection Operations – P.M. Peak Hour

Intersection	Existing		Existing+Project		Project-Added		Project Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	0.711	C	0.711	C	2	0.00	No
Storke Road/Phelps Road	0.485	A	0.485	A	2	0.00	No
Storke Road/Whittier Drive (a)	14.0 sec.	B	14.3 sec.	B	2	N/A	No
Storke Road/ El Colegio Road	0.489	A	0.489	A	0	0.00	No

(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.

The data presented in Tables 5.16-7 and 5.16-8 show that the study-area intersections would continue to operate at LOS C or better with Existing+Project traffic. Therefore, the Project would result in **less than significant** study-area intersections based on the City of Goleta and Santa Barbara County impact thresholds.

The Project's cumulative traffic impacts are evaluated in Section 5.16.4.

b. *Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?*

The Santa Barbara County Association of Governments (SBCAG) has developed a set of traffic impact guidelines to assess impacts of land use decisions made by local jurisdictions on regional transportation facilities located within the Congestion Management Program (CMP) roadway system. According to the CMP, local agencies must ensure that the scope of any traffic analysis performed for the environmental review process required under CEQA includes assessment of project-related impacts on the CMP system if total trip generation exceeds 50 peak hour or 500 daily trips. The data presented in Table 5.16-3 shows that the Project is forecast to generate 78 daily trips, 11 A.M. peak hour trips, and 4 P.M. peak hour trips. The Project is therefore consistent with the CMP and no further analysis is required, and the Project would have a **less than significant** impacts to CMP intersections.

c. *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

The Project would not affect air traffic patterns, and proposed open space restoration, bridges and trails would not interfere with airport operations. Therefore, the Project would have **no impact** related to air traffic patterns or airport safety.

d. *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Access to the project site is proposed via an existing single driveway connection to Whittier Drive. The driveway would provide access to the trailhead parking area and proposed gathering area. The project driveway is located on a slight curve with minimal red curb provided adjacent to the driveway, which could have the potential to result in a significant sight distance/traffic safety impact. Providing approximately 25-feet of red curb on both sides of the driveway to ensure that adequate sight distance is provided along Whittier Drive for vehicles exiting the site (150-feet of corner sight distance required for 25 MPH roadways) would reduce this **potentially significant and mitigable** impact to a less than significant level. Proposed mitigation measure TRF-1a requires that the curb adjacent to the driveway be painted red prior to the public's use of the reconfigured on-site driveway. No additional operational issues were identified related to the Project's access plan.

e. *Result in inadequate emergency access?*

Emergency access to the project site would continue to be provided from Whittier Drive and Venoco Road. The Project would not result in construction activities that would temporarily obstruct or impede access to the project site and would not develop structures that would impede emergency access to the project site or other nearby areas. In addition, the Project would not generate a substantial amount of additional traffic on local roadways that would have the potential to interfere with access by emergency personnel. Therefore, the Project would have **less than significant** impacts related to emergency vehicle access.

f. *Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?*

2010 LRDP Trail Planning. Figure 5.16-5 depicts 2010 LRDP Figure E-3 (Certified Trail Routes). This figure shows that the 2010 LRDP plans for the development of two new trails on the project site: a "Pedestrian, Bicycle" trail that connects Venoco Road to Storke Road and also provides a link to the De Anza Trail along the western border of the project site; and a "Nature Pedestrian Only" trail that extends between Venoco Road and Slough Road.

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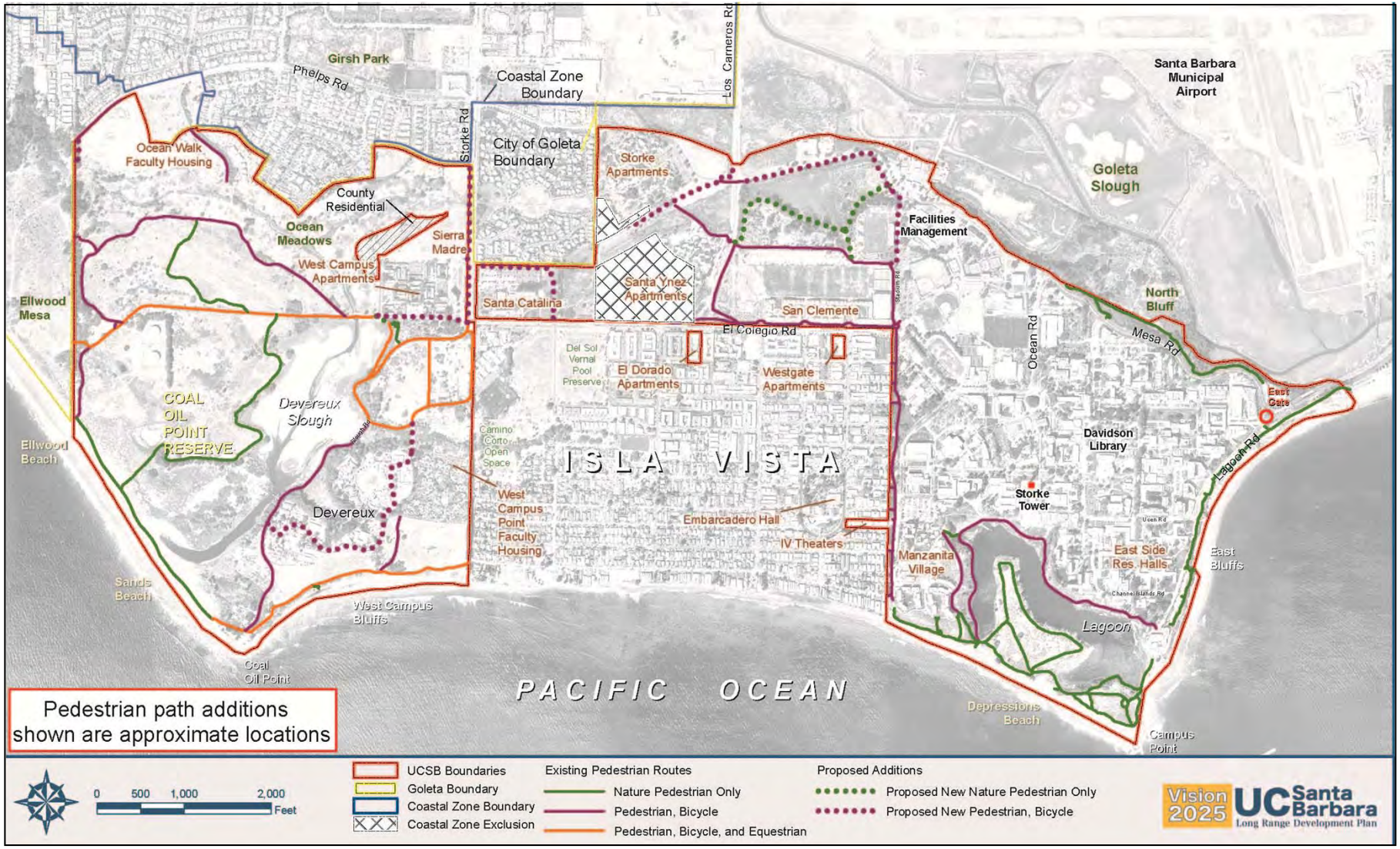

Source: UCSB, 2014

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Figure 5.16-5

2010 LRDP Certified Trail Routes

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Figure E-3 also indicates that the depicted trail locations are approximate.

The trails proposed for the project site and that are depicted on IS/MND Figures 2.2-1 and 2.7-1 would implement and expand the trail system depicted on 2010 LRDP Figure E-3. The proposed trail system would move the "Pedestrian, Bicycle" trail depicted by the LRDP to the northern portion of the project site and extend the trail so that it would also be located along the eastern perimeter of the site. The proposed extension of the trail would enhance circulation opportunities for residences adjacent to the northern and eastern perimeters of the project site by providing a link to Storke Road, which then provides access to the UCSB Main Campus and other destinations in the Project area. The proposed primary trail also enhances the recreational use of the trail by allowing users to make loop around the project site and providing a trail route that allows users to not walk adjacent to Storke Road, a major arterial roadway. The proposed secondary trail on the southwestern portion of the project site would be similar to the "Nature Pedestrian Only" trail shown on Figure E-3.

The 2010 LRDP did not propose that any new trails be located on the Ocean Meadows Golf Course, however, the approximate locations of several trails to be located on or adjacent to the South Parcel were proposed. The approximate location of the proposed trails are depicted on Figure 5.16-6 and are listed below.

- Trail 6 – De Anza Trail
- Trail 8 – South Golf Course Edge Trail
- Trail 9 – South Parcel Trail
- Trail 10 – North Golf Course Trail
- Trail 13 – Windrow Trail

Trails proposed by the NCOS Restoration project would retain the De Anza Trail (Trail 6) and the proposed secondary trail on the southwestern portion of the project site would provide connections to the De Anza Trail. The South Golf Course Edge Trail (Trail 8) and the North Golf Course Trail (Trail 10) proposed by the 2010 LRDP would be consolidated and relocated as the proposed primary trail on the northern portion of the project site. The proposed primary trail would provide recreation opportunities, and as described above would also enhance circulation in the project area. The South Parcel Trail (Trail 9) proposed by the 2010 LRDP would generally follow existing paths located on the South Parcel that would be removed by the Project. The proposed secondary trail located in the southwestern portion of the project site would replace Trail 9. The Windrow Trail proposed by the 2004 Open Space Plan in the City of Goleta follows an existing path that would be retained by the Project.

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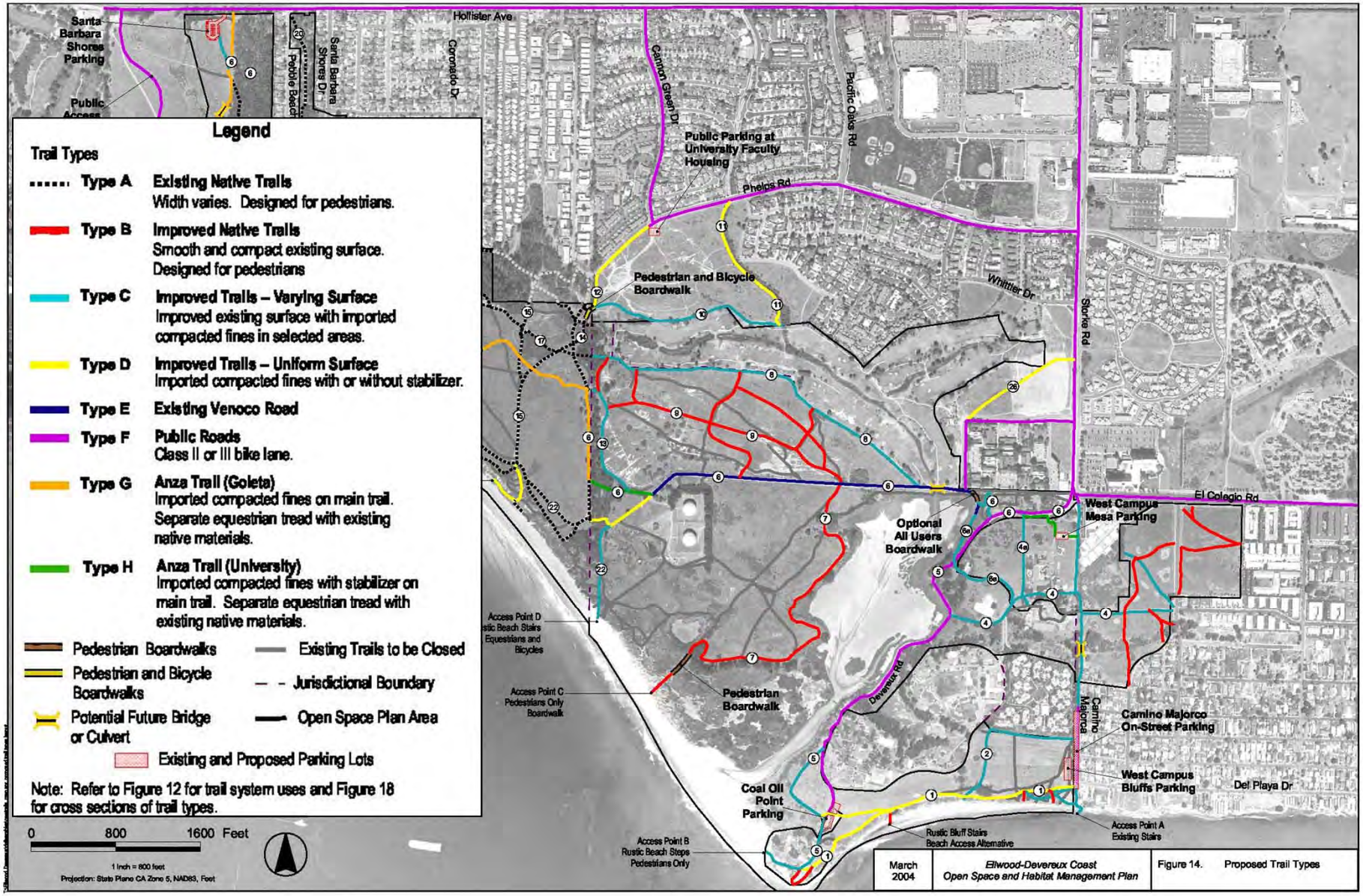

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Figure 5.16-6

Ellwood-Devereux Proposed Trails

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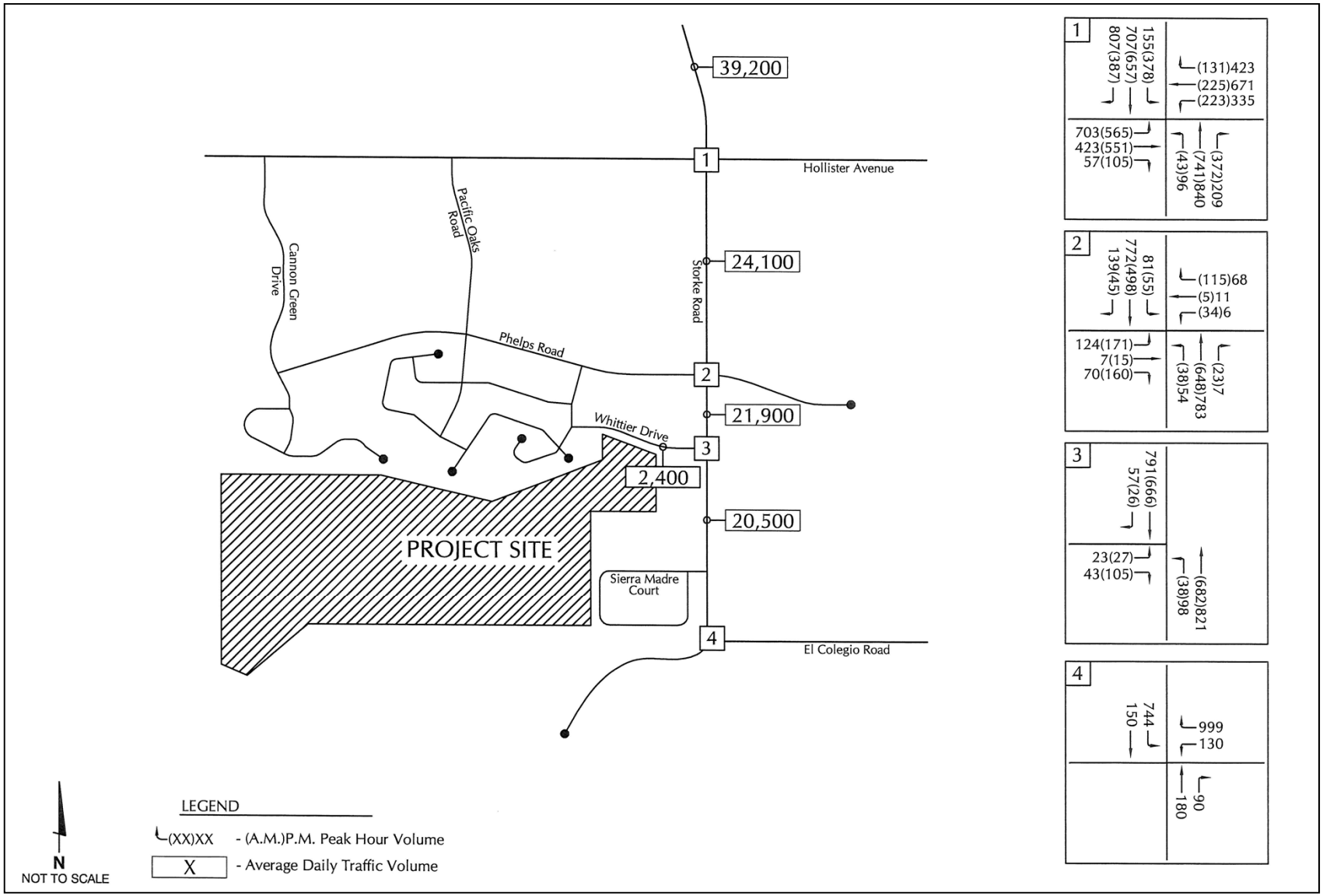
As described above, the Project would implement an extensive trail network that would expand what was planned for the project site by the 2010 LRDP and that would generally implement and be consistent with the trail planning included in the *Ellwood-Devereux Coast Open Space and Habitat Management Plan*. Therefore, the Project would result in **less than significant** impacts related to the implementation of adopted plans related to trail planning for the project site.

5.16.4 Cumulative Impacts

Cumulative Traffic Volumes. Cumulative traffic volumes were developed using the City's traffic model and cumulative traffic forecasts contained in the San Joaquin Apartments EIR. The Cumulative forecasts include traffic generated by approved and pending projects proposed within the City of Goleta as well as development of the Santa Barbara Airport Specific Plan, the UCSB Long Range Development Plan, and regional growth in the Goleta-Santa Barbara area. Cumulative traffic volumes are shown on Figure 5.16-7 and Cumulative+Project volumes are shown on Figure 5.16-8.

Programmed Improvements to Storke Road. Improvements to Storke Road adjacent to the site have been programmed by UCSB as part of the San Joaquin Apartments and Precinct Improvements Project and the City of Goleta. The University is proposing to widen the roadway to four lanes with two travel lanes in each direction along the segment of Storke Road located in the County between El Colegio Road and Sierra Madre Court. The City of Goleta has programmed improvements to widen the section of Storke Road between Phelps Road and Sierra Madre Court to provide 2-travel lanes in each direction. The cumulative analysis does not assume that the improvements are in place given the uncertain timing of implementation.

Cumulative+Project Roadway Operations. Table 5.16-9 compares the Cumulative and Cumulative+ Project roadway operations and identifies cumulative impacts based on City of Goleta impact thresholds.



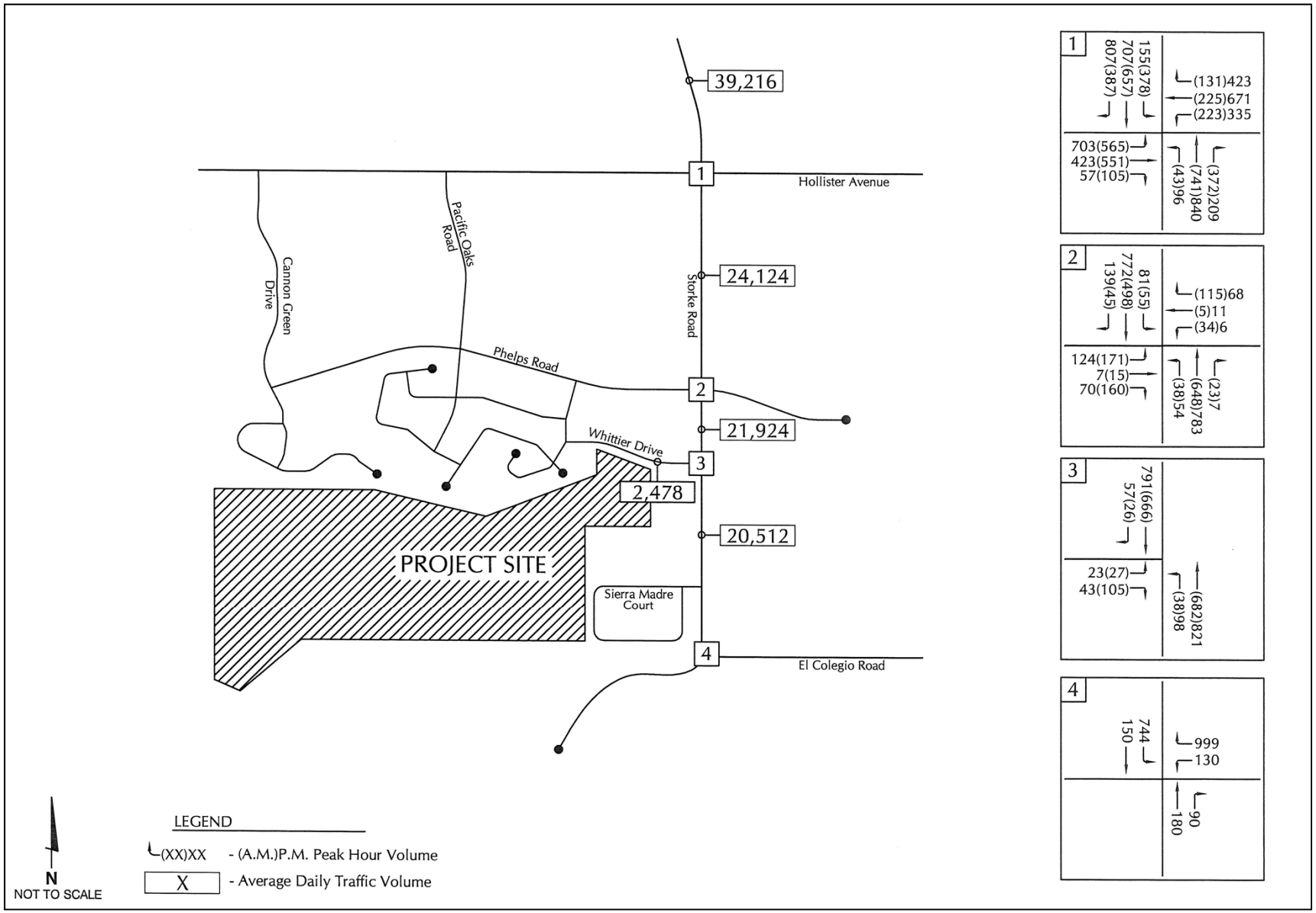
Source: ATE, 2016

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.16-7

Cumulative Traffic Volumes



Source: ATE, 2016

University of California, Santa Barbara

North Campus Open Space Restoration Project

Figure 5.16-8

Cumulative + Project Traffic Volumes

Table 5.16-9
Cumulative+Project Roadway Operations

Roadway Segment	Average Daily Trips				% Increase	Project Impact?
	Acceptable Capacity	Cumulative ADT	Project Added	Cumulative+ Project		
Storke Road s/o U.S. 101	47,000	39,200	+16	39,216	0.04	No
Storke Road s/o Hollister Avenue	34,000	24,100	+24	24,124	0.10	No
Storke Road s/o Phelps Road	25,500	21,900	+24	21,924	0.11	No
Storke Road s/o Whittier Drive	14,300	**20,500**	+12	**20,512**	0.06	No
Whittier Drive w/o Storke Road	9,280	2,400	+78	2,478	3.25	No

Bolded values exceed City's Acceptable Capacity.

As shown in Table 5.16-9, the segment of Storke Road south of Whittier Drive is forecast to carry traffic volumes that exceed the City's Acceptable Capacity under Cumulative and Cumulative+Project conditions. The Project's traffic additions would not exceed the City's roadway impact thresholds (1.0% increase). Therefore, the Project would result in **less than significant** cumulative roadway impacts based on City of Goleta thresholds. As noted above, the City of Goleta has programmed the widening of this segment of Storke Road to four lanes.

Cumulative+Project Intersection Operations. Cumulative and Cumulative+Project levels of service were calculated for the study-area intersections assuming the traffic volumes presented on Figures 5.16-8 and 5.16-9. Tables 5.16-10 and 11 compare the Cumulative and Cumulative+Project levels of service and identify cumulative impacts based on the City and County impact thresholds.

Table 5.16-10
Cumulative+Project Intersection Operations – A.M. Peak Hour

Intersection	Cumulative		Cumulative + Project		Project-Added		Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	0.697	B	0.697	B	4	0.000	No
Storke Road/Phelps Road	0.549	A	0.549	A	4	0.000	No
Storke Road/Whittier Drive (a)	11.7 sec.	B	11.9 sec.	B	5	N/A	No
Storke Road/ El Colegio Road	N/A (b)	N/A	N/A (b)	N/A	1	0.000	No

Bolded values exceed City of Goleta LOS C operating standard.
(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.
(b) A.M. peak period not critical, P.M. peak hour volumes are approximately 50% higher.

Table 5.16-11
Cumulative+Project Intersection Operations – P.M. Peak Hour

Intersection	Cumulative		Cumulative + Project		Project-Added		Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	**0.808**	**D**	**0.808**	**D**	2	0.001	No
Storke Road/Phelps Road	0.550	A	0.550	A	2	0.000	No
Storke Road/Whittier Drive (a)	22.5 sec.	C	23.4 sec.	C	2	N/A	No
Storke Road/ El Colegio Road	0.758	C	0.758	C	0	0.000	No

Bolded values exceed City of Goleta LOS C operating standard.
(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.

The data presented in Table 5.16-11 show that the Storke Road/Hollister Avenue intersection is forecast to operate at LOS D during the P.M. peak hour period, with and without the Project. The Project would add two (2) peak hour trips and result in no in increase to the V/C ratio, which is considered a less than significant impact based on the City of Goleta's cumulative impact threshold (V/C increase of 0.03). The remaining study-area intersections are forecast to operate at LOS C or better with Cumulative+Project traffic volumes. The Project's traffic-additions would therefore result in **less than significant** cumulative impacts at the study-area intersections.

5.16.5 Mitigation Measures

Impacts Reduced to a Less Than Significant Level with Proposed Mitigation

The NCOS Restoration Project would have the potential to result in a significant impact resulting from line of sight obstructions adjacent to the existing project site driveway. This impact would be reduced to a less than significant level with the implementation of proposed mitigation measure TRF-1a.

IMPACT TRF-1 Inadequate sight distance adjacent to the project site driveway would have the potential to result in a significant traffic safety impact.

TRF-1a. UCSB shall request that the City of Goleta provide approximately 25-feet of red curb on both sides of the project site entrance driveway to provide adequate sight distance along Whittier Drive for vehicles exiting the site. If feasible, curb painting shall be installed prior to the public's use of the reconfigured parking lot.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.17 UTILITIES AND SERVICE SYSTEMS -Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☐	✓
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	✓	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	✓	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	✓	☐

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	✓	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	✓	☐
g) Comply with applicable federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	✓	☐

5.17.1 Setting

Wastewater Treatment and Disposal. Wastewater collection services in the Project area are provided by the Goleta West Sanitary District (GWSD), which provides service for Isla Vista, the UCSB North, West and Storke Campuses, and portions of the City of Goleta. 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 location of the sewer trunk line is depicted on IS/MND Figure 1.4-9.

The GWSD sends wastewater to the Goleta Wastewater Treatment Plant, and owns a 40.08 percent share of the plant's permitted treatment capacity, which is equivalent to 3.12 million gallons per day (MGD). Current flows from the GWSD to the Goleta Wastewater Treatment Plant are 1.7 MGD (GWSD, 2014). Therefore, the GWSD has approximately 1.42 MGD of remaining treatment capacity at the Goleta Wastewater Treatment Plant.

The Goleta Sanitary District (GSD) operates the Goleta Wastewater Treatment Plant, which is located southeast of the Santa Barbara Municipal Airport. The treatment plant has a design capacity of 9.72 million gallons per day (MGD), however, the NPDES permit for the plant's ocean outfall established a permitted plant capacity of 7.64 MGD. The average daily flow into the treatment plant is approximately 4.70 MGD (GSD, 2015).

Water Supply. The Goleta Water District provides potable water service for the City of Goleta and surrounding areas, including UCSB. Most of the water provided by the District is from Lake Cachuma and the State Water Project. Additional supply sources include groundwater from the Goleta North/Central Groundwater Basin and recycled water. Based on water use data from 2012, the GWD estimated that the water demand in its service area was 13,402 AFY (GWD, 2013). Based on normal water supplies and estimated demand, the District has a supply water surplus of 3,070 AFY during times with normal water supply conditions.

The GWD has updated its current water supply projections due to on-going drought conditions. The total supply available to the District for the 2014-2015 water year is 13,499 acre-feet, which is approximately 87 percent of normal[12] (GWD, 2015). Based on currently available information, and assuming the region does not receive additional significant rainfall over the next year, the available water supplies for the 2015-16 water year are projected to be 10,840 acre-feet, or 70 percent of normal (GWD, 2015). Projected water supplies for the 2015-16 water year include:

- Zero percent allocation of Lake Cachuma entitlement water, but availability of 2,265 acre-feet in unused carryover water.
- Groundwater supplies based on projected annual well production of 6,421 acre-feet.
- 2,235 acre-feet of State Water, which would be a 30 percent allocation.

According to GWD's 2011 *Water Supply Management Plan*, future water demand is expected to rise to 16,683 AFY by the year 2030. Based on current water supplies under normal conditions, a demand of 16,683 AFY would result in a water supply deficit of 211 AFY. This shortfall could be eliminated by making use of GWD's 2,000 AFY unused capacity for recycled water as new pipelines are installed and new customers are identified.

Drought Emergency. In response to on-going drought conditions, on September 9, 2014 the GWD Board of Directors adopted Resolution 2014-31 declaring a Stage II Water Shortage Emergency consistent with the criteria contained the District's *Drought Preparedness and Water Shortage Contingency Plan.* The Board of Directors also adopted Resolution 2014-32 directing the denial of applications for new and additional service connections for potable water beginning on October 1, 2014. Projects with existing

[12] Normal water supply is defined in the District's Urban Water Management Plan as 15,472 AFY.

entitlement to potable water are exempt from the restrictions on new and additional service connections.

On May 12, 2015, the GWD Board of Directors declared a Stage III Water Shortage Emergency (Resolution 2015-20). Achieving Stage III water demand reduction targets will rely on water use limits and prohibitions to reduce non-essential uses, coupled with the implementation of a drought surcharge to achieve a 35 percent system-wide demand reduction.

Since declaring a Stage I Water Shortage in March 2014, there has been a 12 percent reduction in the District's system-wide water demand compared to 2013 water use, which includes a significant unanticipated increase in agricultural demand. While this falls short of the District's 25 percent reduction target for Stage II, District customers remain one of the lowest per capita water users in the State (GWD, 2015).

UCSB North Campus Water Supplies and Demand. Under an amended 1993 agreement between the GWD and the University Exchange Corporation and subsequent designations, 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 and the parts of West Campus that are north of El Colegio Road, or generally west of the Devereux Slough. Land uses in this area include several UCSB housing projects, including the West Campus Apartments (250 units), Sierra Madre Apartments (152 units) and the Ocean Walk Faculty Housing project (154 units upon buildout). The 2010 LRDP indicates that housing units on the UCSB campus have a potable water demand of 0.152 gallons/unit/year. Therefore, the 556 existing and approved residential units on the North Campus have a water demand of 122.4 acre feet per year. Based on this water demand, 77.6 acre feet of water remains under the 1993 University Exchange Corporation entitlement.

The entire UCSB campus uses recycled water for landscape irrigation. In April 1998, UCSB entered into an agreement with the Goleta Water District for the "first right of refusal" to 280 AFY of recycled water from the Goleta Sanitary District Wastewater Treatment Plant. UCSB uses an average of 143 AFY of recycled water for approximately 90% of its irrigation needs.

UCSB Water Supply Planning. UCSB has implemented water conservation programs that have substantially reduced potable water use, and the *UCSB Water Action Plan* (2013) outlines a campus-wide strategy to further reduce water consumption over the next 15 years while meeting future water demand. In 1996/1997 it is estimated that the average annual potable water use by UCSB was 292.7 million gallons (896 acre feet), while the average annual potable water use from 2008 to 2011 was 218.5 million gallons (669 acre feet). Actions undertaken by UCSB to reduce potable water use targeted academic, research and other non-residential buildings, and residential buildings operated by Housing & Residential Services. Water use reduction projects also addressed landscaping, irrigation,

and industrial applications. The goal of the *Water Action Plan* is to further reduce potable water use at UCSB, and the Plan focuses on implementing multiple conservation and efficiency strategies, including the substitution of recycled water for potable water; increasing the installation of low-flow aerators, showerheads, and toilets in academic and housing buildings; improving the quality of recycled water used in irrigation and other non-potable applications; and expanding overall administrative actions to encourage water conservation.

Solid Waste Disposal. Solid waste generated on the UCSB campus is collected by the Marborg Company and transported to the Tajiguas Landfill for disposal. The Tajiguas Landfill is operated by the County of Santa Barbara and is located approximately 20 miles west of the UCSB campus. The landfill accepts solid waste primarily from the cities of Santa Barbara and Goleta and unincorporated Santa Barbara County south coast areas. Final approvals by the Regional Water Quality Control Board and California Integrated Waste Management Board were obtained in 2003 to expand the landfill, and minor changes to the landfill's waste disposal area were approved in 2009. Based on current solid waste disposal trends, it was estimated that the landfill expansion would provide solid waste disposal capacity until 2021.

The County of Santa Barbara is evaluating a proposal to develop a Resource Recovery Project to process municipal solid waste from the communities served by the Tajiguas Landfill. The project would be located at the landfill and would include a materials recovery facility to recover recyclable material, a dry fermentation anaerobic digestion facility to process organic waste into biogas, and an energy facility that would generate electricity using the produced biogas fuel.

The University of California and UCSB has taken an active approach towards reducing the amount of generated solid waste and the amount of waste that is sent to a landfill for disposal. The University's Policy on Sustainable Practices established waste disposal diversion goals of 50 percent to be achieved by 2008, 75 percent by 2012, and 100 percent by 2020. During the 2011-2012 fiscal year, UCSB achieved an overall solid waste diversion rate of approximately 70 percent (UCSB, 2012).

5.17.2 Checklist Responses

a. *Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

The Project does not include the development of any uses of facilities that would generate wastewater. Should a restroom be added to the Project in the future, the wastewater that would be generated would be discharged to existing wastewater lines located on and near the project site and those flows would be sent to the GSD for treatment. The domestic wastewater that may be generated by the project in the future would comply with disposal requirements of the GSD. Therefore, the project

would have **no impact** related to wastewater treatment requirements established by the Regional Water Quality Control Board.

b. *Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

As described in response "d" below, adequate water supplies are available to serve the Project. Therefore, no new or expanded region-serving water supply or treatment facilities are required.

As described in response "e" below, adequate wastewater treatment capacity is available to serve the Project if a restroom facility is constructed on the project site in the future. Therefore, no new or expanded region-serving waste water treatment facilities are required.

The 24-inch wastewater pipeline that extends across the northern portion of the project site (Figure 1.4-9) is located in areas that would be modified by proposed grading and habitat development activities. To minimize the potential for impacts to the sewer line, proposed project site grading has been designed so that existing sewer line manholes would be avoided. Access to the manholes would continue to be provided from proposed trails or by driving over low-growing vegetation such as salt grass. Based on the final ground surface elevations developed at the project site, some of the existing manholes may need to be raised so that water in the proposed subtidal channels and wetland areas does not enter the sewer system. The northern end of proposed Bridge C and the location of proposed Bridge D (see Figure 2.7-1) would be located adjacent to the sewer line easement area. To avoid the potential for conflicts with the sewer line, no bridge abutments would be located within the easement area. The preliminary grading and bridge plans would not conflict with the operation or maintenance of the GWSD trunk line. However, to ensure that final grading and construction plans do not impact the sewer line, proposed mitigation measure USS-1a requires that proposed final grading and construction plans for areas adjacent to the sewer line easement be reviewed and approved by the GWSD.

Potable water, recycled water, and wastewater service (if required) would be provided by connecting to existing service lines located on or adjacent to the project site. Providing connections to the existing service lines would incrementally contribute to the construction-related impacts of the project, such as short-term air quality emissions, the potential for a release of sediment or other pollutants in runoff water, disturbing cultural resources, encountering hydrocarbon impacted soil, and noise. The evaluation of short-term construction-related impacts provided by this IS/MND concluded that the project's impacts would not be significant; would be reduced to a less than significant level by complying with existing regulatory

programs and UCSB policies; or would be reduced to a less than significant level with the implementation of proposed mitigation measures.

The project would not require the expansion or extension of sewer- or water-related infrastructure and connections to existing service lines located on and near the project site would not result in additional environmental significant impacts. Potential project-related impacts to the GWSD trunk line located on the northern portion of the project site would be **reduced to a less than significant level** with the implementation of proposed mitigation measure USS-1a, which requires GWSD approval of grading and construction plans in the area of their pipeline easement.

c. *Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

The Project would not increase the amount of impervious area on the project site and would not result in an increase in the amount of storm water flowing onto or off of the site. The Project would not substantially alter existing storm water drainage patterns, and would not require off-site drainage facility construction that would have the potential to result in significant environmental effects. Therefore, the Project would result in **less than significant** drainage-related impacts.

d. *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

Short-Term Water Demand. The Project would have a short-term demand for water to irrigate vegetation planted on the project site. The amount of water required for irrigation purposes would vary based on weather conditions, the type of habitat to be restored/created, and the type of plants being irrigated. An estimate of the Project's short-term irrigation water demand is based on the following project characteristics and assumptions:

- Irrigation would be required until the new plants become established. It is anticipated that new plantings would require irrigation for approximately one year.

- Irrigation rates would be determined based upon individual species requirements and zonation of ecotypes, and would be adjusted to provide the minimum amount of water necessary for rapid, healthy growth. To limit the growth of invasive, weedy species, seeded areas would receive the minimum amount of irrigation required to establish the target species.

- The irrigation system would consist of a combination of low-volume drip components and impact spray heads.

- During the last six months of the (one-year) establishment period, irrigation would be gradually curtailed so that vegetation may adapt to a natural precipitation regime. If drought stress is detected in the plantings or in areas of the restoration site following this "weaning" process, irrigation would be continued to affected portions of the site for up to an additional year.

- As shown on IS/MND Table 2.5-1, the Project would create 100 acres of new/restored habitat. Proposed subtidal/aquatic and mudflat/saltflat habitat areas would not be vegetated and comprise 15 acres of the proposed restoration area. Therefore, the Project would require the irrigation of 85 acres.

- Project development would be conducted in two phases. The area that would be revegetated and require irrigation at the end of phase 1 grading would encompass an area of approximately 20 acres. The area that would be revegetated and require irrigation at the end of phase 2 grading would encompass an area of approximately 65 acres.

- Irrigation would use both potable and recycled water. Potable water would be used in proposed habitat areas such vernal pools and wetlands because on-site soils have a high salt content that would be exacerbated by the use of recycled water, which has a higher salt content than potable water. It is estimated that approximately 70 percent of the restoration plantings would be irrigated using recycled water as proposed habitats such as salt marsh would not be adversely affected by the higher salt content in recycled water. Approximately 30 percent of the restoration plantings would be irrigated using potable water.

Estimates of the amount of water required to irrigate landscaped areas vary, however, the Santa Barbara County *Environmental Thresholds and Guidelines Manual* (2008) states that the irrigation water demand for “not so green lawns, ornamental gardens” is 1 to 1.5 acre feet/acre/year. The lower end of the irrigation water demand range (1.0 acre feet/acre) was used for this analysis to reflect the efficient methods of irrigation that would be used by the project, such as the extensive use of drip irrigation and reducing water use as the plants mature towards the end of their one-year establishment period. An evaluation of water savings that can be achieved by replacing ornamental lawns with native landscaping (Shapiro, *et. al.*, 2012) concluded that native plant landscaping can reduce irrigation rates by 60 percent. Therefore, the anticipated irrigation water demand for the Project is estimated to be approximately 0.4 of an acre foot/acre/year.

A total of 85 acres on the project site would be planted and would require irrigation for approximately one year. Therefore, the Project’s total short-term irrigation water

demand would be 34 acre feet (85 acres X 0.4 acre feet/acre). Of the total short-term demand irrigation water, approximately 24 acre feet would be recycled water (70 percent of the total water use) and 10 acre feet would be potable water (30 percent of the total water use).

Until such time that the GWD's current water service restrictions are suspended, the Stage II Water Shortage Emergency Resolution allows the District to provide water service to parties that have a pre-existing water use entitlements. As described in section 5.17.1 above, UCSB has a 200 acre foot per year entitlement for the area that includes the project site, and 77.6 acre feet of water per year remains under the 1993 University Exchange Corporation entitlement. If a property has an existing entitlement that is equal to or greater than the water use needed for a proposed development or change of use on that property, the District's temporary prohibition on new water allocations would not apply to prohibit water allocation up to the amount of the entitlement.

The Project would require a total of approximately 10 acre feet of potable water for temporary irrigation purposes over a period of approximately two years. A small amount of additional potable water may also be used during the Project's construction period to leach accumulated salts out of selected fill soils. Overall, the Project's two-year irrigation and construction demand for potable water would be accommodated by the water that remains under the 1993 University Exchange Corporation entitlement (77.6 acre feet per year). Therefore, adequate potable water supplies are available to serve the short-term demands of the Project and water supply impacts would be **less than significant**.

UCSB uses an average of 143 acre feet of recycled water per year and 280 acre feet of recycled water is available per year from the Goleta Sanitary District Wastewater Treatment Plant. Therefore, adequate recycled water supplies are available to serve the short-term demands of the Project and impacts to recycled water supplies would be **less than significant**.

Long-Term Water Demand. After the native vegetation planted on the project site becomes established, it would be self-sustaining and irrigation would no longer be required or provided. No structures or uses that would have a long-term water demand are proposed for the Project site at this time. Should site improvements, such as a restroom and/or drinking fountain, be provided in the future, the Project would have a minimal long-term water demand that could be accommodated by the existing 1993 University Exchange Corporation entitlement. Therefore, adequate water supplies would be available to serve the potential long-term demands of the Project and water supply impacts would be **less than significant**.

e. *Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

No structures or uses that would generate waste water are proposed for the project site at this time. Should site improvements such as a restroom be provided in the future, the Project would have a minimal long-term wastewater disposal/treatment demand, likely on the order of several hundred gallons per day. As described in Section 5.17.1, the GWSD would have adequate treatment capacity of accommodate wastewater that may be generated by the project in the future. Therefore, the Project would result in **less than significant** wastewater disposal impacts.

f. *Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

Construction of the Project would result in the short-term generation of construction and demolition waste, including waste from the removal of vegetation, the demolition of the golf course clubhouse and golf cart paths, culverts and bridges, and the removal of trash and debris that has been dumped on the project site. Herbaceous vegetation that is removed would be buried on-site, and woody vegetation would be chipped and mulched and recycled at an off-site location. Wood, concrete and metal demolition material would also be recycled at an off-site location. Trash and debris removed from the site would be recycled to the extent possible but some may require landfill disposal. Overall, the amount of construction and demolition material removed from the project site that requires landfill disposal would not be substantial. After the completion of construction activities, the recreation uses that would be conducted on the project site would not generate a substantial amount of waste. Therefore, the Project would have a **less than significant** impact to regional landfill disposal capacity.

g. *Would the project comply with applicable federal, state, and local statutes and regulations related to solid waste?*

Short-term construction activities and long-term use of the project site would not generate a substantial amount of solid waste that would require landfill disposal. Therefore, the project would have a **less than significant** effect regarding the implementation of solid waste disposal regulations.

5.17.3 Cumulative Impacts

The Project would not have a substantial long-term water demand; would not generate a substantial amount of wastewater; or result in the long-term generation of a substantial amount of solid waste. Therefore, the Project's cumulative water supply, wastewater, and solid waste generation impacts would not be cumulatively considerable and

the Project would result in **less than significant** cumulative utility and service system impacts.

5.17.4 Mitigation Measures

Impacts Reduced to a Less Than Significant Level with Proposed Mitigation

Implementation of the following mitigation measure would reduce to a less than significant level potential project-related grading and construction conflicts with the GWSD sewer trunk line located on the northern portion of the project site.

Impact USS-1. Proposed grading and construction operations in the vicinity of the GWSD sewer trunk line easement have the potential to conflict with the operation and maintenance of the sewer line.

USS-1a. Proposed final grading and construction plans for areas near the GWSD pipeline easement shall be provided to the GWSD for review and approval prior to the start of grading activities on the project site.

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
5.18 MANDATORY FINDINGS OF SIGNIFICANCE – The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	✓	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	☐	☐	☐	✓	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	✓	☐	☐

a. *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

The NCOS Restoration Project would have the potential to result in significant short-term impacts to biological resources, including potential impacts to: southern tarplant that may be located on the Whittier Parcel; active bird and raptor nests on the project site, including Cooper's hawk and white-tailed kite; and special-status aquatic wildlife known to use the project site, including California red-legged frog, tidewater goby and western pond turtle. The Project's short-term impacts can be reduced to a less than significant level with the implementation of proposed mitigation measures, including requirements to restore tarplant (mitigation measures BIO-1a and 1b); conduct pre-construction bird nest surveys and if necessary nest avoidance (mitigation measures BIO-2a, 2b and 2c); implement the terms and conditions required by the U.S. Fish and Wildlife Service (mitigation measures BIO-3a and BIO-3b); implement the terms and conditions required by the U.S. Army Corps of Engineers (mitigation measure 4a); and implement the terms and conditions required by the California Department of Fish and Wildlife (mitigation measure BIO-4b).

The NCOS Restoration Project would restore tidal influence for salt marsh, mudflat; restore/create tidal 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 restored wetland and upland habitat functions would exceed the existing biological functions of the abandoned golf course, confined narrow drainage ways, and previously disturbed uplands that support mostly non-native plants. Given the overall beneficial effect of the project on tidal wetlands and mud flats, freshwater wetlands and aquatic habitats, riparian habitat and uplands that would benefit native plants and wildlife, including special-status species, the Project would not result in significant long-term impacts to biological resources.

Four archaeological sites (CA-SBA-1194, 1195, -1327, -1688) are located along the western and southwestern periphery of the project site and are outside the area of grading proposed for the Project. Therefore, proposed construction activities would not directly impact (remove or disturb) archaeological resources. Potential indirect impacts to archaeological resources, such as vandalism and illicit artifact collection, are not considered significant because none of the sites within the project area are readily visible or contain artifacts that would attract collectors.

b. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

The Project would have long-term beneficial effects resulting from the creation of tidal wetlands and mud flats, freshwater wetlands and aquatic habitats, and riparian and upland habitats that would benefit native plants and wildlife, including special-status species. Therefore, the Project's cumulative impacts to biological resources would be less than significant. The Project would not generate a substantial amount of new vehicle traffic and its cumulative traffic impacts would not be significant. The potential for the Project to result in cumulative short-term construction noise impacts would not be significant, and the Project would result in less than significant cumulative long-term noise impacts resulting from the use of the site for recreation purposes and from project-generated traffic on streets in the vicinity of the project site. The Project would not have a substantial long-term demand for potable water or generate a substantial amount of wastewater, therefore, it's cumulative potable water supply and wastewater treatment capacity impacts would not be significant. The Project would not result in significant cumulative impacts related to other environmental issue areas, including aesthetics, agriculture and forest resources, air quality, cultural resources, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, or recreation.

c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

All of Project's significant environmental effects can be feasibly reduced to a less than significant level with the implementation of proposed mitigation measures.

5.19 FISH AND GAME DETERMINATION

Based on consultation with the California Dept. of Fish and Game, there is no evidence that the project has a potential for a change that would adversely affect wildlife resources or the habitat upon which the wildlife depends.

___ Yes (No Effect)

✓ No (Pay fee)

6.0 MITIGATION MEASURES

Mitigation Measures to Reduce Impacts to a Less Than Significant Level

Aesthetics

AES-1a. Measures to protect trees located along the northern perimeter of the project site and adjacent to residences in the University Village neighborhood shall be implemented while grading operations occur on the northern portion of the project site (Phase 1 of Project development). At minimum, required tree protection measures shall include the following.

1. Temporary protective fencing shall be installed as close to the perimeter of the tree's canopy dripline as possible. The tree protection zone fencing shall be maintained in good condition while grading occurs on the northern portion of the project site (Phase 1 of Project development). To the extent possible, construction activities, equipment, vehicles, and personnel shall remain outside the fenced areas.

2. Proposed landscape berms and bioswales shall be located outside the dripline of the protected trees.

3. If grading or trenching must occur within the fenced tree protection zone, a certified arborist shall evaluate the proposed construction activities and provide guidance to minimize impacts to the trees (i.e., methods to minimize root damage, ground compaction, physical damage to the tree, etc.)

4. Soil, construction materials, and equipment shall not be stored within the tree protection zone.

5. Any protected tree that is removed or damaged (more than 20% encroachment into the tree's canopy dripline) shall be replaced at a location similar to the removed or damaged tree on a 1:1 basis with a 15 gallon size replacement tree. Replacement trees shall be planted prior to the completion of Project construction activities and maintained until established (five years).

AES-2a. The five (5) scenic landscape trees removed from the golf course parcel shall be replaced at a 1:1 basis. A tree replacement planting plan shall be prepared, and at minimum shall include the following information:

1. Replacement tree locations. The replacement trees shall be located on the project site.

2. Replacement tree size, planting, maintenance, and performance (survival and growth) specifications.

3. A five-year monitoring program for the replacement trees with specific performance standards to ensure that the replacement trees become established. If monitoring indicates the replacement trees are not in conformance with the specified performance standards a revised or supplemental planting plan shall be developed

Air Quality

AQ-1a. The following dust control measures have been recommended by the Santa Barbara County APCD. All of these measures shall be implemented at the project site during construction.

1. Water trucks shall be used during construction to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this will require two daily applications (once in late morning and once at the end of the workday). Increased watering is required whenever wind speeds exceed 15 mph. Reclaimed water shall be used for dust suppression.

2. Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting material off-site or onto the site shall be tarped from the point of origin.

3. After clearing, grading, earth moving, or excavation is completed, the disturbed area shall be treated by watering, revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.

4. Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.

5. Construction contractors shall designate a monitor for the dust control program and to order increased watering, as necessary, to prevent dust transport off-site. The monitor's duties shall include holiday and weekend periods when work at the project site may not be in progress. The name and telephone number of such persons shall be provided to the APCD prior to the start of grading activities.

6. All required dust control measures shall be provided on project construction plans.

AQ-2a. The following diesel particulate matter emission control measures shall be implemented at the project site during construction.

1. Diesel construction equipment shall be used that meets the California Air Resources Board's Tier 2 or higher emission standards for off-road heavy-duty diesel engines.
2. All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, which limits engine idling time. Idling of heavy-duty diesel

construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

3. Diesel powered equipment should be replaced by electric equipment whenever feasible.
4. If feasible, diesel construction equipment shall be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or California.

Biological Resources

BIO 1a A project-specific Tarplant Restoration Plan shall be prepared by a qualified biologist for vernal pool restoration activities proposed for the Whittier Parcel. The Plan shall address tarplant impacts and appropriate mitigation and conservation measures. Conservation measures may include maintaining existing stormwater inputs to undisturbed populated areas, retention of soil seed banks, seed collection, transplanting of individual plants, plant propagation, and revegetation and preservation of designated mitigation sites in the vicinity of the project site or sites.

BIO 1b Implementation of Tarplant Restoration Plans will be conducted under the direction of a qualified biologist. Restoration shall include initial site preparation, planting, and ongoing maintenance and monitoring efforts. Restoration efforts shall continue for at least five years, and shall be considered successful when a self-sustaining population as evidenced by survival and natural reproduction of southern tarplant is present within the mitigation site. If the mitigation site is a preserve for an existing population, the initial tarplant numbers documented by a focused survey during the peak blooming period will provide the baseline population data. This baseline population number must remain steady or increase over the mitigation period to show establishment of self-sustaining populations on the site. Newly created habitat areas will use the first year tarplant population data as the baseline conditions. This baseline population number must also remain steady or increase over the mitigation period to show establishment of self-sustaining populations on the site.

BIO-2a To avoid disturbance or loss of active bird nests during development under the 2010 LRDP, any removal of eucalyptus, coast live oak, pine, cypress, or other trees that provide nesting habitat for birds, or disturbance of natural grassland areas shall be conducted between September 15 and February 15, outside of the typical nesting season.

BIO-2b If tree removals or disturbance of natural grassland areas are determined to be necessary during the typical nesting season (February 15 to September 15), nesting bird surveys shall be conducted by a qualified biologist immediately prior to the proposed action. Surveys shall follow standard protocols as established by CDFG and/or CCC. If the biologist determines that a tree or natural grassland area is being used for nesting at that time, disturbance shall be avoided until after the young have fledged from the nest and achieved independence. If no nesting is found to occur, necessary tree removal or grassland disturbance could then proceed.

BIO-2c To avoid indirect disturbance of active bird nests by project construction occurring within the typical nesting season, a qualified biologist shall be retained to conduct one or more pre-construction surveys per standard protocols approximately 1 week prior to construction, to determine presence/absence of active nests adjacent to the project site. If no breeding or nesting activities are detected within 200 feet of the proposed work area, noise-producing construction activities may proceed. If breeding/nesting activity is confirmed, work activities within 200 feet of the active nest shall be delayed until the young birds have fledged and left the nest.

BIO-3a Prior to commencement of any ground disturbing activities, UCSB shall obtain compliance with the Federal Endangered Species Act (FESA) for potential impacts on the tidewater goby and FESA compliance for the California red-legged frog in the form of take permits/authorizations or written documentation from the U.S. Fish and Wildlife Service (USFWS) that the proposed project would not result in take of the tidewater goby and California red-legged frog, or would not otherwise adversely affect these species. Should a take permit/authorization be required, or conditions imposed by the USFWS to ensure that no take would result from the project, the University shall implement all the terms and conditions of the USFWS permits, authorizations, or recommendations to the satisfaction of the USFWS.

BIO-3b Prior commencement of any ground disturbing or dewatering activities, the University shall develop a salvage and relocation plan for the tidewater goby, California red-legged frog, and western pond turtle that is approved by the USFWS.

BIO-4a. UCSB shall obtain Clean Water Act (CWA) regulatory compliance in the form of a permit/authorization from the Corps or written documentation from the Corps that no permit would be required for the proposed habitat restoration project. Should a permit be required, the applicant shall implement all the terms and conditions of the permit to the satisfaction of the Corps. Corps permits and authorizations require applicants to demonstrate that the proposed project has been designed and will be implemented in a manner that avoids and minimizes impacts on aquatic resources.

BIO-4b. The applicant shall obtain compliance with section 1602 of the California Fish and Game Code (Streambed Alteration Agreements) in the form of a completed Streambed Alteration Agreement or written documentation from the CDFW that no agreement would be required for the Project. Should an agreement be required, UCSB shall implement all the terms and conditions of the agreement to the satisfaction of the CDFW.

Hazards and Hazardous Materials

HAZ-1a. Vegetation clearing activities shall not occur on the project site when the Santa Barbara County Fire Department has issued a Red Flag Warning for the project region.

HAZ-2a. A 100-foot wide defensible space shall be established and maintained around the northern and eastern perimeters of the project site. The UCSB Fire Protection Division of the Environmental Health and Safety Department shall review and approve proposed planting and maintenance plans to ensure that appropriate defensible space is provided and maintained on the project site.

Noise

N-1a. The following construction noise reduction measures shall be implemented when earth-moving construction equipment is operating on the project site.

1. Construction equipment shall be properly maintained and be outfitted with feasible noise-reduction devices to minimize construction-generated noise.

2. Stationary noise sources such as generators and pumps are to be located at least 200 feet away from noise-sensitive land uses as feasible.

3. Laydown and construction vehicle staging areas that do not include stationary noise sources such as generators and pumps are to be located at least 100 feet from noise-sensitive land uses.

4. Whenever possible, academic, administrative and residential areas that will be subject to construction noise will be informed in writing at least two weeks before the start of construction activities.

5. Loud construction activities, such as jackhammering, concrete sawing, asphalt removal, and trenching operations, within 200 feet of a residential or academic building shall not be scheduled during finals week.

6. Loud construction activity as described in item 5 conducted within 200 feet of an academic or residential use shall, to the extent feasible, be scheduled during holidays, Thanksgiving break, Winter break, Spring break, or Summer break.

7. Loud construction and vibration-causing activities within 200 feet of a residential building shall be restricted to the hours between 8:00 AM and 5:00 PM, Monday through Friday, and no work shall occur on weekends or federal holidays.

Transportation and Traffic

TRF-1a. UCSB shall request that the City of Goleta provide approximately 25-feet of red curb on both sides of the project site entrance driveway to provide adequate sight distance along Whittier Drive for vehicles exiting the site. If feasible, curb painting shall be installed prior to the public's use of the reconfigured parking lot.

Recommended Mitigation Measures for Less Than Significant Impacts

Air Quality

The following measures would further reduce the project's less than significant contribution of short-term emissions of NO_x, PM_{10}, $PM_{2.5}$, and diesel particulate matter:

AQ-3a. The following emission control measures have been recommended by the Santa Barbara County APCD. All of these measures should be implemented at the project site during construction.

1. All portable construction equipment shall be registered with the State's portable equipment registration program OR shall obtain an APCD permit.
2. The engine size of construction equipment shall be the minimum practical size.
3. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
4. Construction equipment shall be maintained in tune per the manufacturer's specifications.
5. Catalytic converters shall be installed on gasoline-powered equipment, if feasible.

7.0 REFERENCES and PREPARERS

7.1 REFERENCES

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7.2 CONTACTS

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7.3 PREPARERS

This Initial Study/Mitigated Negative Declaration was prepared by Rodriguez Consulting, Inc., under contract to U.C. Santa Barbara. Sage Institute, Inc, assisted with the evaluation of impacts to biological resources; Fuscoe Engineering assisted with the evaluation of hydrology and water quality impacts; Applied Earthworks, Inc. assisted with the evaluation of impacts to cultural resources; and Associated Transportation Engineers prepared an evaluation of the Project's transportation and traffic impacts.

Appendix A

Project Objectives

Exhibit 4: Initial Study/Mitigated Negative Declaration

NCOS Restoration Project Goals and Objectives Working Document
ESA May 11 2015

Introduction

Project goals and objectives guide project development and the assessment of success, and are therefore fundamental "guiding principles" for the project. The goals and objectives provide "high level" guidance that is sanctioned by the project leadership for subsequent detailing and implementation by others on the project team. For the North Campus Open Space (NCOS) Restoration Project, we have drafted objectives for review by the Science Advisory Board (SAB) and the Project Committee (PC). The Objectives were developed based on the NCOS Goals previously developed[1].

The following is a proposed outline and vernacular for the Goals and Objectives document, for review.

1. Goals and Objectives
    a. Vision
    b. Goal(s)
    c. Objectives (NOTE: this document includes "qualitative criteria" along with Objectives)

2. Existing and Future Conditions, Opportunities and Constraints (to be completed)

3. Design Criteria (to be completed. May include "qualitative criteria" listed with Objectives).

[1] UCSB, undated. NCOS Design Basis, draft. Page 2 Goals and Objectives

1. Goals and Objectives

The North Campus Open Space (NCOS) Restoration Project (Project)entails restoration of the ecology of Devereux Slough and the adjacent mesa, along with a range of people-serving elements consistent with activities at UCSB.

The North Campus Open Space (NCOS, 55 .2 ha) that includes properties previously called 'South Parcel' (27.9 ha), 'Whittier parcel'(1.5 ha) and 'Ocean Meadows Golf course' (25.8 ha); is part of the 264 ha Ellwood-Devereux Joint Management Area, created in 2005. The restoration project is being undertaken by the University of California Santa Barbara, in partnership with the State Coastal Conservancy and the Trust for Public Land. This Project is being designed to "enhance wetland and associated upland habitats characteristic of Devereux Slough ecosystem" in accordance with the goals and objectives adopted by the NCOS Science Advisory Board (SAB), which was established in September 2013 after the former Ocean Meadows golf course was purchased by TPL and donated to UCSB in May 2013.[2]

a. Vision

The overall Project vision is to restore the opportunity for tidal connection to the site, enhance the expression and complexity of fresh and brackish wetland features and restore upland and wetland habitats on the borrow site[3].

b. Goals

The SAB established the Project Goals, which represent a balancing of ecosystem restoration and enhancements plus provision of social values, as follows[4]:

(1) Ecosystem Restoration: Enhance wetland and associated upland habitats characteristic of the Devereux Slough ecosystem. To do so will require expansion of wetland area, improved hydrological connectivity, control of invasive non-native species, re-introduction of native species[5], enhancement of habitats for threatened and endangered species, and improving resiliency of ecosystem structure and function.

(2) Provide Social Values: Maintain open space and develop opportunities for passive recreation, research and educational use that are compatible with the environmentally sensitive resources of the area.

[2] UCSB, undated. NCOS Design Basis, draft. Page 1 Introduction
[3] UCSB, undated. NCOS Design Basis, draft. Page 1 Project Vision
[4] UCSB, undated. NCOS Design Basis, draft. Page 2 Project Goals
[5] Edits by ESA for consideration

C. Objectives and Qualitative Criteria

Project Objectives and Qualitative Criteria are developed from the Project Goals, as follows.

1. Ecosystem Restoration Goal[6]: The Ecosystem Restoration Goal entails restoration of two primary areas, the upper Devereux Slough and the adjacent Mesa in South Parcel. The following are general restoration objectives for the two areas:

Restore estuarine function to upper arms of Devereux Slough currently occupied by Ocean Meadows Golf course and South Parcel to the extent practicable under current conditions and available funding and in consideration of climate change and sea level rise, to achieve ecological functions.

Restore upland and vernal wetland habitats to South Parcel to regain historic hydrologic connectivity from site to northwestern portion of the upper arms of Devereux Slough. Maintain existing ecological functions within the context of project goals and objectives (e.g. continue to support raptors and associated food webs). (Edits by ESA for consideration)

1.1 Wetland Habitat: Preserve, enhance, restore a diversity of wetland habitats characteristic of Devereux Slough system including estuarine and palustrine habitat types. The following qualitative criteria apply:

a. Support existing and future habitat based on identified regional needs (e.g. threatened and endangered species);

b. Create hydrologic connectivity with lower Devereux Slough;

c. Promote estuarine habitats above freshwater expression[7]

d. Add value to tributary points with features for expression of freshwater inputs[8]
   - Seasonal wetland creation
   - Vernal pools

e. Develop opportunities presented by spring complex at South Parcel[9]

f. Create appropriate edge habitat / buffer zones; and,

g. Provide habitat for migratory birds.

[6] UCSB, Dec, 2015. North Campus Open Space Restoration Project Goals and Objectives Chart. NOTE: Some of the terminology was modified: Goals of Objectives are called Qualitative Criteria to avoid confusion with Project Goals.
[7] These were drafted by ESA based on input received in kickoff meeting
[8] These were drafted by ESA based on input received in kickoff meeting
[9] These were drafted by ESA based on input received in kickoff meeting

1.2 Biodiversity: Preserve, enhance, restore the native biodiversity of the greater Devereux Ecosystem. Identify and protect multiple levels of diversity, e.g. species, habitats, trophic structure. The following qualitative criteria apply:

a. Increase diversity and populations of rare and endangered plants and animals;

b. Establish and maintain diverse, site-appropriate native plant communities;

c. Support a diverse complement of species, including birds, fish, amphibians, reptiles, native aquatic and terrestrial invertebrates; and

d. Include tributary drainages.[10]1.3 Physical & Chemical Processes: maintain and establish physical and chemical processes consistent with restoration goals. The following qualitative criteria apply:

a. Improve tidal circulation and enlarge the amount of area that is tidally inundated;

b. Manage surface and subsurface freshwater inflows to support desired on-site habitats;

c. Establish and maintain a sediment transport regime that supports the desired wetland functions;

d. Re-establish a dynamic range of hydrologic conditions (intensity and duration) to support natural ecosystem processes; and,

e. Establish and maintain biogeochemical processes representative of natural wetland ecosystems.

f. incorporate runoff treatment into perimeter landscaping to reduce nutrient and bacterial loadings to slough (this may be redundant with 1.4 d).[11]

1.4 Sustainability: Facilitate the conservation and restoration of natural resources in a manner that maintains and improves the ecological integrity, function, diversity and productivity for future generations. The following qualitative criteria apply:

a. Accommodate potential sea-level rise for transitional habitat to accommodate habitat shifts;

b. Use self-sustaining, low maintenance systems where possible;

c. Minimize future adverse effects of nuisance species, including non-native, invasive species, feral predators, and disease vectors;

d. Protect the wetlands from adverse impacts caused by contaminants in influent water or sediment; and,

[10] These were drafted by ESA for review
[11] These were drafted by ESA for review

e. Plan for the long-term management of the site.

f. Create a diversity of habitats with spatial dispersion to reduce risk of ecology collapse due to climate change, storms and other events such as droughts[12].2. Provide Social Values Goal[5]: The Social Values Goal has received significant attention via planning for public access as represented by the following general Objective.

Incorporate appropriate public access through trails connecting the community to the California Coastal and De Anza trails and the beach (Access D from Ellwood-Devereux Plan). Trails designed for wildlife viewing and access and not commuting. Trails may include view points and boardwalks over wetlands and will be aligned to support Goleta West Sanitary District access to sewer manholes. (NOTE: ESA suggests that the content of this proposed objective is too specific and not appropriate at this level – reword).

2.1 Public Access: Design enhanced access consistent with ecosystem preservation and restoration values in a safe, consistent, coherent and functional manner. The following qualitative criteria apply:

a. Develop single gateway entrance to attract, welcome, and inform visitors;

b. Phase-out inappropriate or uncontrolled access points;

c. Create public outreach, education and interpretive opportunities for visitors, organizations, and institutions;

d. Provide opportunities for the public to participate in restoration and monitoring efforts; and,

e. Consider safety and access in design.

2.2 Recreational Use: Design to accommodate an appropriate level of passive recreational use consistent with restoration goals and objectives. The following qualitative criteria apply:

a. Provide public trails and viewing areas around the perimeter;

b. Establish interpretive displays at selected locations;

c. Concentrate potentially incompatible human activities in non-sensitive areas;

d. Design access to minimize maintenance costs; and,

e. Provide access points at locations responsive to the needs of law enforcement, flood control and vector control.

[12] These were drafted by ESA for review

2.3 Research and Education Use: Encourage and facilitate use of site by students and researchers from UCSB and other academic institutions for research and general education. The following qualitative criteria apply:

a. Create interpretive signage;

b. Make information about research and data easily available;

c. Seek funding to support academic use of site; and,

d. Incorporate experimental elements in design, monitoring and adaptive management, for example[13]:

- Construct a range of pond geometries (crest elevation, depth) for lagoon water retention;
- Construct a range of seasonal wetland geometries (tributary areas); and
- Incorporate responses to climate change which can be measured.
- Develop enhanced quantified conceptual model of mouth morphology, and extend beyond estuary hydrology to include other characteristics such as salinity, water quality, sedimentation and habitat.
- Incorporate long term monitoring and adaptive management programs in project design

2.4 Cultural access: Create opportunities for Native American use of the site for collection of plants and education about historic cultural use of site. The following qualitative criteria apply:

a. Provide access for cultural use of the site by native peoples, e.g. plant material collection; and,

b. Educate the public regarding historic cultural uses.

3. Additional Objectives and associated qualitative criteria[14]:

3.1 Maintain or reduce flood risk: The project will not increase flood risk over baseline[15]. The following qualitative criteria apply:

a. No increase in 100-year water level profile as defined by the existing effective FEMA map(s) and study(ies) for immediate post-project conditions;

b. Accommodate design storm water discharges from adjacent development; and

[13] These were drafted by the ESA team for review
[14] These were drafted by ESA for review
[15] The project baseline will be defined based on existing conditions and anticipated future conditions.

c. Consider potential climate change impacts to future conditions, including sea level rise and precipitation increases, for baseline and project conditions:

- Consider rise in beach elevation with sea level rise;
- Consider increase in runoff due to increased rainfall intensity; and,
- Consider decrease in fresh water supply due to reduced annual rainfall.

3.2 No net degradation to specified habitats and species. The following qualitative criteria apply:

a. No degradation of Goby habitat in lower Devereux;

b. No degradation of snowy plover or California least tern habitat in Beach area;

c. No degradation of Mitigation wetlands in vicinity constructed by UCSB;

d. No degradation of the beach; and,

e. No degradation of Other as determined during project design and approvals.

3.3. Implementation: The project will be completed within the parameters set forth by the DPP, as amended / updated. The following qualitative criteria apply:

a. The anticipated total construction cost shall not exceed the anticipated funding (presently estimated maximum is $20 million);

b. The project may be phased in accordance with schedule parameters (e.g. construction windows, budgets, grants); and,

b. Comply with permits and approvals.

3.4 Infrastructure and Property: The project will not directly affect infrastructure and property. The following qualitative criteria apply:

a. No degradation to Venoco Road, bridge and access to the oil tanks at the top of South Parcel;

b. No degradation of Sewer trunk line along north side of NCOS; and,

c. No degradation of North Campus facilities.

Exhibit 4: Initial Study/Mitigated Negative Declaration

Appendix B

Preliminary Revegetation Plant List

Exhibit 4: Initial Study/Mitigated Negative Declaration

Table 10. Preliminary Revegetation Species List

Species	Common Name
Marsh Plain Salt Marsh	
Salicornia pacifica	Pickleweed
Distichlis spicata	Salt grass
Frankenia salina	Alkali heath
Jaumea carnosa	Marsh jaumea
High Marsh - Transition	
Salicornia pacifica	Pickleweed
Frankenia salina	Alkali heath
Jaumea carnosa	Jaumea
Limonium californicum	Marsh rosemary
Atriplex californica	California saltbush
Distichlis spicata	Salt grass
Arthrocnemum subterminale	Parish's glasswort
Suaeda calceoliformis	Horned seablite
Spergularia marina	Salt marsh sand-spurrey
Monanthechloe littoralis	Shore grass
Leymus triticoides	Creeping wild rye
Riparian	
Salix lasiolepis	Arroyo willow
Salix laevigata	Red willow
Salix exigua	Sandbar willow
Quercus agrifolia	Coast live oak
Populus trichocarpa	Black cottonwood
Alnus rhombifolia	White alder
Platanus racemosa	California sycamore
Sambucus nigra ssp. *caerulea*	Blue elderberry
Baccharis salicifolia	Seep willow
Frangula californica	California coffeeberry
Rosa californica	California wild rose
Anemopsis californica	Yerba mansa
Rubus ursinus	California blackberry
Clematis ligusticifolia	Creek clematis
Fresh- Brackish Wetland/Seasonal Wetland	
Schoenoplectus californicus	California bulrush
S. americanus	American bulrush
Bolboschoenus maritimus	River bulrush
Typha latifolia	Narrow-leaved cattail
Juncus textilis	Basket rush
Juncus phaeocephalus	Brown-headed rush
Hordeum brachyantherum	Meadow barley

Species	Common Name
Baccharis salicifolia	Seep willow
Rosa californica	California wild rose
Salix exigua	Sandbar willow
Anemopsis californica	Yerba mansa
Baccharis douglasii	Salt marsh baccharis
Coastal Sage Scrub	
Artemisia californica	California sagebrush
Atriplex lentiformis ssp. *breweri*	Quail bush
Encelia californica	California sunflower
Epilobium canum	California fuchia
Eriophylum confertiflorum	Golden yarrow
Eriogonum parvifolium	Sea cliff buckwheat
Isocoma menziesii	Coast goldenbush
Elymus condensatus	Giant Wild Rye
Lonicera subspicata	Santa Barbara honeysuckle
Malacothrix saxatilis	Seacliff daisy
Mimulus aurantiacus	Monkeyflower
Scrophularia californica	Figwort
Native Grassland	
Nassella pulchra	Purple needle grass
Bromus carinatus	California brome
Elymus glaucus	Blue wildrye
Hordeum brachyantherum ssp. *californicum*	California barley
Dudleya lanceolata	Live forever
Distichlis spicata	Salt grass
Eschscholzia californica	California poppy
Gnaphalium californicum	Everlasting
Hazardia squarrosa	Prickly goldenbush
Deinandra fasciculata	Fascicled tarplant
Dichelostemma capitatum	Blue dicks
Lessingia filaginifolia	California aster
Lupinus bicolor	Miniature lupine
Sisyrinchium bellum	Blue-eyed grass
Vernal Pool	
Alopecurus saccatus	Pacific foxtail
Atriplex coulteri	Coulter's saltbush
Brodiaea jolonensis	Jolon brodiaea
Castilleja densiflora	Denseflower owl's clover
Centunculus minimus	Chaffweed
Crassula aquatica	Pigmy weed
Elatine brachysperma	Short seed waterwort
Eleocharis macrostachya	Creeping spike rush
Epilobium pygmaeum	Smooth boisduvalia

Species	Common Name
Eryngium vaseyi	Coyote thistle
Eryngium armatum	Prickly coyote thistle
Grindelia camporum	Common gumplant
Isolepis cernua	Low bulrush
Juncus bufonius	Toad rush
Pilularia americana	Pillwort
Plagiobothrys undulates	Coast allocarya
Plantago elongata	Coastal plantain
Phalaris lemmonii	Lemmon's canarygrass
Psilocarphus brevissimus	Short woolyheads
Psilocarphus tennelus	Slender woolyheads
Hordeum brachyantherum ssp. *brachyantherum*	Meadow barley
Eleocharis acicularis	Needle spike rush
Sand Dune Annuals	
Cammisoniopsis micrantha	Spenser primrose
Cryptantha clevelandii	Cleveland's cryptantha
Plantago erecta	California plantain
Lupinus bicolor	Bicolored lupine
Stebbinsoseris heterocarpa	Grassland stebbinsoseris
Cirsium occidentale	Cobweb thistle
Eschscholzia californica	California poppy
Sanicula arguta	Sharp-toothed snakeroot
Acmispon americanus	Acmispon
Pseudognaphalium beneolens	Cudweed
Hazardia squarrosa	Sawtooth goldenbush
Amsinckia intermedia	Common fiddleneck

Exhibit 4: Initial Study/Mitigated Negative Declaration

Appendix C

CalEEMod Results

NCOS Restoration

Santa Barbara County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	100.00	Acre	100.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	8			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Grading would not occur on the entire 136-acre project site

Construction Phase -
Grading would be conducted in two phases over a two year period.
Grading in Phase 1 includes removal of clubhouse, golf course paths and culverts

Off-road Equipment -

Off-road Equipment - Scrapers used to excavate soil from golf course and transport to South Parcel
Other construction equipment is for dust control water trucks
Rubber tire dozer is for demolition

Off-road Equipment - Dump trucks used to haul excavated soil to the South Parcel
Other construction equipment is for water trucks

Trips and VMT - Excavated would be hauled to the South Parcel

On-road Fugitive Dust - Excavated soil would be hauled across the project site to the South Parcel

Grading - Grading phase 1 would be approximately 20 acres
Grading phase 2 would be approximatley 65 acres

Vehicle Trips - project would generate 78 adt. .78 trips/acre x 100 acre construction site =78 adt

Area Coating - no structures to be developed on the project site

Consumer Products -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	155.00	66.00
tblConstructionPhase	NumDays	155.00	132.00
tblConstructionPhase	PhaseEndDate	5/3/2017	10/31/2017
tblConstructionPhase	PhaseStartDate	11/1/2016	5/1/2017
tblGrading	AcresOfGrading	387.50	20.00
tblGrading	AcresOfGrading	387.50	65.00
tblGrading	MaterialExported	0.00	155,000.00
tblGrading	MaterialExported	0.00	205,000.00
tblLandUse	LandUseSquareFeet	4,356,000.00	0.00
tblOffRoadEquipment	HorsePower	16.00	174.00
tblOffRoadEquipment	LoadFactor	0.43	0.38

tblOffRoadEquipment	LoadFactor	0.38	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.42	0.48
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType	Scrapers	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	PhaseName		Grading Phase 2
tblOffRoadEquipment	PhaseName		Grading Phase 2
tblOffRoadEquipment	PhaseName		Grading Phase 2
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2018
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	9,888.00
tblTripsAndVMT	HaulingTripNumber	0.00	25,213.00
tblVehicleTrips	ST_TR	1.59	0.78
tblVehicleTrips	SU_TR	1.59	0.78
tblVehicleTrips	WD_TR	1.59	0.78

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	8.1762	80.5390	75.7966	0.0722	235.1854	3.6243	238.8097	29.8720	3.3341	33.2062	0.0000	7,399.5529	7,399.5529	1.9564	0.0000	7,440.6378
2017	12.0934	130.7728	103.2310	0.1318	288.9461	5.4636	294.4098	32.0589	5.0263	37.0853	0.0000	13,353.7097	13,353.7097	3.7518	0.0000	13,432.4977
Total	**20.2696**	**211.3118**	**179.0276**	**0.2040**	**524.1315**	**9.0880**	**533.2195**	**61.9310**	**8.3605**	**70.2914**	**0.0000**	**20,753.2626**	**20,753.2626**	**5.7082**	**0.0000**	**20,873.1355**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	8.1762	80.5390	75.7966	0.0722	14.6847	3.6243	18.3090	7.8705	3.3341	11.2047	0.0000	7,399.5529	7,399.5529	1.9564	0.0000	7,440.6378
2017	12.0934	86.5557	103.2310	0.1318	7.8234	5.4636	13.2870	4.0085	5.0263	9.0349	0.0000	13,353.7097	13,353.7097	3.7518	0.0000	13,432.4977
Total	**20.2696**	**167.0948**	**179.0276**	**0.2040**	**22.5081**	**9.0880**	**31.5961**	**11.8791**	**8.3605**	**20.2395**	**0.0000**	**20,753.2626**	**20,753.2626**	**5.7082**	**0.0000**	**20,873.1355**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**20.93**	**0.00**	**0.00**	**95.71**	**0.00**	**94.07**	**80.82**	**0.00**	**71.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.9000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0219	0.0219	6.0000e-005		0.0232
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.2242	0.4239	1.9745	3.6100e-003	0.2633	4.9400e-003	0.2683	0.0704	4.5500e-003	0.0749		295.5736	295.5736	0.0137		295.8619
Total	**0.2252**	**0.4240**	**1.9849**	**3.6100e-003**	**0.2633**	**4.9800e-003**	**0.2683**	**0.0704**	**4.5900e-003**	**0.0750**		**295.5955**	**295.5955**	**0.0138**	**0.0000**	**295.8851**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.9000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0219	0.0219	6.0000e-005		0.0232
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.2242	0.4239	1.9745	3.6100e-003	0.2633	4.9400e-003	0.2683	0.0704	4.5500e-003	0.0749		295.5736	295.5736	0.0137		295.8619
Total	**0.2252**	**0.4240**	**1.9849**	**3.6100e-003**	**0.2633**	**4.9800e-003**	**0.2683**	**0.0704**	**4.5900e-003**	**0.0750**		**295.5955**	**295.5955**	**0.0138**	**0.0000**	**295.8851**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading Phase 1	Grading	8/1/2016	10/31/2016	5	66	
2	Grading Phase 2	Grading	5/1/2017	10/31/2017	5	132	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading Phase 1	Excavators	2	8.00	162	0.38
Grading Phase 1	Graders	1	8.00	174	0.41
Grading Phase 1	Rubber Tired Dozers	1	8.00	255	0.40
Grading Phase 1	Scrapers	2	8.00	361	0.48
Grading Phase 2	Dumpers/Tenders	4	8.00	174	0.41
Grading Phase 2	Excavators	2	8.00	162	0.40
Grading Phase 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading Phase 2	Cranes	1	8.00	226	0.29
Grading Phase 2	Bore/Drill Rigs	1	8.00	205	0.50
Grading Phase 2	Scrapers	4	8.00	361	0.48
Grading Phase 2	Crawler Tractors	2	8.00	208	0.38
Grading Phase 2	Other Construction Equipment	2	8.00	171	0.48
Grading Phase 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading Phase 1	8	20.00	0.00	9,888.00	12.30	4.60	1.00	LD_Mix	HDT_Mix	HHDT
Grading Phase 2	8	20.00	0.00	25,213.00	12.30	4.60	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading Phase 1 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.4641	0.0000	14.4641	7.8087	0.0000	7.8087			0.0000			0.0000
Off-Road	6.4795	74.8137	49.1374	0.0617		3.5842	3.5842		3.2975	3.2975		6,414.9807	6,414.9807	1.9350		6,455.6154
Total	**6.4795**	**74.8137**	**49.1374**	**0.0617**	**14.4641**	**3.5842**	**18.0484**	**7.8087**	**3.2975**	**11.1062**		**6,414.9807**	**6,414.9807**	**1.9350**		**6,455.6154**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6142	5.5955	25.4467	8.4900e-003	220.5341	0.0387	220.5728	22.0137	0.0354	22.0490		815.2824	815.2824	0.0111		815.5146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.1298	1.2125	2.0300e-003	0.1871	1.4200e-003	0.1885	0.0496	1.2900e-003	0.0509		169.2898	169.2898	0.0104		169.5077
Total	**1.6967**	**5.7253**	**26.6592**	**0.0105**	**220.7212**	**0.0401**	**220.7613**	**22.0633**	**0.0366**	**22.1000**		**984.5722**	**984.5722**	**0.0214**		**985.0223**

3.2 Grading Phase 1 - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.4641	0.0000	14.4641	7.8087	0.0000	7.8087			0.0000			0.0000
Off-Road	6.4795	74.8137	49.1374	0.0617		3.5842	3.5842		3.2975	3.2975	0.0000	6,414.9807	6,414.9807	1.9350		6,455.6154
Total	**6.4795**	**74.8137**	**49.1374**	**0.0617**	**14.4641**	**3.5842**	**18.0484**	**7.8087**	**3.2975**	**11.1062**	**0.0000**	**6,414.9807**	**6,414.9807**	**1.9350**		**6,455.6154**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6142	5.5955	25.4467	8.4900e-003	0.0335	0.0387	0.0721	0.0122	0.0354	0.0475		815.2824	815.2824	0.0111		815.5146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.1298	1.2125	2.0300e-003	0.1871	1.4200e-003	0.1885	0.0496	1.2900e-003	0.0509		169.2898	169.2898	0.0104		169.5077
Total	**1.6967**	**5.7253**	**26.6592**	**0.0105**	**0.2206**	**0.0401**	**0.2606**	**0.0618**	**0.0366**	**0.0984**		**984.5722**	**984.5722**	**0.0214**		**985.0223**

3.3 Grading Phase 2 - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5936	0.0000	7.5936	3.9434	0.0000	3.9434			0.0000			0.0000
Off-Road	10.2005	124.0344	72.0515	0.1190		5.4207	5.4207		4.9870	4.9870		12,169.3969	12,169.3969	3.7287		12,247.6992
Total	**10.2005**	**124.0344**	**72.0515**	**0.1190**	**7.5936**	**5.4207**	**13.0143**	**3.9434**	**4.9870**	**8.9304**		**12,169.3969**	**12,169.3969**	**3.7287**		**12,247.6992**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.8229	6.6247	30.1272	0.0108	281.1655	0.0416	281.2071	28.0659	0.0381	28.1040		1,021.5951	1,021.5951	0.0139		1,021.8866
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0700	0.1137	1.0523	2.0300e-003	0.1871	1.3200e-003	0.1884	0.0496	1.2100e-003	0.0508		162.7177	162.7177	9.2500e-003		162.9119
Total	**1.8929**	**6.7384**	**31.1795**	**0.0128**	**281.3525**	**0.0429**	**281.3955**	**28.1155**	**0.0393**	**28.1548**		**1,184.3128**	**1,184.3128**	**0.0231**		**1,184.7985**

3.3 Grading Phase 2 - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5936	0.0000	7.5936	3.9434	0.0000	3.9434			0.0000			0.0000
Off-Road	10.2005	79.8174	72.0515	0.1190		5.4207	5.4207		4.9870	4.9870	0.0000	12,169.3969	12,169.3969	3.7287		12,247.6992
Total	**10.2005**	**79.8174**	**72.0515**	**0.1190**	**7.5936**	**5.4207**	**13.0143**	**3.9434**	**4.9870**	**8.9304**	**0.0000**	**12,169.3969**	**12,169.3969**	**3.7287**		**12,247.6992**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.8229	6.6247	30.1272	0.0108	0.0427	0.0416	0.0843	0.0155	0.0381	0.0536		1,021.5951	1,021.5951	0.0139		1,021.8866
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0700	0.1137	1.0523	2.0300e-003	0.1871	1.3200e-003	0.1884	0.0496	1.2100e-003	0.0508		162.7177	162.7177	9.2500e-003		162.9119
Total	**1.8929**	**6.7384**	**31.1795**	**0.0128**	**0.2298**	**0.0429**	**0.2727**	**0.0652**	**0.0393**	**0.1044**		**1,184.3128**	**1,184.3128**	**0.0231**		**1,184.7985**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2242	0.4239	1.9745	3.6100e-003	0.2633	4.9400e-003	0.2683	0.0704	4.5500e-003	0.0749		295.5736	295.5736	0.0137		295.8619
Unmitigated	0.2242	0.4239	1.9745	3.6100e-003	0.2633	4.9400e-003	0.2683	0.0704	4.5500e-003	0.0749		295.5736	295.5736	0.0137		295.8619

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	78.00	78.00	78.00	124,237	124,237
Total	78.00	78.00	78.00	124,237	124,237

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	8.80	4.60	4.60	33.00	48.00	19.00	66	28	6

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.488429	0.036082	0.211732	0.154985	0.049882	0.007459	0.020077	0.014399	0.001917	0.002182	0.008131	0.001589	0.003135

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.9000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0219	0.0219	6.0000e-005		0.0232
Unmitigated	9.9000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0219	0.0219	6.0000e-005		0.0232

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.9000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0219	0.0219	6.0000e-005		0.0232
Total	**9.9000e-004**	**1.0000e-004**	**0.0104**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0219**	**0.0219**	**6.0000e-005**		**0.0232**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.9000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0219	0.0219	6.0000e-005		0.0232
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**9.9000e-004**	**1.0000e-004**	**0.0104**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0219**	**0.0219**	**6.0000e-005**		**0.0232**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

NCOS Restoration

Santa Barbara County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	100.00	Acre	100.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	8			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Grading would not occur on the entire 136-acre project site

Construction Phase -
Grading would be conducted in two phases over a two year period.
Grading in Phase 1 includes removal of clubhouse, golf course paths and culverts

Off-road Equipment -

Off-road Equipment - Scrapers used to excavate soil from golf course and transport to South Parcel
Other construction equipment is for dust control water trucks
Rubber tire dozer is for demolition

Off-road Equipment - Dump trucks used to haul excavated soil to the South Parcel
Other construction equipment is for water trucks

Trips and VMT - Excavated would be hauled to the South Parcel

On-road Fugitive Dust - Excavated soil would be hauled across the project site to the South Parcel

Grading - Grading phase 1 would be approximately 20 acres
Grading phase 2 would be approximatley 65 acres

Vehicle Trips - project would generate 78 adt. .78 trips/acre x 100 acre construction site =78 adt

Area Coating - no structures to be developed on the project site

Consumer Products -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	155.00	66.00
tblConstructionPhase	NumDays	155.00	132.00
tblConstructionPhase	PhaseEndDate	5/3/2017	10/31/2017
tblConstructionPhase	PhaseStartDate	11/1/2016	5/1/2017
tblGrading	AcresOfGrading	387.50	20.00
tblGrading	AcresOfGrading	387.50	65.00
tblGrading	MaterialExported	0.00	155,000.00
tblGrading	MaterialExported	0.00	205,000.00
tblLandUse	LandUseSquareFeet	4,356,000.00	0.00
tblOffRoadEquipment	HorsePower	16.00	174.00
tblOffRoadEquipment	LoadFactor	0.43	0.38

tblOffRoadEquipment	LoadFactor	0.38	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.42	0.48
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType	Scrapers	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	PhaseName		Grading Phase 2
tblOffRoadEquipment	PhaseName		Grading Phase 2
tblOffRoadEquipment	PhaseName		Grading Phase 2
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2018
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	9,888.00
tblTripsAndVMT	HaulingTripNumber	0.00	25,213.00
tblVehicleTrips	ST_TR	1.59	0.78
tblVehicleTrips	SU_TR	1.59	0.78
tblVehicleTrips	WD_TR	1.59	0.78

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.2799	2.6625	2.7345	2.3800e-003	7.0234	0.1196	7.1430	0.9121	0.1101	1.0222	0.0000	221.0785	221.0785	0.0586	0.0000	222.3088
2017	0.8202	8.6417	7.3987	8.6900e-003	17.1894	0.3607	17.5500	1.9282	0.3318	2.2600	0.0000	798.4954	798.4954	0.2247	0.0000	803.2135
Total	**1.1001**	**11.3042**	**10.1332**	**0.0111**	**24.2127**	**0.4803**	**24.6930**	**2.8403**	**0.4419**	**3.2822**	**0.0000**	**1,019.5740**	**1,019.5740**	**0.2833**	**0.0000**	**1,025.5223**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.2799	2.6625	2.7345	2.3800e-003	0.4845	0.1196	0.6041	0.2597	0.1101	0.3698	0.0000	221.0783	221.0783	0.0586	0.0000	222.3086
2017	0.8202	5.7234	7.3987	8.6900e-003	0.5161	0.3607	0.8767	0.2645	0.3318	0.5963	0.0000	798.4945	798.4945	0.2247	0.0000	803.2126
Total	**1.1001**	**8.3858**	**10.1332**	**0.0111**	**1.0005**	**0.4803**	**1.4808**	**0.5242**	**0.4419**	**0.9660**	**0.0000**	**1,019.5729**	**1,019.5729**	**0.2833**	**0.0000**	**1,025.5212**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**25.82**	**0.00**	**0.00**	**95.87**	**0.00**	**94.00**	**81.54**	**0.00**	**70.57**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.8900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0423	0.0822	0.3941	6.5000e-004	0.0469	9.0000e-004	0.0478	0.0126	8.3000e-004	0.0134	0.0000	47.9478	47.9478	2.2700e-003	0.0000	47.9954
Waste						0.0000	0.0000		0.0000	0.0000	1.7457	0.0000	1.7457	0.1032	0.0000	3.9123
Water						0.0000	0.0000		0.0000	0.0000	0.0000	119.3369	119.3369	5.4900e-003	1.1300e-003	119.8039
Total	**0.0424**	**0.0822**	**0.3950**	**6.5000e-004**	**0.0469**	**9.0000e-004**	**0.0478**	**0.0126**	**8.3000e-004**	**0.0134**	**1.7457**	**167.2865**	**169.0322**	**0.1109**	**1.1300e-003**	**171.7135**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.8900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0423	0.0822	0.3941	6.5000e-004	0.0469	9.0000e-004	0.0478	0.0126	8.3000e-004	0.0134	0.0000	47.9478	47.9478	2.2700e-003	0.0000	47.9954
Waste						0.0000	0.0000		0.0000	0.0000	1.7457	0.0000	1.7457	0.1032	0.0000	3.9123
Water						0.0000	0.0000		0.0000	0.0000	0.0000	119.3369	119.3369	5.4900e-003	1.1300e-003	119.8039
Total	**0.0424**	**0.0822**	**0.3950**	**6.5000e-004**	**0.0469**	**9.0000e-004**	**0.0478**	**0.0126**	**8.3000e-004**	**0.0134**	**1.7457**	**167.2865**	**169.0322**	**0.1109**	**1.1300e-003**	**171.7135**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading Phase 1	Grading	8/1/2016	10/31/2016	5	66	
2	Grading Phase 2	Grading	5/1/2017	10/31/2017	5	132	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading Phase 1	Excavators	2	8.00	162	0.38
Grading Phase 1	Graders	1	8.00	174	0.41
Grading Phase 1	Rubber Tired Dozers	1	8.00	255	0.40
Grading Phase 1	Scrapers	2	8.00	361	0.48
Grading Phase 2	Dumpers/Tenders	4	8.00	174	0.41
Grading Phase 2	Excavators	2	8.00	162	0.40
Grading Phase 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading Phase 2	Cranes	1	8.00	226	0.29
Grading Phase 2	Bore/Drill Rigs	1	8.00	205	0.50
Grading Phase 2	Scrapers	4	8.00	361	0.48
Grading Phase 2	Crawler Tractors	2	8.00	208	0.38
Grading Phase 2	Other Construction Equipment	2	8.00	171	0.48
Grading Phase 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading Phase 1	8	20.00	0.00	9,888.00	12.30	4.60	1.00	LD_Mix	HDT_Mix	HHDT
Grading Phase 2	8	20.00	0.00	25,213.00	12.30	4.60	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading Phase 1 - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4773	0.0000	0.4773	0.2577	0.0000	0.2577	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2138	2.4689	1.6215	2.0400e-003		0.1183	0.1183		0.1088	0.1088	0.0000	192.0459	192.0459	0.0579	0.0000	193.2624
Total	**0.2138**	**2.4689**	**1.6215**	**2.0400e-003**	**0.4773**	**0.1183**	**0.5956**	**0.2577**	**0.1088**	**0.3665**	**0.0000**	**192.0459**	**192.0459**	**0.0579**	**0.0000**	**193.2624**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0633	0.1888	1.0720	2.8000e-004	6.5400	1.3100e-003	6.5413	0.6529	1.1900e-003	0.6541	0.0000	24.0747	24.0747	3.4000e-004	0.0000	24.0819
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-003	4.8100e-003	0.0410	7.0000e-005	6.0400e-003	5.0000e-005	6.0800e-003	1.6000e-003	4.0000e-005	1.6500e-003	0.0000	4.9580	4.9580	3.1000e-004	0.0000	4.9645
Total	**0.0661**	**0.1936**	**1.1129**	**3.5000e-004**	**6.5461**	**1.3600e-003**	**6.5474**	**0.6545**	**1.2300e-003**	**0.6557**	**0.0000**	**29.0327**	**29.0327**	**6.5000e-004**	**0.0000**	**29.0464**

3.2 Grading Phase 1 - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4773	0.0000	0.4773	0.2577	0.0000	0.2577	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2138	2.4689	1.6215	2.0400e-003		0.1183	0.1183		0.1088	0.1088	0.0000	192.0457	192.0457	0.0579	0.0000	193.2622
Total	**0.2138**	**2.4689**	**1.6215**	**2.0400e-003**	**0.4773**	**0.1183**	**0.5956**	**0.2577**	**0.1088**	**0.3665**	**0.0000**	**192.0457**	**192.0457**	**0.0579**	**0.0000**	**193.2622**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0633	0.1888	1.0720	2.8000e-004	1.1000e-003	1.3100e-003	2.4100e-003	4.0000e-004	1.1900e-003	1.6000e-003	0.0000	24.0747	24.0747	3.4000e-004	0.0000	24.0819
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-003	4.8100e-003	0.0410	7.0000e-005	6.0400e-003	5.0000e-005	6.0800e-003	1.6000e-003	4.0000e-005	1.6500e-003	0.0000	4.9580	4.9580	3.1000e-004	0.0000	4.9645
Total	**0.0661**	**0.1936**	**1.1129**	**3.5000e-004**	**7.1400e-003**	**1.3600e-003**	**8.4900e-003**	**2.0000e-003**	**1.2300e-003**	**3.2500e-003**	**0.0000**	**29.0327**	**29.0327**	**6.5000e-004**	**0.0000**	**29.0464**

3.3 Grading Phase 2 - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5012	0.0000	0.5012	0.2603	0.0000	0.2603	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6732	8.1863	4.7554	7.8500e-003		0.3578	0.3578		0.3291	0.3291	0.0000	728.6328	728.6328	0.2233	0.0000	733.3211
Total	**0.6732**	**8.1863**	**4.7554**	**7.8500e-003**	**0.5012**	**0.3578**	**0.8590**	**0.2603**	**0.3291**	**0.5894**	**0.0000**	**728.6328**	**728.6328**	**0.2233**	**0.0000**	**733.3211**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1422	0.4470	2.5727	7.1000e-004	16.6761	2.8100e-003	16.6789	1.6647	2.5700e-003	1.6673	0.0000	60.3322	60.3322	8.7000e-004	0.0000	60.3504
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7300e-003	8.4200e-003	0.0707	1.3000e-004	0.0121	9.0000e-005	0.0122	3.2100e-003	8.0000e-005	3.2900e-003	0.0000	9.5304	9.5304	5.5000e-004	0.0000	9.5420
Total	**0.1470**	**0.4554**	**2.6433**	**8.4000e-004**	**16.6882**	**2.9000e-003**	**16.6911**	**1.6679**	**2.6500e-003**	**1.6705**	**0.0000**	**69.8626**	**69.8626**	**1.4200e-003**	**0.0000**	**69.8924**

3.3 Grading Phase 2 - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5012	0.0000	0.5012	0.2603	0.0000	0.2603	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6732	5.2679	4.7554	7.8500e-003		0.3578	0.3578		0.3291	0.3291	0.0000	728.6320	728.6320	0.2233	0.0000	733.3202
Total	**0.6732**	**5.2679**	**4.7554**	**7.8500e-003**	**0.5012**	**0.3578**	**0.8590**	**0.2603**	**0.3291**	**0.5894**	**0.0000**	**728.6320**	**728.6320**	**0.2233**	**0.0000**	**733.3202**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1422	0.4470	2.5727	7.1000e-004	2.8200e-003	2.8100e-003	5.6300e-003	1.0200e-003	2.5700e-003	3.6000e-003	0.0000	60.3322	60.3322	8.7000e-004	0.0000	60.3504
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7300e-003	8.4200e-003	0.0707	1.3000e-004	0.0121	9.0000e-005	0.0122	3.2100e-003	8.0000e-005	3.2900e-003	0.0000	9.5304	9.5304	5.5000e-004	0.0000	9.5420
Total	**0.1470**	**0.4554**	**2.6433**	**8.4000e-004**	**0.0149**	**2.9000e-003**	**0.0178**	**4.2300e-003**	**2.6500e-003**	**6.8900e-003**	**0.0000**	**69.8626**	**69.8626**	**1.4200e-003**	**0.0000**	**69.8924**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0423	0.0822	0.3941	6.5000e-004	0.0469	9.0000e-004	0.0478	0.0126	8.3000e-004	0.0134	0.0000	47.9478	47.9478	2.2700e-003	0.0000	47.9954
Unmitigated	0.0423	0.0822	0.3941	6.5000e-004	0.0469	9.0000e-004	0.0478	0.0126	8.3000e-004	0.0134	0.0000	47.9478	47.9478	2.2700e-003	0.0000	47.9954

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	78.00	78.00	78.00	124,237	124,237
Total	78.00	78.00	78.00	124,237	124,237

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	8.80	4.60	4.60	33.00	48.00	19.00	66	28	6

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.488429	0.036082	0.211732	0.154985	0.049882	0.007459	0.020077	0.014399	0.001917	0.002182	0.008131	0.001589	0.003135

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.8900e-003
Unmitigated	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.8900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.8900e-003
Total	**9.0000e-005**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7900e-003**	**1.7900e-003**	**0.0000**	**0.0000**	**1.8900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.8900e-003
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.0000e-005**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7900e-003**	**1.7900e-003**	**0.0000**	**0.0000**	**1.8900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	119.3369	5.4900e-003	1.1300e-003	119.8039
Unmitigated	119.3369	5.4900e-003	1.1300e-003	119.8039

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 119.148	119.3369	5.4900e-003	1.1300e-003	119.8039
Total		**119.3369**	**5.4900e-003**	**1.1300e-003**	**119.8039**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 119.148	119.3369	5.4900e-003	1.1300e-003	119.8039
Total		**119.3369**	**5.4900e-003**	**1.1300e-003**	**119.8039**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.7457	0.1032	0.0000	3.9123
Unmitigated	1.7457	0.1032	0.0000	3.9123

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	8.6	1.7457	0.1032	0.0000	3.9123
Total		**1.7457**	**0.1032**	**0.0000**	**3.9123**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	8.6	1.7457	0.1032	0.0000	3.9123
Total		**1.7457**	**0.1032**	**0.0000**	**3.9123**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Appendix D

Traffic and Circulation Study

Exhibit 4: Initial Study/Mitigated Negative Declaration

UCSB NORTH CAMPUS OPEN SPACE RESTORATION PROJECT
COUNTY OF SANTA BARBARA, CALIFORNIA

TRAFFIC AND CIRCULATION STUDY

January 19, 2016 **ATE Project #15099**

Prepared for:
Rodriguez Consulting
2111 Monterey Street
Santa Barbara, California 93101

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January 19, 2016 15099R01

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TRAFFIC AND CIRCULATION STUDY FOR THE UCSB NORTH CAMPUS OPEN SPACE RESTORATION PROJECT, COUNTY OF SANTA BARBARA

Associated Transportation Engineers (ATE) has prepared the following traffic and circulation study for the UCSB North Campus Open Space Restoration Project proposed in the UCSB North Campus area adjacent to the City of Goleta. The study evaluates the potential traffic and circulation impacts associated with the project based on the applicable UCSB, County of Santa Barbara and City of Goleta thresholds of significance.

Associated Transportation Engineers

Scott A. Schell, AICP, PTP
Principal Transportation Planner

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INTRODUCTION

The following report contains an analysis of the potential traffic and circulation impacts associated with the UCSB North Campus Open Space Project (the "Project"). The report provides information regarding existing and future traffic conditions within the project study-area. The report also contains an evaluation of the proposed site access plan.

PROJECT DESCRIPTION

The Project is proposing to develop an open space area on the site of the former Ocean Meadows Golf Course, located at 6925 Whittier Drive. Figure 1 shows the location of the Project site. The Project site encompasses 136.4 acres and is comprised of three properties known as Ocean Meadows Golf Course, South Parcel, and Whittier Parcel which are all located on the UCSB North Campus. The Project includes the excavation of approximately 355,000 cubic yards of soil from the Ocean Meadow Golf Course and Whittier Parcel properties that would be moved and placed on the South Parcel. The soil excavated from the Golf Course and Whittier Parcels would be transported by truck to the South Parcel along temporary haul routes located on the project site. No off-site export of soil is anticipated as part of the Project.

The project includes a system of "primary" and "secondary" trails that would loop through the site and connect to the existing Phelps Creek trail to the north and the Devereaux Slough trail system to the south. The project includes reconfiguring the previous Ocean Meadows Golf Course parking area located on Whittier Drive, to provide parking for approximately 30 vehicles. The reconfigured parking area would also include the development of a small gathering area that would provide an information kiosk, benches, a drinking fountain, and restrooms. Figure 2 presents the Project Site Plan.

EXISTING CONDITIONS

Street Network

The Project site is served by a network of highways, arterial roadways, and collector streets, as shown in Figure 1. The following text briefly describes the major components of the study-area street network.

Hollister Avenue, located north of the Project site, is a 4-lane east-west arterial roadway that extends through the Goleta Valley area from State Route 154 on the east to Calle Real on the west. This roadway serves as the primary east-west surface street route through the City of Goleta.

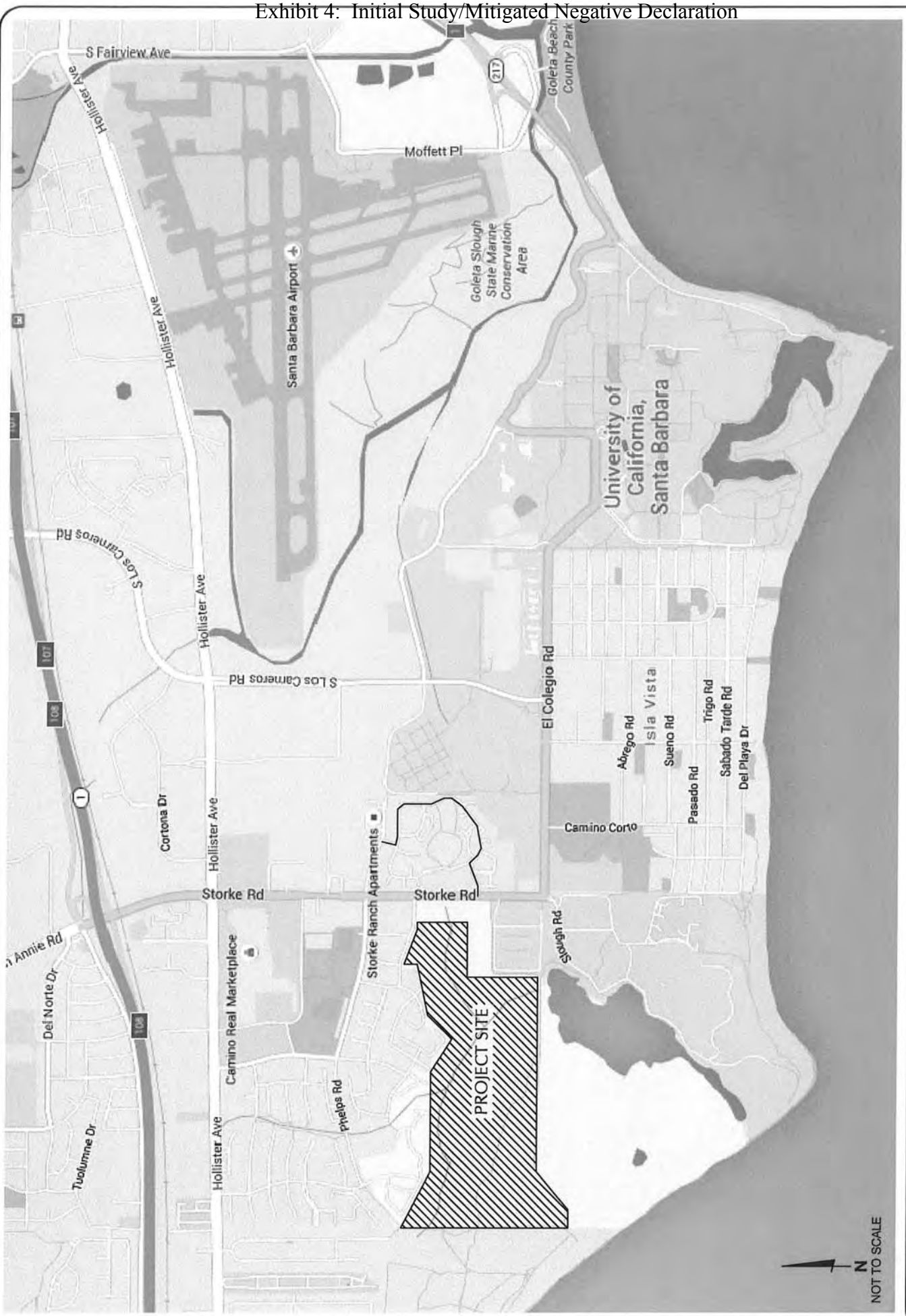

FIGURE 1

PROJECT SITE LOCATION

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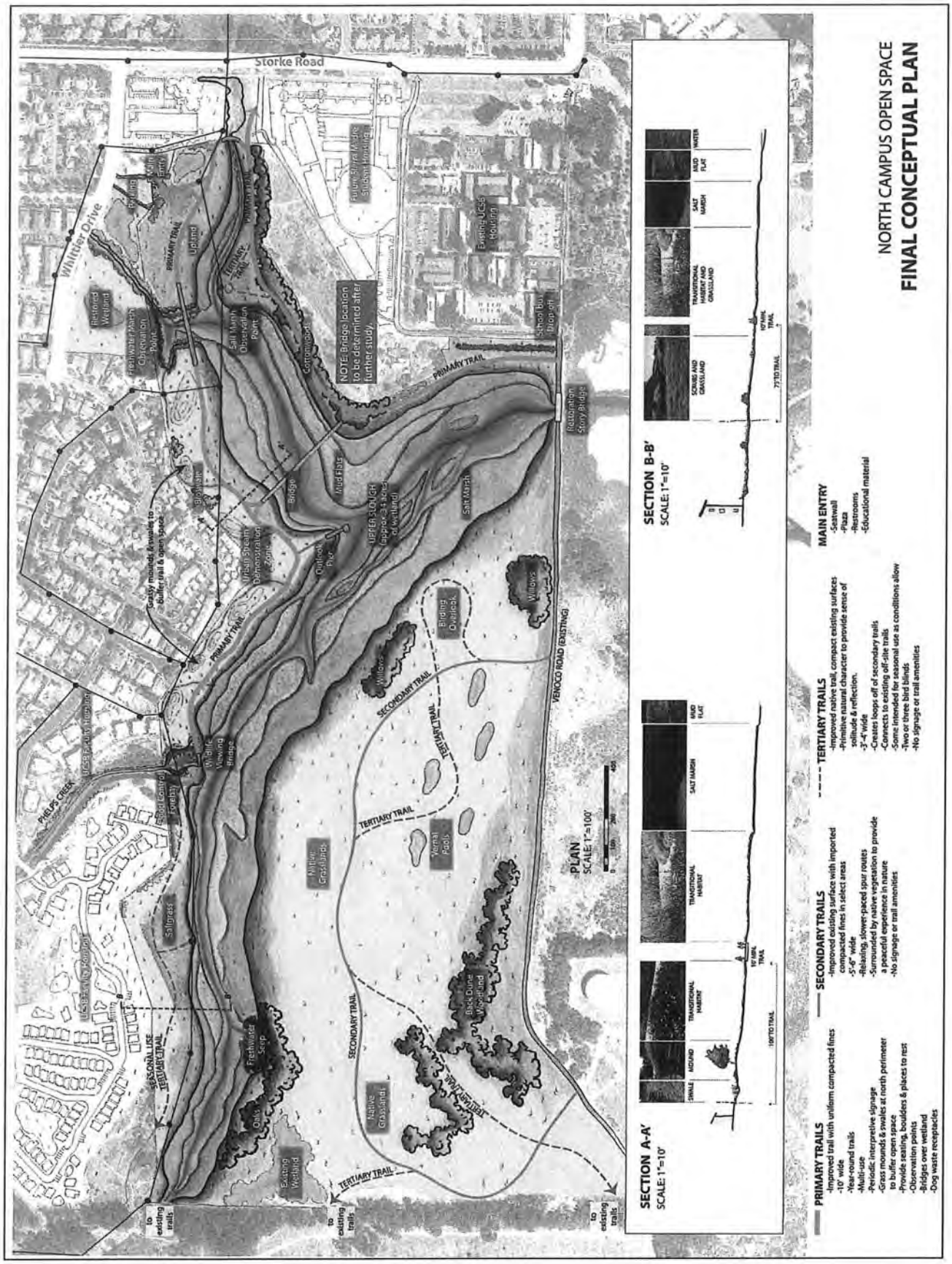


FIGURE 2

PROJECT SITE PLAN

MMF - #15099

ASSOCIATED TRANSPORTATION ENGINEERS

Storke Road – Glen Annie Road, located adjacent to the eastern frontage of the project site, is a 2-5 lane north-south arterial roadway that extends between Cathedral Oaks Road on the north and El Colegio Road on the south. Storke Road provides freeway access to the western portion of the Goleta Valley area via an interchange at U.S. Highway 101. Storke Road provides four travel lanes south of Hollister Avenue, three travel lanes south of Phelps Road, and two travel lanes south of Whittier Drive. North of the interchange, Storke Road becomes Glen Annie Road and extends as a 2-lane road to Cathedral Oaks Road.

El Colegio Road, located south of the project site, is a four-lane arterial roadway that provides access to the Isla Vista community and the UCSB campus. El Colegio Road extends east from Storke Road to its terminus at the Ocean Road intersection on the University campus.

Whittier Drive, located adjacent to the northern frontage of the project site, is a 2-lane roadway that serves the residential neighborhoods located west of Storke Road. A proposed driveway connection to Whittier Drive would provide access to the Project site.

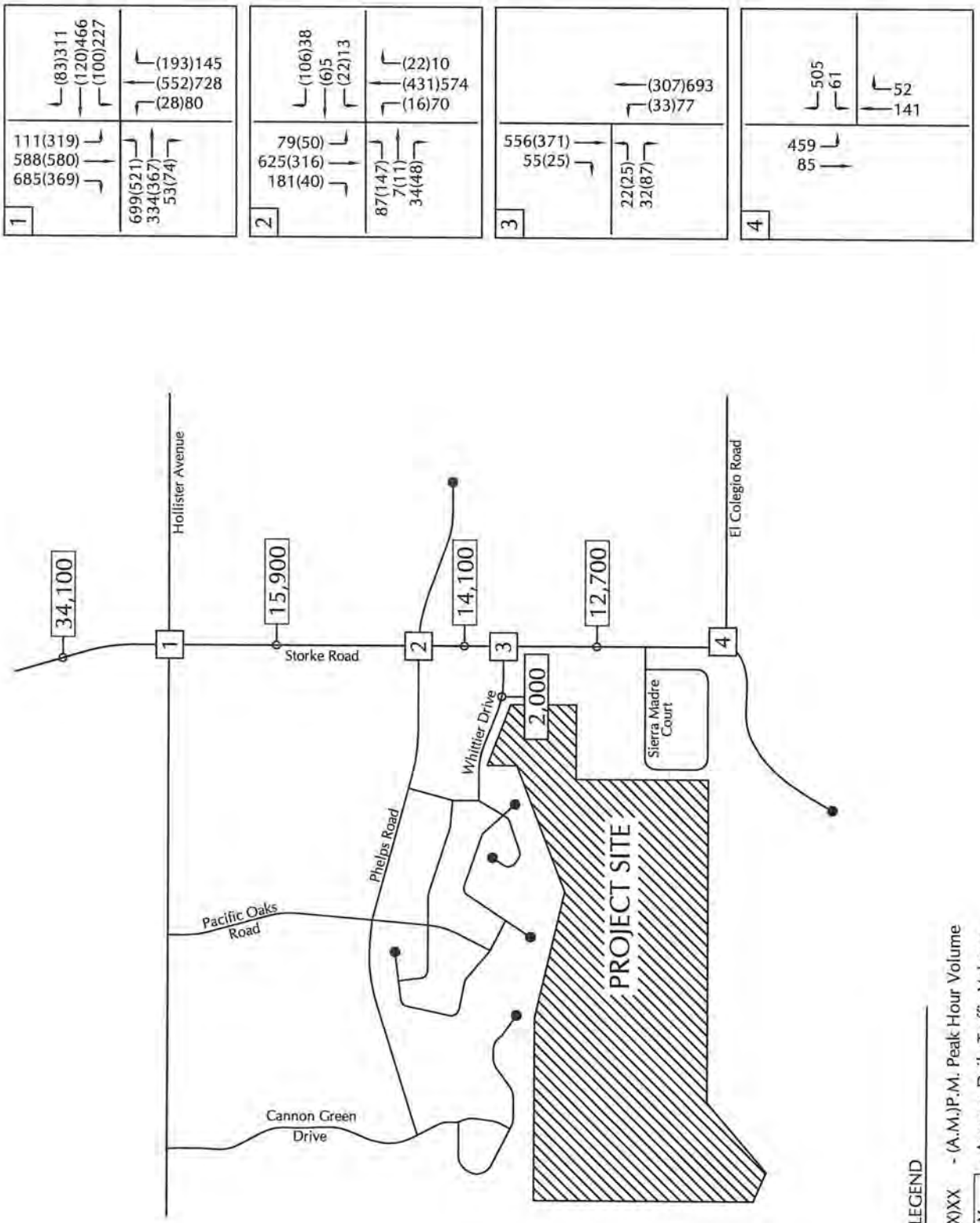
Existing Traffic Volumes

Figure 3 presents the existing volumes for the study-area roadways and intersections. Existing traffic volumes were obtained from counts conducted by ATE in 2016, traffic count data collected by the City of Goleta in 2013, and traffic data presented in the EIR prepared by UCSB for the San Joaquin Apartments and Precinct Improvements Project[1]. Figure 4 presents the lane geometry and traffic controls for the study-area intersection.

Existing Roadway Operations

The study-area roadway segments are all located within the City of Goleta. The operational characteristics of the study-area roadways were therefore analyzed based on the City's engineering roadway design capacities (summarized in the Technical Appendix). Table 1 shows the existing ADT volumes and the Acceptable Capacity thresholds for the key roadways in the project study-area.

[1] San Joaquin Apartments and Precinct Improvements Project EIR, University of California, Santa Barbara. January 2014.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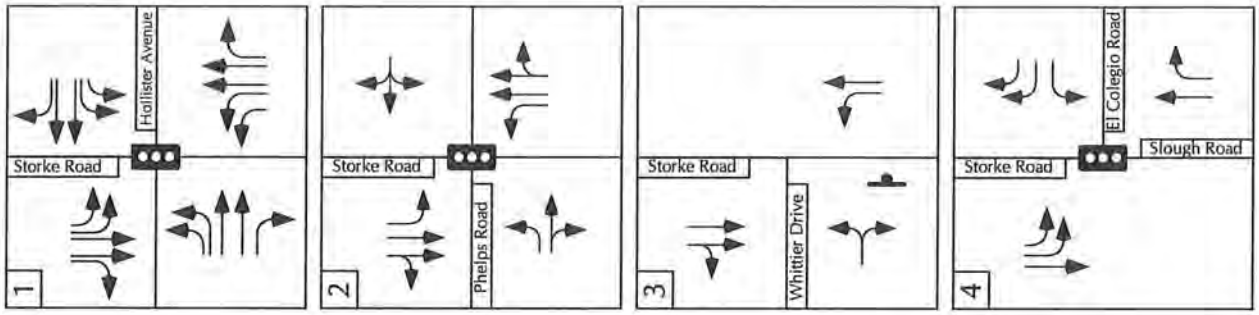
52
141
459
85
34,100
15,900
14,100
12,700
2,000
Hollister Avenue
Storke Road
Whittier Drive
Phelps Road
Pacific Oaks Road
Cannon Green Drive
Sierra Madre Court
El Colegio Road
PROJECT SITE
LEGEND
(XX)XX - (A.M.)P.M. Peak Hour Volume
X - Average Daily Traffic Volume
N
NOT TO SCALE
ASSOCIATED TRANSPORTATION ENGINEERS
FIGURE 3
EXISTING TRAFFIC VOLUMES
MMF - #15099



LEGEND
- Signalized Intersection
- Stopped Approach
- Lane Geometry

N
NOT TO SCALE

ASSOCIATED TRANSPORTATION ENGINEERS

FIGURE 4

INTERSECTION LANE GEOMETRY AND TRAFFIC CONTROLS

MMF - #15099

Table 1
Existing Roadway Operations

Roadway Segment	Roadway Classification	Geometry	Acceptable Capacity	Existing ADT
Storke Road s/o U.S. 101	Major Arterial	5 Lanes	47,000	34,100
Storke Road s/o Hollister Avenue	Major Arterial	4 Lanes	34,000	15,900
Storke Road s/o Phelps Road	Major Arterial	3 Lanes	25,500	14,100
Storke Road s/o Whittier Drive	Major Arterial	2 Lanes	14,300	12,700
Whittier Drive w/o Storke Road	Collector	2 Lanes	9,280	2,000

The data presented in Table 1 show that the study-area roadway segments currently carry traffic volumes within the City of Goleta's Acceptable Capacity ratings.

Existing Intersection Operations

Because traffic flow on urban arterials is most constrained at intersections, detailed traffic flow analyses focus on the operating conditions of critical intersections during peak travel periods. In rating intersection operations, "Levels of Service" (LOS) A through F are used, with LOS A indicating free flow operations and LOS F indicating congested operations (more complete definitions of levels of service are included in the Technical Appendix). The City of Goleta and the County of Santa Barbara have established LOS C as the minimum acceptable operating standard for intersections.

Levels of service were calculated for the signalized intersections using the "Intersection Capacity Utilization" (ICU) methodology adopted by the City of Goleta. Levels of service for the unsignalized Storke Road/Whittier Drive intersection was calculated using the methodologies outlined in the Highway Capacity Manual (HCM)[2]. Table 2 presents the existing peak levels of service for the study-area intersections.

[2] Highway Capacity Manual, Transportation Research Board, 2010.

Table 2
Existing Intersection Operations

Intersection	Jurisdiction	Control	A.M. Peak Hour		P.M. Peak hour	
			V/C	LOS	V/C	LOS
Storke Road/Hollister Avenue	City	Signal	0.574	LOS A	0.711	LOS C
Storke Road/Phelps Road	City	Signal	0.449	LOS A	0.485	LOS A
Storke Road/Whittier Drive (a)	City	1-Way STOP	8.7sec.	LOS A	14.0 sec.	LOS B
Storke Road/El Colegio Road	County	Signal	N/A (b)	N/A (b)	0.489	LOS A

(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.
(b) A.M. peak hour count data is unavailable at this location. A.M. traffic approximately 50% lower than P.M. peak hour period.

The data presented in Table 2 show that the study-area intersections currently operate acceptably at LOS C or better.

ALTERNATIVE TRANSPORTATION MODES

Pedestrian and Bicycle Facilities

The existing sidewalks along the Project frontage on Whittier Avenue and Storke Road would provide pedestrian access to the site. The existing sidewalks in the vicinity of the site connect to the extensive pedestrian network provided on the UCSB campus. A pedestrian crosswalk with flashing beacons has also been installed at the Whittier Drive/Storke Road intersection.

Existing Bicycle lanes are provided along both sides of Storke Road adjacent to the site. The existing bicycle lanes connect to the extensive bicycle network provided on the UCSB campus. Bicycle parking will also be provided at the trailhead adjacent to the Project's parking lot.

Transit

The Santa Barbara Metropolitan Transit District (MTD) provides local bus service for the region. MTD bus stops are currently located along Storke Road at Phelps Road and Whittier Drive and are served throughout the day by MTD lines 11, 24X, and 27. The existing bus routes would provide transit service to/from the site to Isla Vista, the UCSB campus, Camino Real Marketplace, and Hollister Avenue.

THRESHOLDS OF SIGNIFICANCE

The UCSB, Santa Barbara County, and City of Goleta impact thresholds were used to assess the significance of potential transportation impacts associated with the project. Impacts would be significant if the project would:

1. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

The following LOS thresholds apply to the study-area intersections located in the City Goleta and Santa Barbara County:

A. The project will result in a significant impact on transportation and circulation if proposed project traffic increases the volume to capacity (V/C) ratio at local intersections by the values provided in the following table:

Significant Changes in Levels of Service	
Intersection Level of Service (Including Project)	**Increase in V/C or Trips Greater Than**
LOS A	0.20
LOS B	0.15
LOS C	0.10
LOS D	15 Trips
LOS E	10 Trips
LOS F	5 Trips

B. The project's access to a major road or arterial road would require access that would create an unsafe situation, a new traffic signal, or major revisions to an existing traffic signal.

C. The project would add traffic to a roadway that has design features (e.g., narrow width, road-side ditches, sharp curves, poor sight distance, inadequate pavement structure) that would become a potential safety problem with the addition of project traffic.

D. Project traffic would utilize a substantial portion of an intersection's capacity where the intersection is currently operating at acceptable levels of service, but with cumulative traffic would degrade to or approach LOS D (V/C 0.80) or lower. Substantial is defined as a minimum change of 0.03 for an intersection which would operate from 0.80 to 0.85, a change of 0.02 for an intersection which would operate from 0.86 to 0.90 and a change of 0.01 for an intersection which would operate greater than 0.90 (LOS E or worse).

The City of Goleta's roadway impact threshold defines a significant roadway impact if a project would increase traffic volumes by more than 1.0 percent (either project-specific or project contribution to cumulative impacts) on a roadway that currently exceeds its Acceptable Capacity or is forecast to exceed its Acceptable Capacity under cumulative conditions.

PROJECT-SPECIFIC ANALYSIS

Project Trip Generation

Weekday trip generation estimates for the day-to-day operations of the Project were developed based on traffic data collected by ATE staff at a parking area that serves an open space trailhead in the Santa Barbara foothills. This area was selected as it is a similar passive open space area that is used for recreational activities (dog walking, exercise, etc.) The data collected was used to develop trip generation rates that correlate to the number of parking spaces provided. Table 3 presents the trip generation estimates for the proposed project using the rates developed from the local studies.

Table 3
Weekday Project Trip Generation

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips (In/Out)	Rate	Trips(In/Out)
Open Space	30 Spaces	2.59	78	0.35	11 (9/2)	0.12	4 (2/2)

As shown in Table 3, the project is forecast to generate 78 average daily trips, 11 A.M. peak hour trips, and 4 P.M. peak hour trips. It is noted that the Project open space area currently exists and is used regularly by residents of the adjacent residential areas. It is anticipated that the proposed open space project would continue to be used by the local residents and would not generate a significant amount of new traffic from outside of the immediate vicinity of the site. The traffic analysis assumes that the trip generation estimates presented in Table 3 would be new to the area, thus providing a worst-case analysis.

Golf Course Trip Generation Comparison

The project site was previously occupied by Ocean Meadows Golf Course until 2013 when the golf course was permanently closed. The site has been used as an open space recreational area since the closure. Table 4 presents a comparison of the trip generation estimates for the previous 9-hole golf course use with the trip generation estimates of the proposed open space area. Trip generation estimates for the previous site uses were

developed based on rates contained in the Institute of Transportation Engineers (ITE) Trip Generation report for Golf Courses (ITE Land-Use #430).[3]

Table 4
Trip Generation Comparison

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips	Rate	Trips
Open Space (Proposed Use)	30 Spaces	2.59	78	0.35	11	0.12	4
Golf Course (Previous Use)	9 Holes	35.74	322	2.06	19	2.92	26
Net Change:			**-244**		**-8**		**-22**

The data presented in Table 4 show that the proposed project would generate 244 less average daily trips, 8 less A.M. peak hour trips and 22 less P.M. peak hour trips when compared to the golf course that previously occupied the site. The traffic analysis does not assume credit for the previous golf course use.

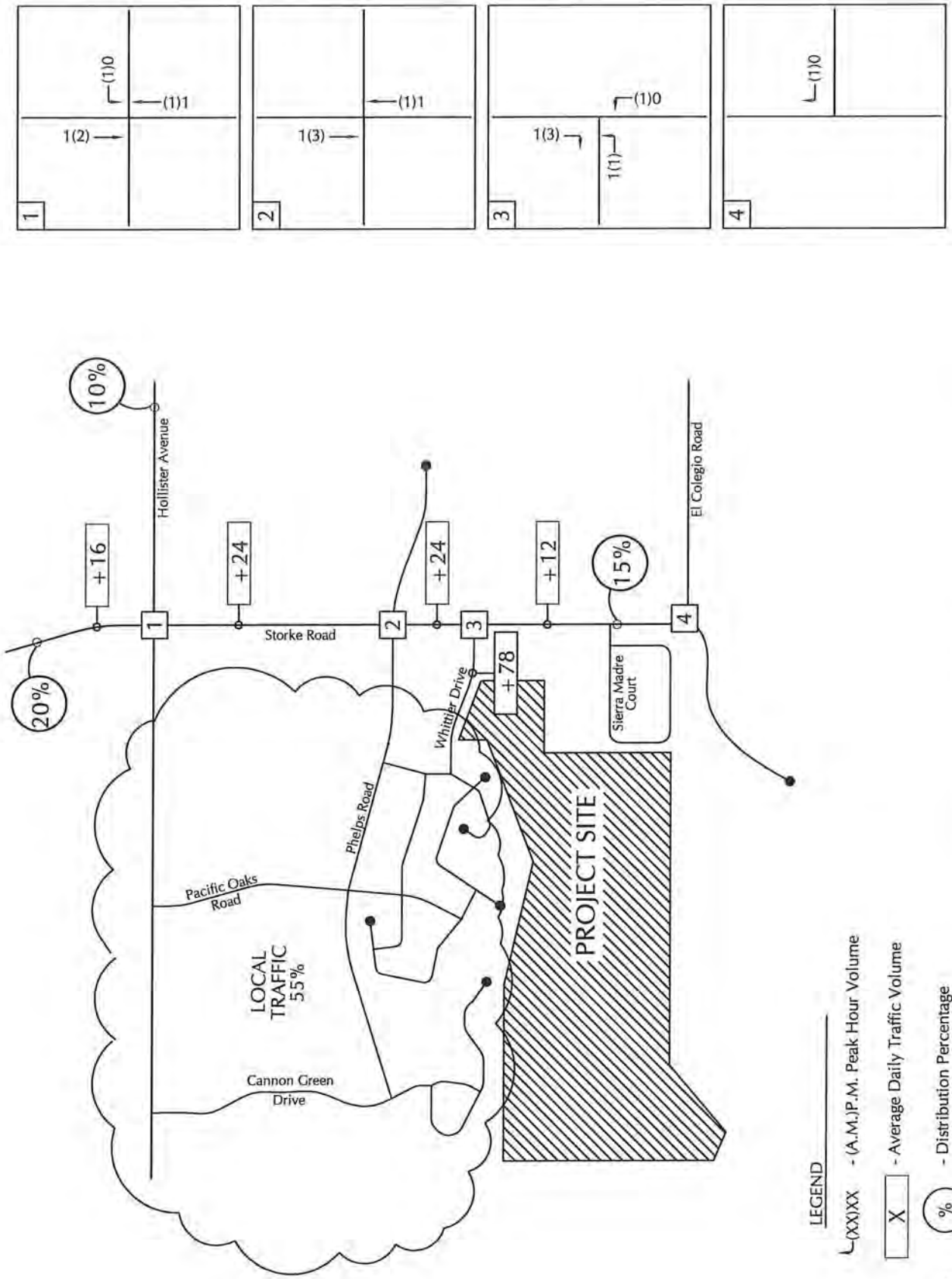
Project Trip Distribution

The trip distribution pattern developed for assigning project-added traffic is based on existing traffic patterns in the vicinity of the site and consideration of the surrounding residential neighborhoods. Table 5 and Figure 5 present the trip distribution pattern developed for the Project. The assignment of project generated traffic is also shown on Figure 5.

Table 5
Project Trip Distribution

Origin/Destination	Direction	Distribution %
Storke Road	North (to U.S. 101) South (to Isla Vista)	20% 15%
Hollister Avenue	East	10%
Local Traffic	West	55%
Total:		**100%**

[3] Trip Generation, Institute of Transportation Engineers, 9th Edition, 2012.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10%
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+16
Hollister Avenue
+24
Storke Road
+24
+12
15%
El Colegio Road
+78
Whittier Drive
Sierra Madre Court
Phelps Road
Pacific Oaks Road
LOCAL TRAFFIC 55%
Cannon Green Drive
PROJECT SITE
LEGEND
(XX)XX - (A.M.)P.M. Peak Hour Volume
X - Average Daily Traffic Volume
% - Distribution Percentage
N
NOT TO SCALE
ASSOCIATED TRANSPORTATION ENGINEERS
PROJECT TRIP DISTRIBUTION AND ASSIGNMENT
FIGURE 5
MMF - #15099

Existing + Project Roadway Operations

Existing + Project roadway volumes are shown on Figure 6. Table 6 compares the Existing and Existing + Project roadway operations and identifies project-specific impacts based on City of Goleta impact thresholds.

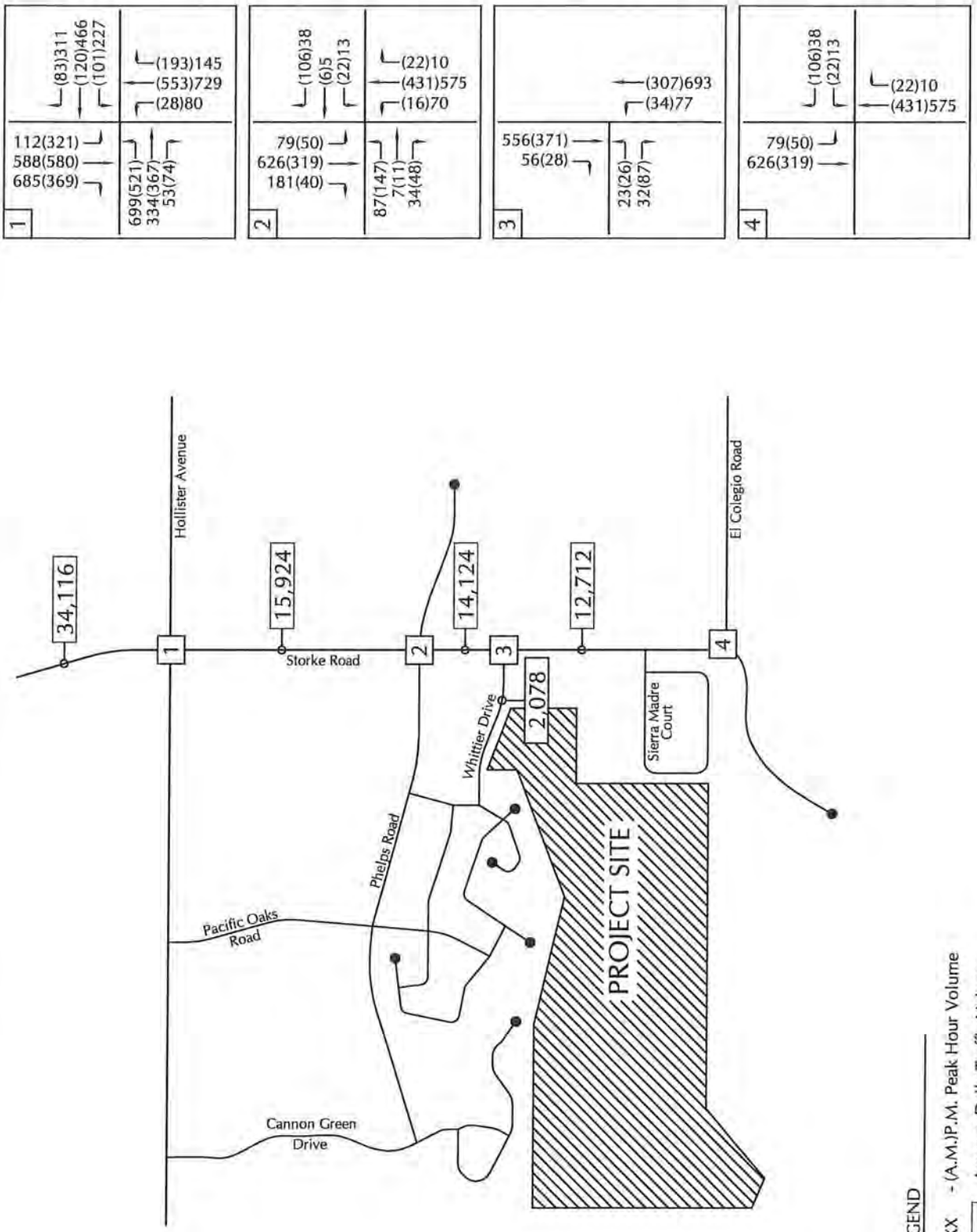
Table 6
Existing + Project Roadway Operations

Roadway Segment	Average Daily Trips				Project Impact?
	Acceptable Capacity	Existing ADT	Project Added ADT	Existing + Project ADT	
Storke Road s/o U.S. 101	47,000	34,100	+16	34,116	No
Storke Road s/o Hollister Avenue	34,000	15,900	+24	15,924	No
Storke Road s/o Phelps Road	25,500	14,100	+24	14,124	No
Storke Road s/o Whittier Drive	14,300	12, 700	+12	12,712	No
Whittier Drive w/o Storke Road	9,280	2,000	+78	2,078	No

The data presented in Table 6 show that the study-area roadways are forecast to carry volumes within their Acceptable Capacity ratings under Existing + Project conditions. The Project would therefore not generate significant roadway impacts based on City of Goleta's impact thresholds.

Existing + Project Intersection Operations

Existing + Project levels of service were calculated for the study-area intersections assuming the traffic volumes presented on Figure 6. Tables 7 and 8 compare the Existing and Existing + Project levels of service and identify project-specific impacts based on City of Goleta and County of Santa Barbara thresholds.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Hollister Avenue
15,924
Storke Road
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El Colegio Road
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Whittier Drive
Sierra Madre Court
Phelps Road
Pacific Oaks Road
Cannon Green Drive
PROJECT SITE
LEGEND
(XX)XX - (A.M.)P.M. Peak Hour Volume
X - Average Daily Traffic Volume
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NOT TO SCALE
ASSOCIATED TRANSPORTATION ENGINEERS
FIGURE 6
EXISTING + PROJECT TRAFFIC VOLUMES
MMF - #15099

Table 7
Existing + Project Intersection Operations – A.M. Peak Hour

Intersection	Existing		Existing + Project		Project-Added		Project Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	0.574	A	0.574	A	4	0.00	No
Storke Road/Phelps Road	0.449	A	0.449	A	4	0.00	No
Storke Road/Whittier Drive (a)	8.7 sec.	A	8.7 sec.	A	5	N/A	No
Storke Road/ El Colegio Road	N/A (b)	N/A	N/A (b)	N/A	1	0.00	No

(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.
(b) A.M. peak period not critical, P.M. peak hour volumes are approximately 50% higher.

Table 8
Existing + Project Intersection Operations – P.M. Peak Hour

Intersection	Existing		Existing + Project		Project-Added		Project Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	0.711	C	0.711	C	2	0.00	No
Storke Road/Phelps Road	0.485	A	0.485	A	2	0.00	No
Storke Road/Whittier Drive (a)	14.0 sec.	B	14.3 sec.	B	2	N/A	No
Storke Road/ El Colegio Road	0.489	A	0.489	A	0	0.00	No

(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.

The data presented in Tables 7 and 8 show that the study-area intersections would continue to operate at LOS C or better with Existing + Project traffic. The Project would therefore not significantly impact the study-area intersections based on the City of Goleta and Santa Barbara County impact thresholds.

CUMULATIVE ANALYSIS

Cumulative Traffic Volumes

Cumulative traffic volumes were developed using the City's traffic model and cumulative traffic forecasts contained in the San Joaquin Apartments EIR. The Cumulative forecasts include traffic generated by approved and pending projects proposed within the City of Goleta as well as development of the Santa Barbara Airport Specific Plan, the UCSB Long Range Development Plan, and regional growth in the Goleta-Santa Barbara area. Cumulative traffic volumes are shown on Figure 7 and Cumulative + Project volumes are shown on Figure 8.

Programmed Improvements to Storke Road

Improvements to Storke Road adjacent to the site have been programmed by UCSB as part of the San Joaquin Apartments and Precinct Improvements Project and the City of Goleta. The University is proposing to widen the roadway to four lanes with two travel lanes in each direction along the segment of Storke Road located in the County between El Colegio Road and Sierra Madre Court. The City of Goleta has programmed improvements to widen the section of Storke Road between Phelps Road and Sierra Madre Court to provide 2-travel lanes in each direction. A drawing showing the City's proposed improvement plans is provided in the Technical Appendix. The cumulative analysis does not assume that the improvements are in place given the uncertain timing of implementation.

Cumulative + Project Roadway Operations

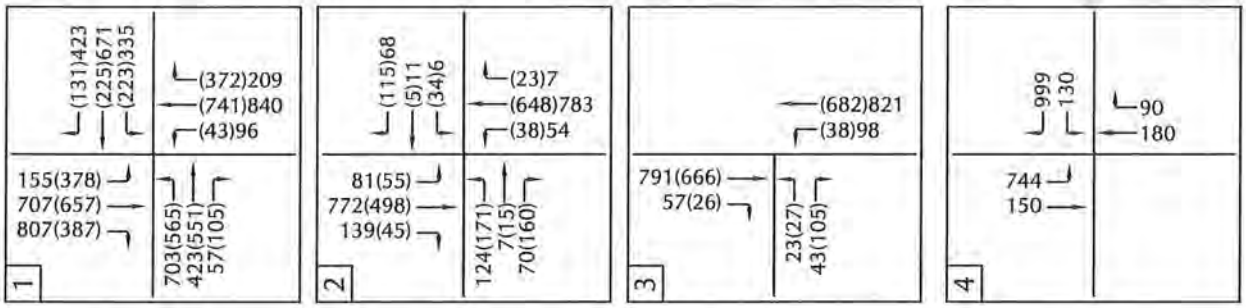
Table 9 compares the Cumulative and Cumulative+ Project roadway operations and identifies cumulative impacts based on City of Goleta impact thresholds.

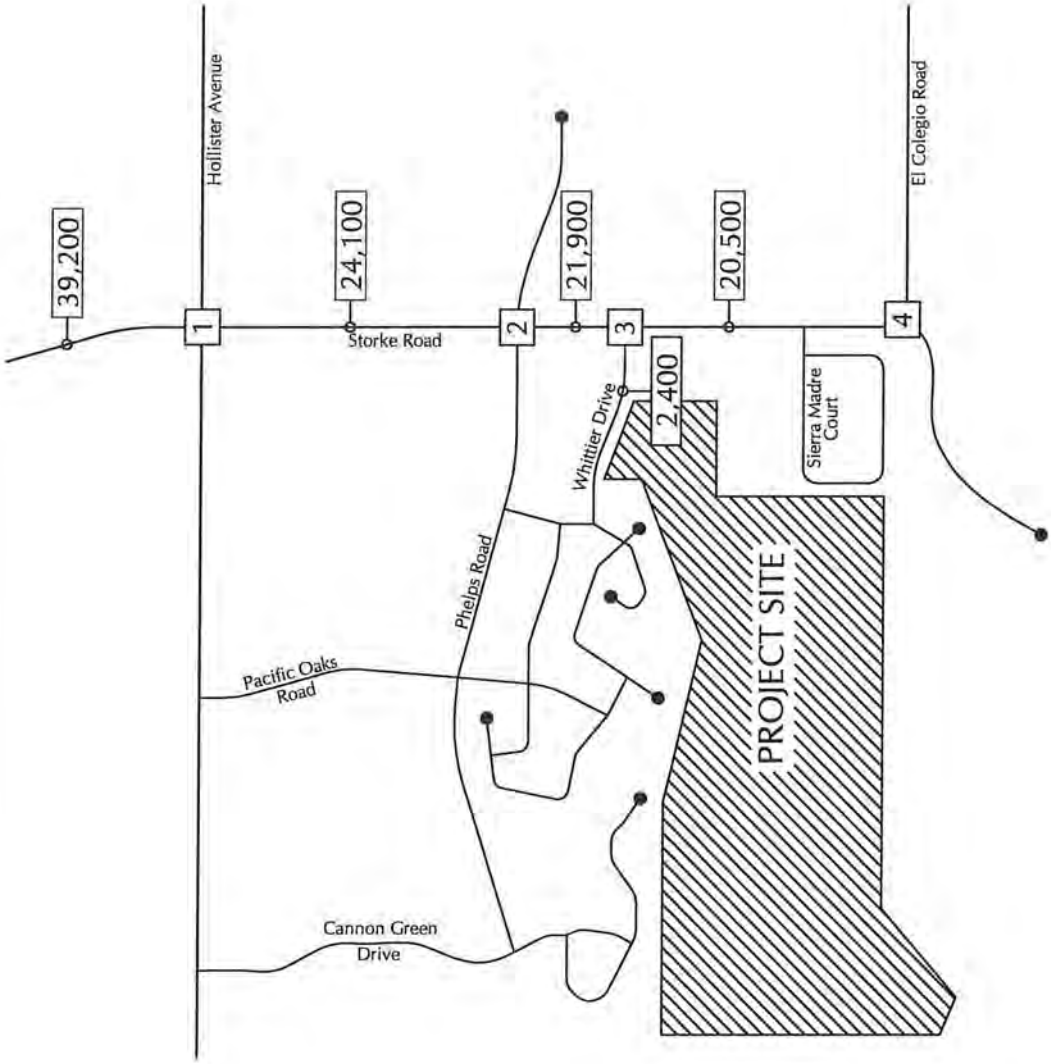
Table 9
Cumulative + Project Roadway Operations

Roadway Segment	Average Daily Trips				% Increase	Project Impact?
	Acceptable Capacity	Cumulative ADT	Project Added	Cumulative + Project		
Storke Road s/o U.S. 101	47,000	39,200	+16	39,216	0.04	No
Storke Road s/o Hollister Avenue	34,000	24,100	+24	24,124	0.10	No
Storke Road s/o Phelps Road	25,500	21,900	+24	21,924	0.11	No
Storke Road s/o Whittier Drive	14,300	**20,500**	+12	**20,512**	0.06	No
Whittier Drive w/o Storke Road	9,280	2,400	+78	2,478	3.25	No

Bolded values exceed City's Acceptable Capacity.

As shown in Table 9, the segment of Storke Road south of Whittier Drive is forecast to carry traffic volumes that exceed the City's Acceptable Capacity under Cumulative and Cumulative + Project conditions. The Project's traffic additions would not exceed the City's roadway impact thresholds (1.0% increase). The Project would therefore not contribute to significant cumulative roadway impacts based on City of Goleta thresholds. As noted above, the City of Goleta has programmed the widening of this segment of Storke Road to four lanes.





LEGEND

└(XX)XX - (A.M.)P.M. Peak Hour Volume

[X] - Average Daily Traffic Volume

N

NOT TO SCALE

ASSOCIATED TRANSPORTATION ENGINEERS

FIGURE 7

CUMULATIVE TRAFFIC VOLUMES

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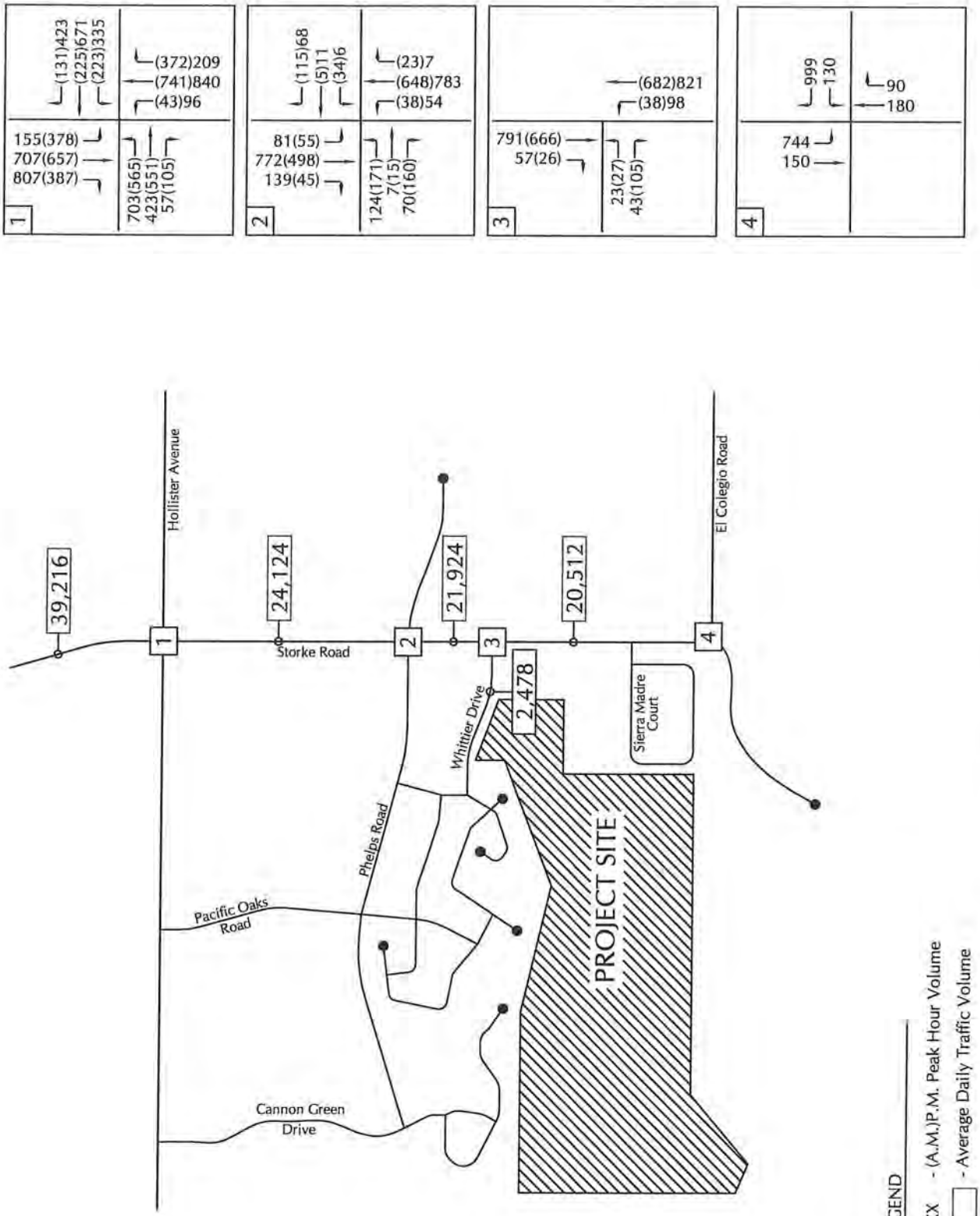

FIGURE 8

CUMULATIVE + PROJECT TRAFFIC VOLUMES

MMF - #15099

Cumulative + Project Intersection Operations

Cumulative and Cumulative + Project levels of service were calculated for the study-area intersections assuming the traffic volumes presented on Figures 7 and 8. Tables 10 and 11 compare the Cumulative and Cumulative + Project levels of service and identify cumulative impacts based on the City and County impact thresholds.

Table 10
Cumulative + Project Intersection Operations – A.M. Peak Hour

Intersection	Cumulative		Cumulative + Project		Project-Added		Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	0.697	B	0.697	B	4	0.000	No
Storke Road/Phelps Road	0.549	A	0.549	A	4	0.000	No
Storke Road/Whittier Drive (a)	11.7 sec.	B	11.9 sec.	B	5	N/A	No
Storke Road/ El Colegio Road	N/A (b)	N/A	N/A (b)	N/A	1	0.000	No

Bolded values exceed City of Goleta LOS C operating standard.
(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.
(b) A.M. peak period not critical, P.M. peak hour volumes are approximately 50% higher.

Table 11
Cumulative + Project Intersection Operations – P.M. Peak Hour

Intersection	Cumulative		Cumulative + Project		Project-Added		Impact?
	V/C	LOS	V/C	LOS	Trips	V/C	
Storke Road/Hollister Avenue	**0.808**	**D**	**0.808**	**D**	2	0.001	No
Storke Road/Phelps Road	0.550	A	0.550	A	2	0.000	No
Storke Road/Whittier Drive (a)	22.5 sec.	C	23.4 sec.	C	2	N/A	No
Storke Road/ El Colegio Road	0.758	C	0.758	C	0	0.000	No

Bolded values exceed City of Goleta LOS C operating standard.
(a) Unsignalized intersection. LOS based on average weighted delay per vehicle in seconds.

The data presented in Table 11 show that the Storke Road/Hollister Avenue intersection is forecast to operate at LOS D during the P.M. peak hour period, with and without the Project. The Project would add 2 peak hour trips and result in no in increase to the V/C ratio, which is considered insignificant based on the City of Goleta's cumulative impact threshold (V/C increase of 0.03). The remaining study-area intersections are forecast to operate at LOS C or better with Cumulative+Project traffic volumes. The Project's traffic-additions would therefore not contribute to significant cumulative impacts at the study-area intersections.

SITE ACCESS AND CIRCULATION

As shown on the site plan (see Figure 2), access to the site is proposed via a single driveway connection to Whittier Drive. The proposed driveway would provide access to the trailhead parking area, information kiosk, and restrooms. The project driveway is located on a slight curve with minimal red curb provided adjacent to the driveway. It is recommended that approximately 25-feet of red curb be installed on both sides of the driveway to ensure that adequate sight distance is provided along Whittier Drive for vehicles exiting the site (150-feet of corner sight distance required for 25 MPH roadways). No additional operational issues were identified for the proposed site access plan.

CONGESTION MANAGEMENT PROGRAM ANALYSIS

The Santa Barbara County Association of Governments (SBCAG) has developed a set of traffic impact guidelines to assess impacts of land use decisions made by local jurisdictions on regional transportation facilities located within the Congestion Management Program (CMP) roadway system. According to the CMP, local agencies must ensure that the scope of any traffic analysis performed for the environmental review process required under CEQA includes assessment of project-related impacts on the CMP system if total trip generation exceeds 50 peak hour or 500 daily trips. The data presented in Table 3 shows that the project is forecast to generate 78 daily trips, 11 A.M. peak hour trips, and 4 P.M. peak hour trips. The project is therefore consistent with the CMP and no further analysis is required.

■ ■ ■

REFERENCES AND PERSONS CONTACTED

Associated Transportation Engineers

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CITY OF GOLETA ROADWAY DESIGN CAPACITIES

Table 5. Roadway Classification & Level of Service Thresholds*

City of Goleta Functional Street Classification	City of Goleta Purpose and Design Factors	City of Goleta ADT Design Capacity			City of Goleta LOS C ADT Threshold		
		2 Lanes	4 Lanes	4+ Lanes[1]	2 Lanes	4 Lanes	4+ Lanes[1]
Major Arterial (MA)	Continuous roadways that carry through traffic between various neighborhoods and communities, frequently providing access to major traffic generators such as shopping areas, employment centers, and higher density residential areas. Roadways would have a minimum of 12 foot wide lanes with shoulders. Signals are typically spaced at a minimum 0.5-mile intervals.	17,900	42,480	58,750	14,300	34,000	47,000
Minor Arterial (MNA)	Roadways that serve as a secondary type of arterial facility carrying local and through traffic within communities, frequently connecting neighborhood areas within the City, providing access to shopping areas, employment centers, and higher density residential areas. Roadways would have a minimum of 12-foot wide lanes with shoulders. Signal intervals typically range from 0.25 to 0.5 mile.	15,700	37,680	NA	12,500	30,100	NA
Collector Streets (Col)	Roadways designed to collect traffic from local streets and connect to major or minor arterials. Collector Streets provide access to local streets within residential and commercial areas and conect streets of higher calssifications to permit adequate traffic circulation. Generally no more than 2 travel lanes and signalized at intersections with arterial roadways.	11,600	NA	NA	9,280	NA	NA
Local Streets (L)	Roadways designed to provide access to individual properties carrying traffic to and from a collector street. Intended to serve adjacent uses and are not intended for through traffic. Designed with two lanes and close to moderately close driveways.	9,100	NA	NA	7,280	NA	NA
County Functional Street Classification	**County Purpose and Design Factors**	**County ADT Design Capacity**			**County LOS C ADT Threshold**		
		2 Lanes	4 Lanes	4+ Lanes[1]	2 Lanes	4 Lanes	4+ Lanes[1]
Primary 1 (P-1)	Roadways designed to serve primarily non-residential development. Roadways would have a minimum of 12-foot wide lanes with shoulders and few curb cuts. Signals would be spaced at 1 mile or more intervals.	19,900	47,760	NA	15,900	38,200	NA
Primary 2 (P-2)	Roadways designed to serve a high proportion of non-residential development with some residential lots and few or no driveway curb cuts. Roadways would have a minimum of 12-foot wide lanes with few curb cuts. Signals spacing at minimum of 1/2 mile.	17,900	42,480	NA	14,300	34,000	NA
Primary 3 (P-3)	Roadways designed to serve non-residential development and residential development. More frequent driveways are acceptable. Potential signal spacing of ½ to ¼ mile.	15,700	37,680	NA	12,500	30,100	NA
Secondary 1 (S-1)	Roadways designed to serve non-residential development and large lot residential development with well spaced driveways. Roadways would be 2-lanes with infrequent driveways. Signals would generally occur at intersections of primary roadways.	11,600	NA	NA	9,300	NA	NA
Secondary 2 (S-2)	Roadways designed to serve residential and non-residential land uses. Roadways would be 2-lanes with close to moderately spaced driveways.	9,100	NA	NA	7,300	NA	NA
Secondary 3 (S-3)	Roadways designed to primarily serve residential with small to medium size lots. Roadways would be 2-lanes with more frequent driveways.	7,900	NA	NA	6,300	NA	NA

* Source: City of Goleta & County of Santa Barbara Public Works Department

LEVEL OF SERVICE DEFINITIONS

Signalized Intersection Level of Service Definitions

LOS	Delay (a)	V/C Ratio	Definition
A	< 10.0	< 0.60	Progression is extremely favorable. Most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	10.1 - 20.0	0.61 - 0.70	Good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20.1 - 35.0	0.71 - 0.80	Only fair progression, longer cycle lengths, or both, result in higher cycle lengths. Cycle lengths may fail to serve queued vehicles, and overflow occurs. Number of vehicles stopped is significant, though many still pass through intersection without stopping.
D	35.1 - 55.0	0.81 - 0.90	Congestion becomes more noticeable. Unfavorable progression, long cycle lengths and high v/c ratios result in longer delays. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55.1 - 80.0	0.91 - 1.00	High delay values indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent
F	> 80.0	> 1.00	Considered unacceptable for most drivers, this level occurs when arrival flow rates exceed the capacity of lane groups, resulting in many individual cycle failures. Poor progression and long cycle lengths may also contribute to high delay levels.

(a) Average control delay per vehicle in seconds.

Unsignalized Intersection Level of Service Definitions

The HCM[1] uses *control delay* to determine the level of service at unsignalized intersections. Control delay is the difference between the travel time actually experienced at the control device and the travel time that would occur in the absence of the traffic control device. Control delay includes deceleration from free flow speed, queue move-up time, stopped delay and acceleration back to free flow speed.

LOS	Control Delay Seconds per Vehicle
A	< 10.0
B	10.1 - 15.0
C	15.1 - 25.0
D	25.1 - 35.0
E	35.1 - 50.0
F	> 50.0

[1] Highway Capacity Manual, National Research Board, 2010

Appendix E

Wetland Delineation

Exhibit 4: Initial Study/Mitigated Negative Declaration

UNIVERSITY OF CALIFORNIA AT SANTA BARBARA

NORTH CAMPUS OPEN SPACE RESTORATION PROJECT

JURISDICTIONAL DETERMINATION

Prepared for:

UNIVERSITY OF CALIFORNIA AT SANTA BARBARA
&
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DECEMBER 8, 2015

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1.0 INTRODUCTION AND PURPOSE

The University of California at Santa Barbara (UCSB) North Campus Open Space Restoration Project (project) is located west of Storke Road near Whittier Drive in Goleta, California (Figures 1 and 2). The project would primarily return the former Ocean Meadows Golf Course to preexisting conditions that would include broad floodplains of tidal influenced mud flat and salt marsh habitats along the drainageways that run through the site. An upland, riparian, and vernal pool creation/restoration component is also included in the project. The uplands, wetlands, and drainageways within the study area are highly disturbed from construction of the golf course in 1965 and 48 years of vegetation management for golf up to its closure in 2013. In addition, regular tidal influence has been eliminated with the installation of the sheet pile sill at the Devereux Slough bridge, and initial construction of the oil field road back in the 1920's (Revell Coastal, 2015). The site is in a transitional state from the cessation of golf course turf management along with continued sprinkler irrigation (with reclaimed water) and mowing of the former fairways to satisfy neighboring resident's request to maintain some form of "green" to the landscape. As a result of past and ongoing manipulation of site conditions, this jurisdictional determination represents the current fall season 2015 snapshot in time of significantly disturbed conditions of vegetation, soils, and hydrology.

Several studies have been conducted before and after golf course closure that provided mapped locations of a variety of wetland habitat types throughout the study area that were reviewed and evaluated for including in this jurisdictional determination. The purpose of this wetland delineation and preliminary jurisdictional determination is to document the methods and results for delineating the location and extent of potential jurisdictional wetlands and other waters of the U.S., and waters subject to California Fish and Game Code 1600 *et.seq.* streamzone jurisdiction, and areas that meet the California Coastal Act one parameter definition of wetlands (vegetation, soils, and/or hydrology) within the project area.

2.0 METHODS

Sage Institute, Inc. (SII) Principal Ecologist and wetland specialist David Wolff, and SII Principal Biologist Jason Kirschenstein collected and reviewed available background information and conducted wetland delineation field reconnaissance surveys of the study area on September 21, 22, 29, 30, and November 20, 2015. Available background information included multiple years of available aerial photography during active golf and after closure, soils survey, and information provided by UCSB. Key information used in the formation of this jurisdictional determination includes:

- North Campus Open Space Restoration Project Detailed Project Program (DPP) and Appendices (ESA, September 25, 2015)
- Native Habitat of OMGC (Cheadle Center for Biodiversity & Ecological Restoration, February 2015)
- *Wetlands Delineation Subject to the California Coastal Act, UCSB South Parcel Santa Barbara County, California* (WRA Environmental Consultants, September 1, 2006)
- *Wetland Delineation Report, Ocean Meadow Golf Course, Goleta, California* (Watershed Environmental, July 10, 2003)

The routine and problem areas methodology detailed in the 1987 *U.S. Army Corps of Engineers Wetland Delineation Manual* (Corps Manual) were used as the basis to delineate waters of the U.S. including wetlands on the site. The basis of determining and recording indicators for hydrophytic vegetation,

hydric soils, and wetland hydrology was the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Arid West Supplement). Both the Corps Manual (Section G – Problem Areas) and Arid West Supplement (Chapter 5 – Difficult Wetland Situations in the Arid West) were used for the determination and evaluation of normal circumstances, atypical situations, and problem area wetlands as needed.

The U.S. Army Corps of Engineers (Corps) Ordinary High Water Mark (OHWM) jurisdiction was determined based on the 2008 *U.S. Army Corps of Engineers: A Field Guide to the Identification of the Ordinary High Water Mark (OHWM)*. The OHWM was determined by the physical characteristics of the active floodplain observed in the field including recent bank erosion, an incised channel, drift lines of debris and sediment, matted vegetation, and/or a clear natural scour line impressed on the bank or active channel. Field observation data were collected on vegetation, soils, and hydrology at representative locations on the project site in both potential wetland and upland areas. Data were recorded on the Arid West Data Observation Form at seven data observation points. Each data point included excavating a shallow soils test pit to a minimum of 12 inches deep to record soil texture, color, and any redoxomorphic field indicators of hydric soils. To meet the wetland vegetation criteria, an area needs to support greater than 50 percent absolute cover of dominant plant species designated as obligate (OBL), facultative wetland (FACW), and/or facultative (FAC) plants. Primary and/or secondary field indicators of wetland hydrology if evident were recorded. To be considered a jurisdictional wetland under the Federal definition it must meet all three parameters of wetland vegetation, hydric soils, and wetland hydrology.

Plant species wetland indicator status was based on the U.S. Army Corps of Engineers, State of California 2014 Wetland Plant List with indicators defined as:

> **Obligate Wetland Plants (OBL):** Plants that occur almost always in wetlands (estimated probability >99%).
>
> **Facultative Wetland Plants (FACW):** Plants that occur usually in wetlands (estimated probability >67% to 99%), but also occur in non-wetlands (estimated probability 1% to 33%).
>
> **Facultative Plants (FAC):** Plants with a similar likelihood of occurring in both wetlands and non-wetlands (estimated probability 33% to 67%).
>
> **Facultative Upland Plants (FACU):** Plants that occur sometimes in wetlands (estimated probability 1% to <33%), but occur more often in non-wetlands (estimated probability >67% to 99%).
>
> **Obligate Upland Plants (UPL):** Plants that occur in wetlands rarely (estimated probability <1%), but occur almost always in non-wetlands (estimated probability >99%).

The California Department of Fish and Wildlife (CDFW) 1600 streamzone jurisdictional limits were determined in the field by topographic evidence of a clear bed, bank, and channel delineated by a top of bank line or the outside edge of riparian vegetation whichever was greater.

The California Coastal Act regulations define wetlands as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action,

water flow, turbidity or high concentrations of salts or other substances in the substrate. The California Coastal Act wetlands are determined based on the presence of any one of the three federal wetland parameters, wetland vegetation, hydric soils, or wetland hydrology. The criteria used for each parameter is the federal methodology described above as the California Coastal Act does not set criteria for these wetland parameters. Given the highly modified, manipulated, disturbed, and transitional site conditions, a qualitative functional assessment based on the Environmental Protection Agency (EPA) metrics for the Index of Biological Integrity (IBI) and Functional Assessment Hydrogeomorphic Approach (HGM) were evaluated for the areas delineated as one parameter coastal wetlands (see Section 4.1 below).

3.0 RESULTS AND JURISDICTIONAL DETERMINATIONS

3.1 SETTING AND EXISTING CONDITIONS

The project study area includes the former Ocean Meadows Golf Course, the South Parcel that extends to the eucalyptus windrow along the Ellwood Mesa to the west, Venoco Road on the South (not open to public traffic), and residential and commercial development to the east and north (Figure 2). The undeveloped Whittier Parcel is located at the northeast corner of the project site bordered by the former golf course, Whittier Drive, and residential development.

The Ocean Meadows Golf Course parcel is the location of the former nine-hole golf course created in 1965 by filling the historic northern extent of Devereux Slough with soils removed from adjacent lands, including substantial borrow and disturbance on the South Parcel. Elevations for the golf course were raised six to ten feet confining the creeks and drainages to narrow drainage corridors. The golf course has been closed since 2013 with current management consisting of occasional irrigation with reclaimed water and annual mowing. The golf course is crossed by the remains of golf cart paths, informal trails (dirt tracks worn into the landscape), and is used by local residents, students and the public for walking, cycling, and dog-walking.

The South Parcel is located southwest of the golf course and abuts the Coal Oil Point Reserve (COPR), and Ellwood Mesa, an undeveloped property in the city of Goleta's jurisdiction to the west. Four east-west trending, man-made earthen berms that developed drainage swales/ditches direct rainfall runoff to the eastern edge of the property and eventually to Devereux Slough through a culvert under Venoco Road. Stands of willows have formed along with small pockets of seasonal herbaceous wetlands in low-lying areas within the swales/ditches. The South Parcel contains numerous dirt trails, eroded areas, and dirt bicycle jumps, and currently is used for walking, jogging, off-road bicycling, and beach access.

The vegetation of the former Ocean Meadows Golf Course 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, Phelps Creek, and the drainages onsite support a mix of robust emergent wetland plants (cattail/bulrush) within the confined drainage channels with a variable fringe of adjacent salt marsh plants along and above the top of bank. Alkali sea-heath, pickleweed, salt grass, and quailbush dominate the vegetated fringe of the drainages in variable compositions and densities. Small stands of willow are scattered along the drainages. The golf course fairways that have been irrigated and mowed since its closure have widely scattered patches of alkali sea-heath, large swaths of salt grass, large swaths of the non-native buck-horn plantain, Bermuda grass, yard knotweed, patches of the mat forming non-native Australian saltbush, and clumps of dallis grass (in moist areas). The South Parcel

supports mostly a non-native annual grasses, large patches of fennel, and scattered willows that follow the erosion gullies and ditches created by the golf course borrow operation. Small patches of seasonal wetland plants that have been mapped and recorded by others in the ditches along the berms on the South Parcel include Mediterranean barley, ryegrass, curly dock, and spikerush. Table 1 provides a list of plant species observed with scientific and common names, and wetland indicator status.

Soils within the study area are mapped by the Natural Resources Conservation Service soil survey as Aquents (fill areas) on the golf course, and Xerothernts (cut and fill areas) on the South Parcel reflecting the significant disturbance to the natural soil profile from golf course construction in 1965. See Figure 3.

Hydrologic input into the study area is primarily from Devereux Creek that traverses the golf course property joined approximately midway by Phelps Creek, and two unnamed tributaries receiving stormwater from the surrounding development. It then connects to Devereux Slough on the Coal Oil Point Reserve at the southern golf course property boundary. The hydrologic connection between Devereux Creek and the lower Devereux Slough is limited by a sheet pile sill located just upstream of the Devereux Creek bridge crossing. Evaluation of the historic extent of tidal wetlands by David Revell, Ph.D., for the project shows significant modification to the project area by agriculture, oil development, and the golf course construction. Most importantly for this jurisdictional determination, the historic extent of tidal wetlands covers almost all of the golf course footprint that has been filled (see Figure 4 included from Revell 2015 excerpts on historic conditions report). While the creek channels are now confined to narrow channels by the golf course fill, and tidal influence has been limited by the sheet pile sill, portions of the golf course have flooded during large rainfall events and combined tidal influence, or at least hydrologic connection with Devereux Slough over the sill may occur when high tides coincide with large rainfall events.

Based on the above description of a highly modified study area, transition from the active to abandoned golf course with continued mowing and irrigation, normal circumstances are not present. Furthermore, the human induced changes along with recent prolonged drought and conducting this jurisdictional determination study at the end of the growing season suggests that this is an atypical situation. As such, the problem area and difficult wetland situation methodologies have been applied to this study to document the location and extent of jurisdictional wetlands and other waters for the project site.

TABLE 1
DOMINANT WETLAND PLANT SPECIES OBSERVED
(* DENOTES NON-NATIVE SPECIES)

SCIENTIFIC NAME	COMMON NAME	ARID WEST WETLAND INDICATOR STATUS
Atriplex lentiformis	quailbush	FAC
*Atriplex semibaccata**	Australian saltbush	FAC
*Cynodon dactylon**	Bermuda grass	FACU
Distichlis spicata	salt grass	FAC
Eleocharis macrostachya (pulustris)	common spikerush	OBL
Frankenia salina	alkali sea-heath	FACW
Leymus triticoides	beardless lyme grass	FAC
*Lolium perenne**	ryegrass	FAC
*Paspalum dilatatum**	golden crown grass	FAC

*Plantago coronopus**	buck-horn plantain	FACW
*Polygonum aviculare**	yard knotweed	FACW
*Polypogon monspeliensis**	annual rabbit's-foot grass	FACW
*Rumex crispus**	curly dock	FAC
Salicornia (Sarcocornia) pacifica	pickleweed	OBL
Salix lasiolepus	arroyo willow	FACW
Schoenoplectus sp.	club-rush (bulrush)	OBL
Typha latifolia	cattail	OBL

3.2 FEDERAL JURISDICTIONAL WETLAND WATERS OF THE U.S.

Devereux Creek and Phelps Creek exhibit a well-defined channel with steep banks that represent a distinct Ordinary High Water Mark (OHWM) through most of the reach of creeks through the project area. Within the channel below the OHWM are dense patches of robust emergent wetland vegetation primarily stands of bulrush along with small patches of arroyo willow. Areas of ponded water are often present in this reach of the creek. Similar conditions of a distinct channel and dense robust emergent wetland vegetation occurs along the unnamed tributaries off of Whittier Drive, and the east to west flowing drainage off of Storke Road. As such, hydric soils and wetland hydrology are presumed and these are considered to be wetland waters of the U.S. based on the presence of dominant wetland vegetation below the OHWM.

A wetland fringe directly adjacent to Devereux Creek, Phelps Creek, and the two tributary drainages was identified and mapped based on the observation of greater than 50 percent cover and greater than 50 percent composition of wetland indicator plant species (OBL, FACW, or FAC). Dominant wetland indicator plants were primarily salt marsh associated species salt grass, alkali sea-heath, pickleweed, and quailbush. Much of the wetland fringe has likely developed from cessation of golf course maintenance activities and Santa Barbara Flood Control re-contour and restoration work along the drainages in 2003. The limits of federal jurisdiction of the adjacent wetland fringe presumes there are hydric soils from sufficient soil moisture from the drainages (wetland hydrology) to support the dominance of wetland indicator species. The limits of the adjacent fringe wetlands were mapped in the field walking with a GPS unit to capture the areas meeting the wetland vegetation criteria. A remnant undisturbed patch of salt marsh habitat along Devereux Creek occurs west of the golf course limits that is included in the wetland waters of the U.S. mapping within the study area. The mapped location and extent of federal jurisdictional wetland waters of the U.S. that meet the three parameter wetland definition are provided over recent aerial photographs and over golf course aerial photographs as Index Map JD-(a) and Figures JD-(a-1 to a-10), and Index Map JD-(b) and Figures JD-(b-1 to b-10) in Appendix A respectively. Approximately 10.31 acres of wetland waters of the U.S. occur on the project site within and along the onsite creeks and drainages that are tributary to Devereux Slough and the Pacific Ocean.

The former golf course fairways, likely from continued irrigation after closure, have manifested large expressions of salt grass (FAC), buck-horn plantain (FACW) with greater than 50 percent absolute cover. There are also lesser amounts of widely scattered alkali sea-heath (FACW), pickleweed (OBL), yard knotweed (FACW), and the mat forming Australian saltbush (FAC). Given the artificial irrigation and lack of any primary or secondary indicators of wetland hydrology, and no field indicators hydric soils, or soils are inconclusive given the past disturbance/fill for the golf course, these areas do not meet the federal three-parameter criteria and are not considered federal jurisdictional wetlands. Wetland determination

data forms characterizing the non-federal wetland determination for these expressions of wetland indicator plants are provided in Appendix B.

The south parcel that was highly disturbed as a borrow site for the golf course, has four west to east trending berms likely created as an erosion control measures across the slopes for the golf course construction borrow operation. Ditches on the uphill side of the berms were either formed with the berms or created from localized runoff from the surrounding uplands. Several small pockets of seasonal wetlands have been mapped by others within the ditches because of the presence of wetland indicator plants including Mediterranean barley (FAC), common spikerush (OBL), ryegrass (FAC), beardless lyme grass (FAC), and curly dock (FAC). Willow trees have become established along portions of the ditches or otherwise established on the South Parcel. The Rapanos Guidance states that ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water (three months or more) are generally not considered waters of the U.S. under federal jurisdiction. Based on the existing conditions and the Rapanos guidance, the ditches and small patches of wetland plants within the ditches are not considered federal jurisdictional wetlands or other waters of the U.S.

Vernal pools have been mapped by others on Ellwood Mesa and the western edge of South Parcel (east of Eucalyptus trees), and on the Whittier Parcel. The South Parcel vernal pools along the windrow are outside the project area and have been created/enhanced and are undergoing continued enhancement. There are two vernal pools mapped on the Whittier Parcel that are barely distinguishable topographic depressions. Vernal pool vegetation was not evident during SII field surveys as they have been mowed and from the late growing season survey so the prior mapping effort was used as the extent of these two vernal pools. Given these two vernal pools are in close proximity to the onsite creeks/drainages, a significant nexus is presumed and they are considered to be federal jurisdictional wetlands.

3.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE STREAM ZONE JURISDICTION

The lateral extent of the CDFW stream zone jurisdiction was determined based on Devereux Creek, Phelps Creek, and drainages with a well-defined bed, steep banks, and channel that run through the project area. Within the channel banks are dense patches of robust emergent wetland vegetation primarily stands of bulrush along with small patches of arroyo willow. The limits of CDFW stream zone includes the wetland fringe directly adjacent to Devereux Creek, Phelps Creek, and the two tributary drainages that are dominated primarily by salt marsh associated species salt grass, alkali sea-heath, pickleweed, and quailbush that are considered in this case to constitute the outward extent of riparian habitat. Approximately 10.31 acres of creeks/drainages and fringe of riparian habitat under CDFW jurisdiction occur within the project area.

The CDFW stream zone jurisdiction does not extend to the patches of wetland indicator plants scattered in the former fairways, the seasonal wetlands mapped along the South Parcel artificial ditches, or the mapped vernal pools. Furthermore, the scattered willows on the south parcel within or away from the human made berms, ditches, and erosion gullies, are not in a natural stream context and are not considered to be under CDFW jurisdiction within a stream zone or riparian habitat.

3.4 CALIFORNIA COASTAL ACT JURISDICTION AND ONE PARAMETER WETLANDS

The location and extent of California Coastal Act wetlands includes the entirety of the 10.31 acres of the federal three parameter jurisdictional wetland limits along Devereux Creek, Phelps Creek, and the unnamed tributaries off of Whittier Drive and the east to west flowing drainage off of Storke Road.

The former golf course fairways that have manifested large expressions of mostly salt grass (FAC) and buck-horn plantain (FACW), along with other patches of wetland indicator species with greater than 50 percent absolute cover, are considered to meet the one parameter California Coastal Act wetland definition. While the origins of the buck-horn plantain is unknown, the expressions are likely a result of the ongoing irrigation and not any 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.

The salt grass may well be a relic of the former extent of slough that became part of the mowed turf grass mixed with the 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 over the past two years. The location and extent of these occurrences are shown over recent aerial photographs and over golf course aerial photographs as Index Map JD-(a) and Figures JD-(a-1 to a-10), and Index Map JD-(b) and Figures JD-(b-1 to b-10) in Appendix A respectively. There are also lesser amounts of widely scattered alkali sea-heath (FACW), pickleweed (OBL), and yard knotweed (FACW) that would meet the one-parameter criteria. Areas of the mat forming Australian saltbush did not occur in densities of greater than 50 percent absolute cover so did not meet the basic wetland vegetation criteria to be considered a one-parameter wetland.

The small pockets of seasonal wetlands mapped by others within the ditches on the South Parcel are considered one-parameter wetlands under California Coastal Act definition because of the presence of wetland indicator plants including Mediterranean barley (FAC), common spikerush (OBL), ryegrass (FAC), and curly dock (FAC). In addition, the willow trees established along portions of the ditches or otherwise established on the South Parcel also fall within the one-parameter wetland criteria. The mapped vernal pools would also presumably meet at least one wetland parameter and are included as wetlands under the California Coastal Act definition. Table 2 provides the acreage extent of the one-parameter wetlands by species dominance that are also shown on the JD figures in Appendix A.

TABLE 2
WETLAND TYPES AND JURISDICTIONAL ACREAGES

WETLAND TYPE	FEDERAL WETLANDS	CDFW	CALIFORNIA COASTAL ACT
Creeks and Drainages	10.31	10.31	10.31
Distichlis (salt grass)	0	0	10.64
Frankenia (alkali sea-heath)	0	0	0.22
Leymus (creeping wild rye)	0	0	0.06
Paspalum)golden-crown grass)	0	0	0.15
Plantago (buck-horn plantain)	0	0	2.55
Polygonum (yard knotweed)	0	0	0.18
Salicornia (pickleweed)	0	0	0.19
Salix (willow)	0	0	4.22
Seasonal Wetland	0	0	0.34
Vernal Pools	0.78	0	0.78
AGENCY TOTALS	**11.09**	**10.31**	**29.64**

4.0 SUMMARY AND CONCLUSIONS

The review of available background information for the project, previous wetlands studies, and SII wetland delineation field surveys in September, October, and November 2015 were used to establish the 2015 existing conditions of the former Ocean Meadows Golf Course, South Parcel, and Whittier Parcel project areas. Given the past disturbance from golf course construction and operation, and current irrigation and mowing practices, the problem area and difficult wetland situations methodologies were used to delineate approximately 10.31 acres of federal jurisdictional waters of the U.S. and adjacent wetland fringe along the onsite creeks and drainages. Approximately 0.78 acres of vernal pools mapped by others are also presumed to be federal jurisdictional wetlands with a significant nexus to the onsite drainages. The preponderance of patches of mostly FAC wetland indicator plant species in and along the former golf course fairways and rough (still being irrigated) that only met the wetland vegetation parameter, are not considered to be wetlands or other waters of the U.S. under federal jurisdiction.

The lateral extent of the CDFW stream zone jurisdiction was determined based on Devereux Creek, Phelps Creek, and drainages with a well-defined bed, steep banks, and channel that run through the project area. Approximately 10.31 acres of creeks/drainages and fringe of riparian habitat under CDFW jurisdiction occur within the project area. The CDFW jurisdiction is the same as the federal waters of the U.S./wetlands.

The location and extent of California Coastal Act wetlands includes the entirety of the 10.31 acres of the federal three parameter jurisdictional wetland limits and the CDFW stream zone jurisdiction along Devereux Creek, Phelps Creek, and the unnamed tributaries off of Whittier Drive and the east to west flowing drainage off of Storke Road. The California Coastal Act wetland limits also extend to the 0.78 acre of vernal pools mapped by others, and the patches of the one parameter wetland indicator species in the abandoned but irrigated fairways/roughs (13.99 acres), the 0.34 acre of seasonal wetland mapped by others on the South Parcel, and the 4.22 acres of scattered willow patches also on the South Parcel.

4.1 QUALITATIVE FUNCTIONAL ASSESSMENT OF ONE PARAMETER WETLANDS

The definition of wetlands under the California Coastal Act is met with occurrence of any one or more of the three wetland parameters (vegetation, soils, and/or hydrology). As described above the former golf course fairways that have manifested large expressions of mostly FAC wetland indicator species are considered to meet the vegetation parameter of the California Coastal Act wetland definition. Soils and hydrology are absent from these patches of wetland indicator species in accordance with the federal wetland delineation criteria.

The EPA IBI and HGM wetland monitoring and assessment tools provide a framework for this qualitative functional assessment California Coastal Act one parameter wetlands within the project site. While these approaches typically require intact reference sites and the collection of quantitative data over time, the following metrics are being used in this qualitative wetland functional assessment:

- Comparison to intact minimally disturbed similar habitat presumed in the region.
- Degradation by any chemical, physical, or biological stressors causing damage, intermittent stressors, or cumulative effect of multiple stressors.

- Taxa richness
- Macroinvertebrates
- Changes in gradient of human influence:
  - Hydrologic (storage of surface water)
  - Biogeochemical (removal of elements and compounds)
  - Physical habitat (topography, depth of water, number and size of trees)

Presumably a reference site would be an intact salt marsh subject to tidal influence and freshwater input providing the necessary hydrology to support salt marsh wetland plants. The only apparent hydrology for the one parameter wetlands within the former fairways is the ongoing irrigation after golf course closure. The greatest extent are FAC species that have wide ranging wet/dry tolerances with an equal chance of occurring in wetlands or uplands. The salt grass forms dense rhizotomous mats able to tolerate dry conditions and the buck-horn plantain is an annual species that likely took advantage of the ongoing irrigation for the current expression observed in 2015. The salt marsh plants scattered in the fairways do not represent a functional salt marsh but also are likely a result of a remnant seed bank and the ongoing irrigation and are not a tidally influenced habitat. These areas have obviously been subject to physical and biological stressors from the original golf course fill and ongoing turf management, along with the transitional state subject to artificial hydrology (irrigation).

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. At best, it is more of an upland patchwork of vegetative cover over the remnant level lands of the golf course with artificial irrigation lacking ongoing tidal influence.

Probably the most significant factors in limiting any functions typically associated with wetlands are the changes caused by the gradient in human influence. As well established in this report and the project background analysis, the site has been significantly modified from any natural salt marsh habitat. From placement of fill from golf course construction, 50 years of golf course vegetation management, to closure with continued irrigation, the one-parameter wetlands do not support any ongoing wetland functions. 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.

5.0 REFERENCES

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APPENDIX A

FIGURES

sage institute

October 21, 2015

University of California at Santa Barbara

North Campus Open Space Restoration Project

Figure 1

Regional Location

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October 21, 2015

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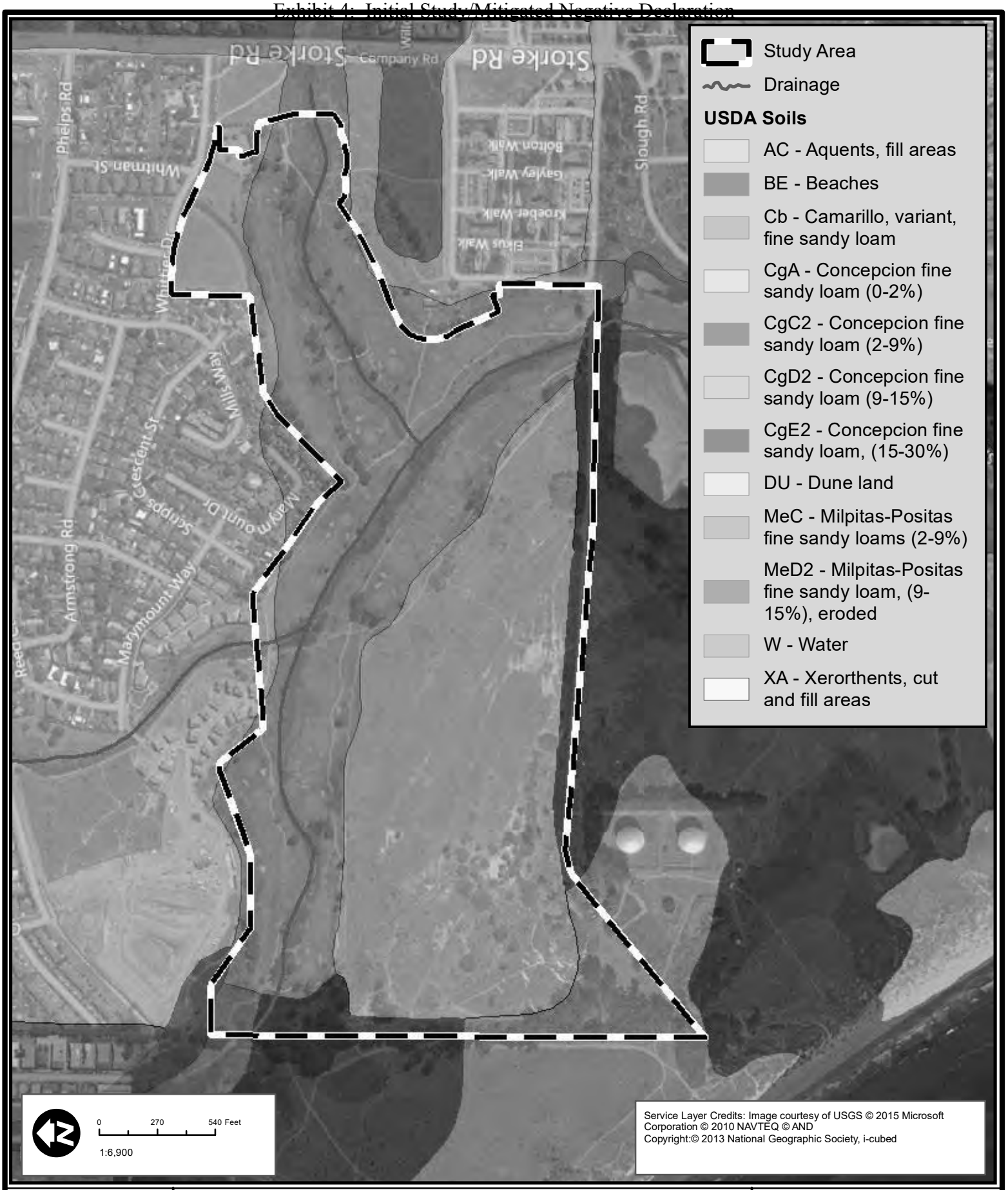
North Campus Open Space Restoration Project

Figure 2

Vicinity Location Map



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October 21, 2015

University of California at Santa Barbara

North Campus Open Space Restoration Project

Figure 3

Soils Map

Figure 7. The extent of the golf course compared to the historic extent of the tidal wetland in 1871 over a 2001 rectified air photo.

Photo 1: DP-1 view west at salt grass patch along Whittier Parcel drainage channel. **9/22/2015**

Photo 2: DP-2 view south at salt grass and alkali heath dominant patch along Whittier Parcel drainage channel**. 9/22/2015**

Photo 3: DP-3 view east at buck-horn plantain expression in fairway. **9/22/2015**

Photo 4: DP-4 view east at salt grass flat in fairway rough along Storke Road drainage channel. **9/22/2015**

Photo 5: DP-5 view east at salt grass flat along Devereux Creek. **9/22/2015**

Photo 6: DP-6 view east at salt grass flat along Devereux Creek. **11/20/2015**

Photo 7: DP-7 view west at yard knotweed patch in fairway along Devereux Creek. **11/20/2015**

Photo 8: View west at salt marsh flat of Devereux Creek in northwest corner of study area outside of former golf course area. **11/20/2015**

Photo 9: View west at larger Whittier Parcel vernal pool (arrow)**. 9/22/2015**

Photo 10: View west at smaller Whittier Parcel vernal pool (arrow)**. 9/22/2015**

Photo 11: View northwest at example salt grass expression in fairway. **9/30/2015**

Photo 12: View west at example of varied species patchwork mosaic in transitioning golf course fairway. **9/30/2015**

Photo 13: View west at confined Devereux Creek and robust wetland vegetation bisecting transitioning golf course fairways. **9/30/2015**

Photo 14: View east at confined Devereux Creek and robust wetland vegetation and willows bisecting transitioning golf course fairways. **9/30/2015**

Photo 15: View southeast at Devereux Creek incised confined channel and robust wetland vegetation and willows. **9/30/2015**

Photo 16: View east at Phelps Creek bridge crossing and confined channel. **9/30/2015**

Photo 17: View north at Devereux Creek and example adjacent wetland fringe of quail bush, alkali heath, and pickleweed. **11/20/2015**

Photo 18: View west at transitioning fairway with scattered mat forming Australian saltbush (green mats). **11/20/2015**

Photo 19: View southwest from demolish clubhouse at drainge channel wetlands from Storke Road (arrow). **11/20/2015**

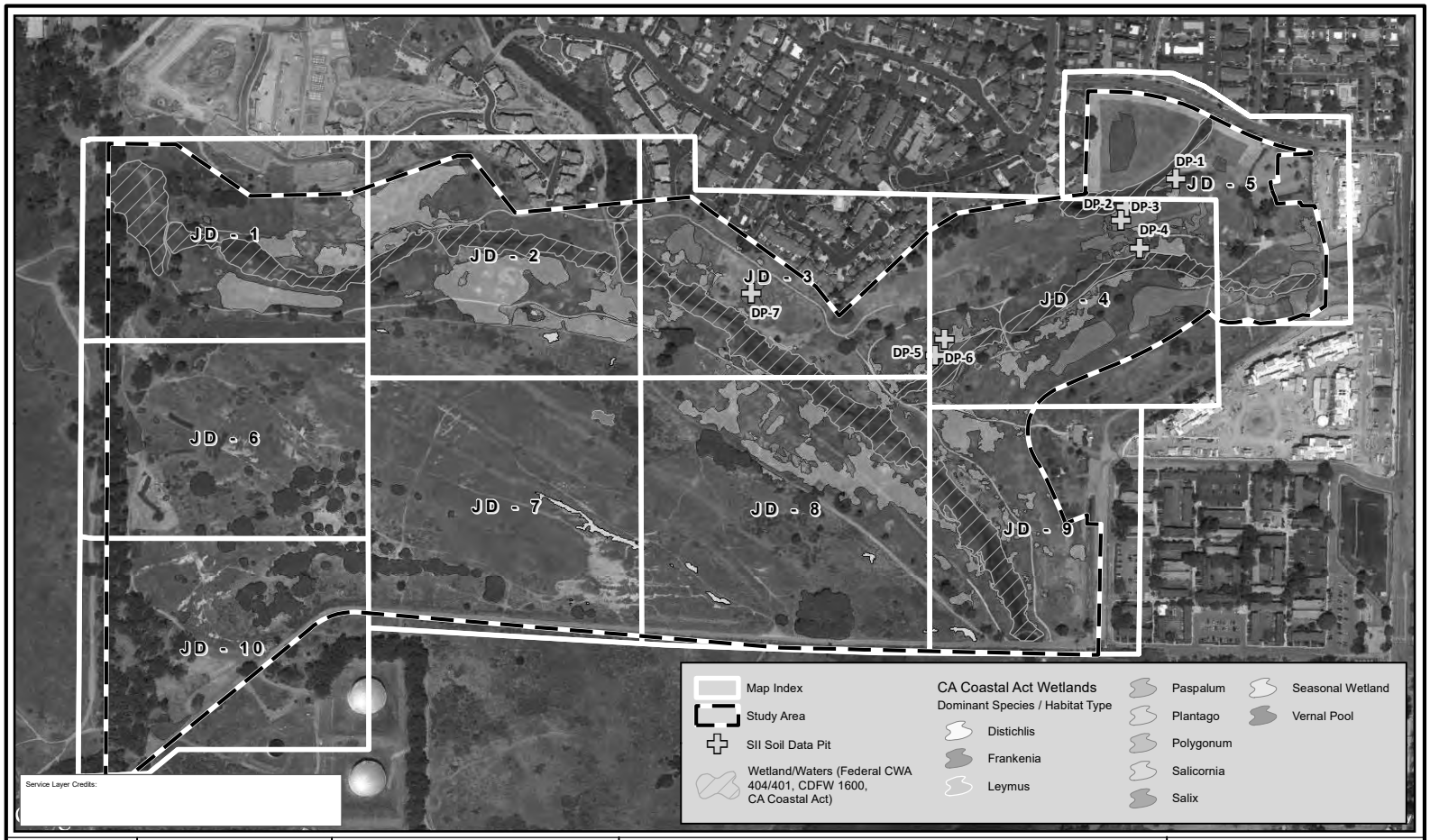
Photo 20: View north at Devereux Creek sheet pile sill separation from Devereux Slough tidal influence. **11/20/2015**

Photo 21: View northwest at South Parcel ditch seasonal wetland along created berm from golf course construction borrow operation. **9/29/2015**

Photo 22: View west at South Parcel ditch seasonal wetland along created berm from golf course construction borrow operation. **9/29/2015**

Photo 23: View west at South Parcel ditch seasonal wetland along created berm from golf course construction borrow operation. **9/29/2015**

Photo 24: View north at salt grass seasonal wetland mapped on South Parcel. **9/29/2015**



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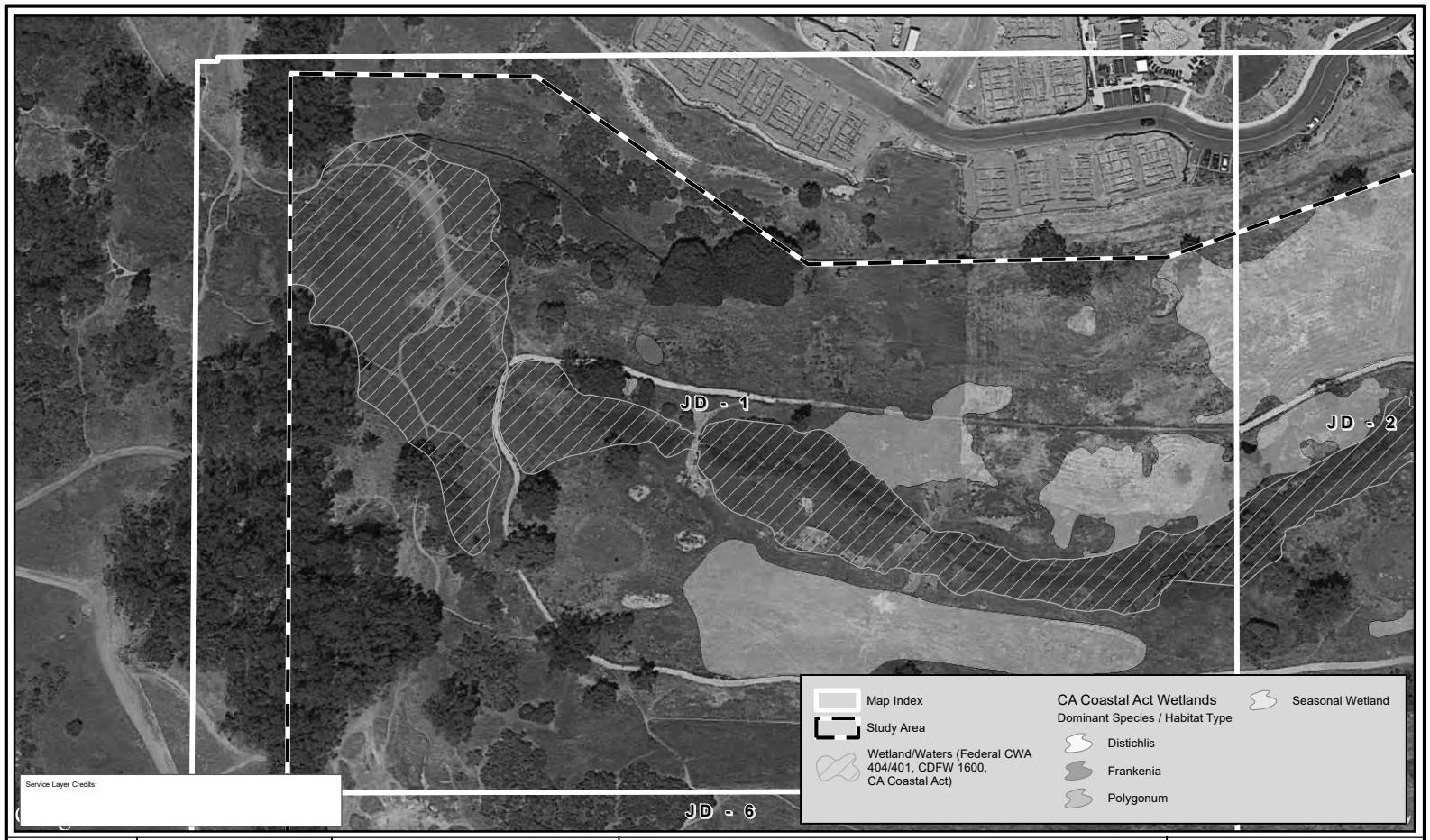

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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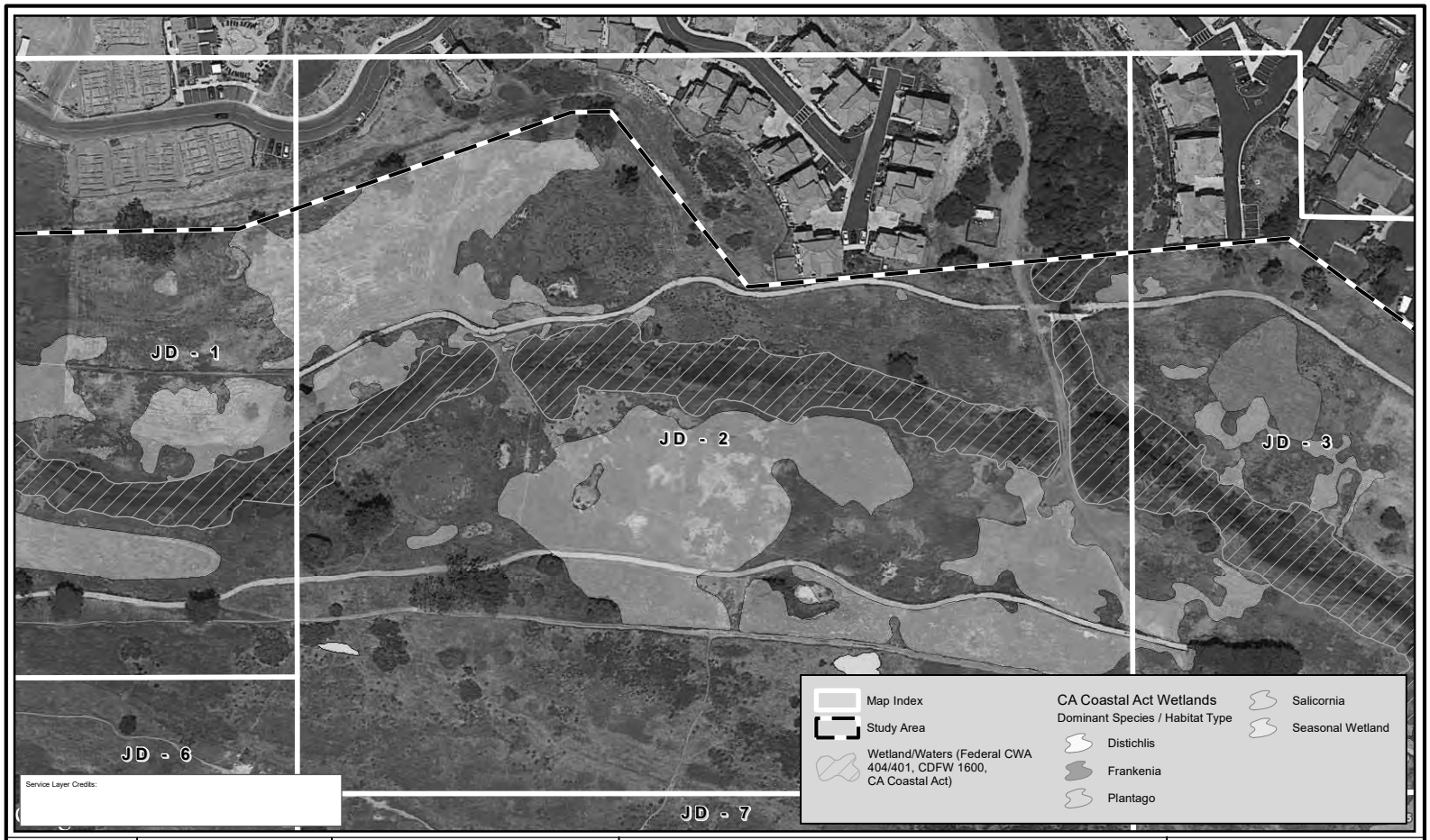
University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 1 (a)

Jurisdictional Determination



sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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University of California at Santa Barbara

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JD - 2 (a)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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University of California at Santa Barbara

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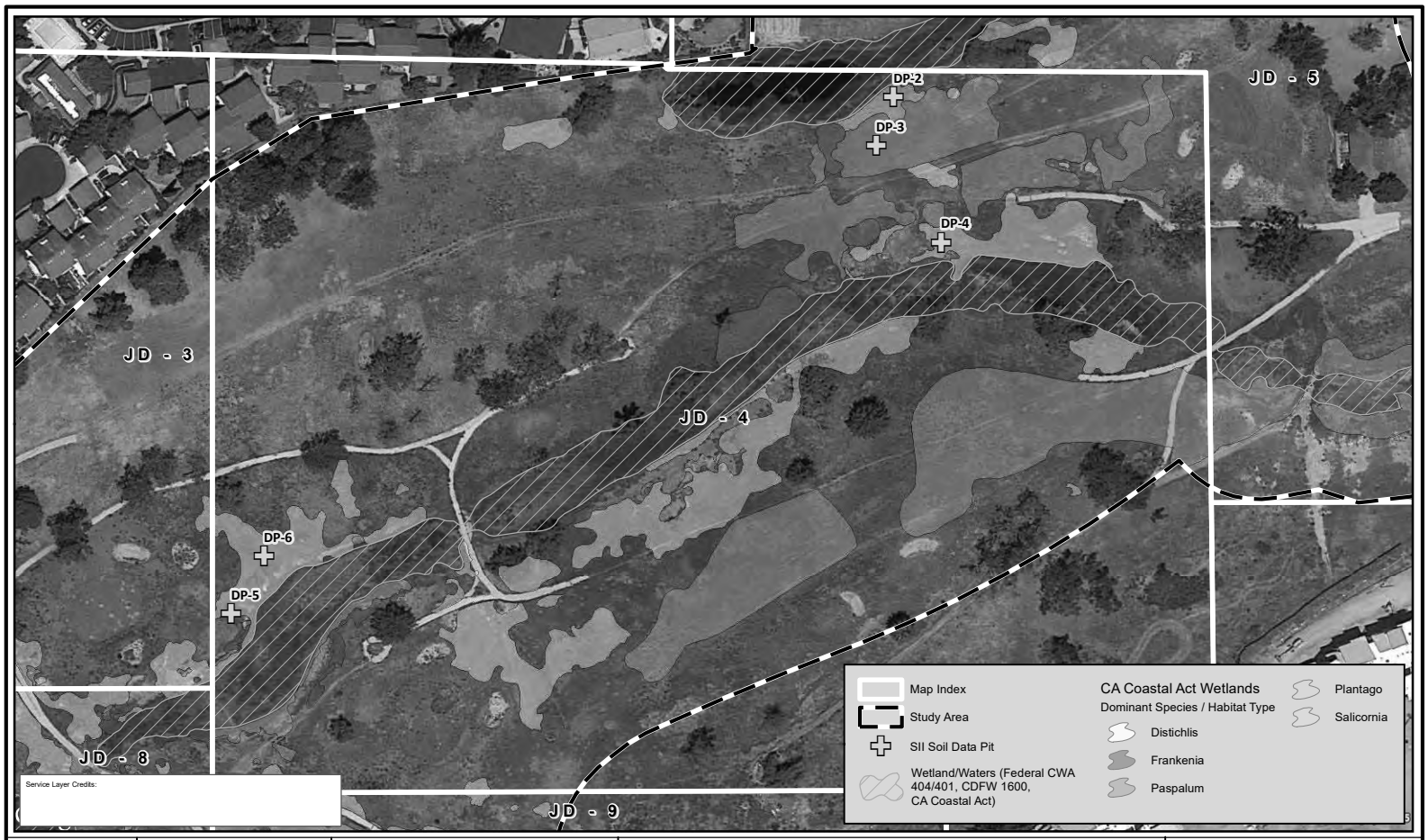
JD - 3 (a)

Jurisdictional Determination



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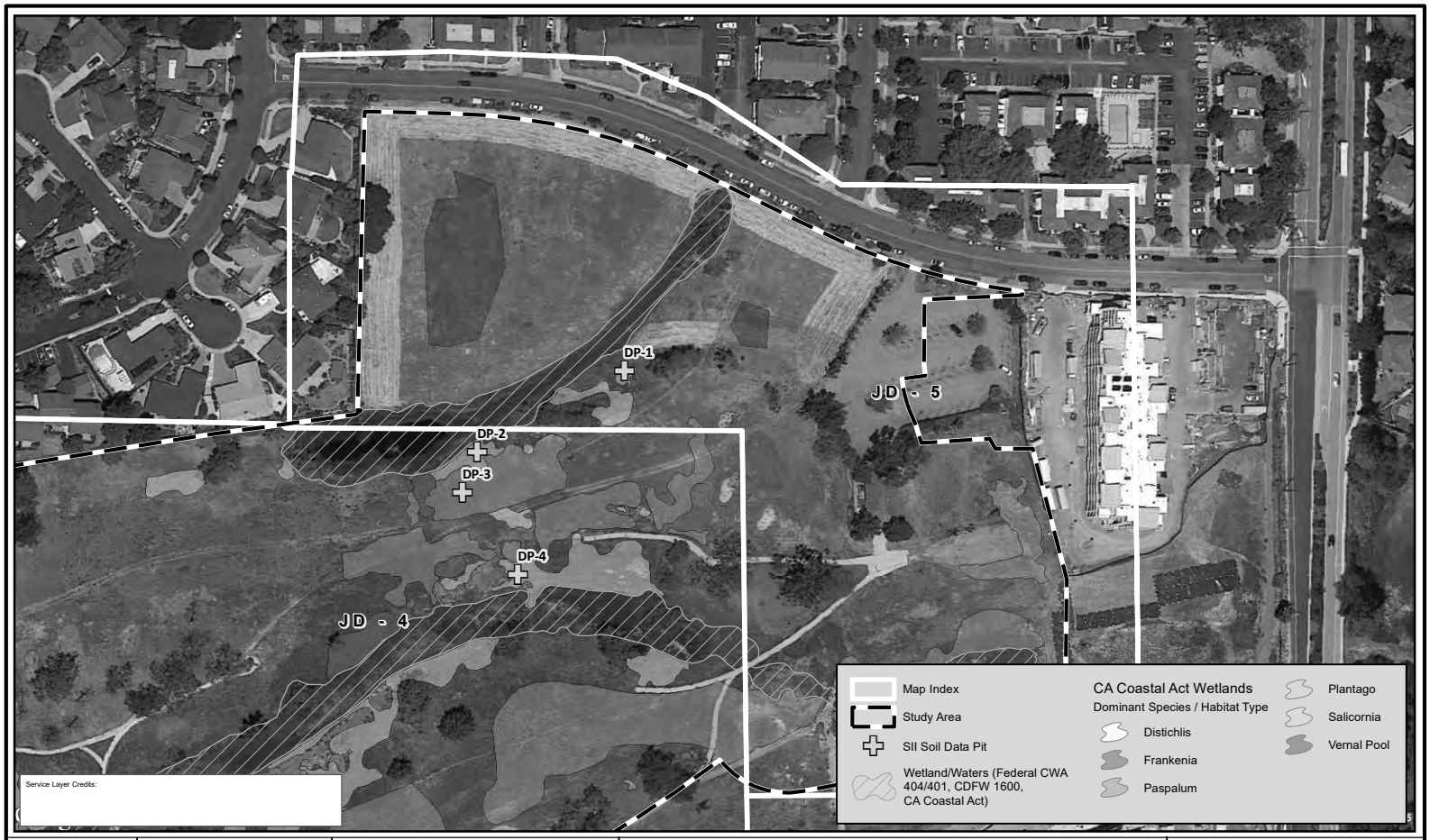
University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 4 (a)

Jurisdictional Determination



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University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 5 (a)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 6 (a)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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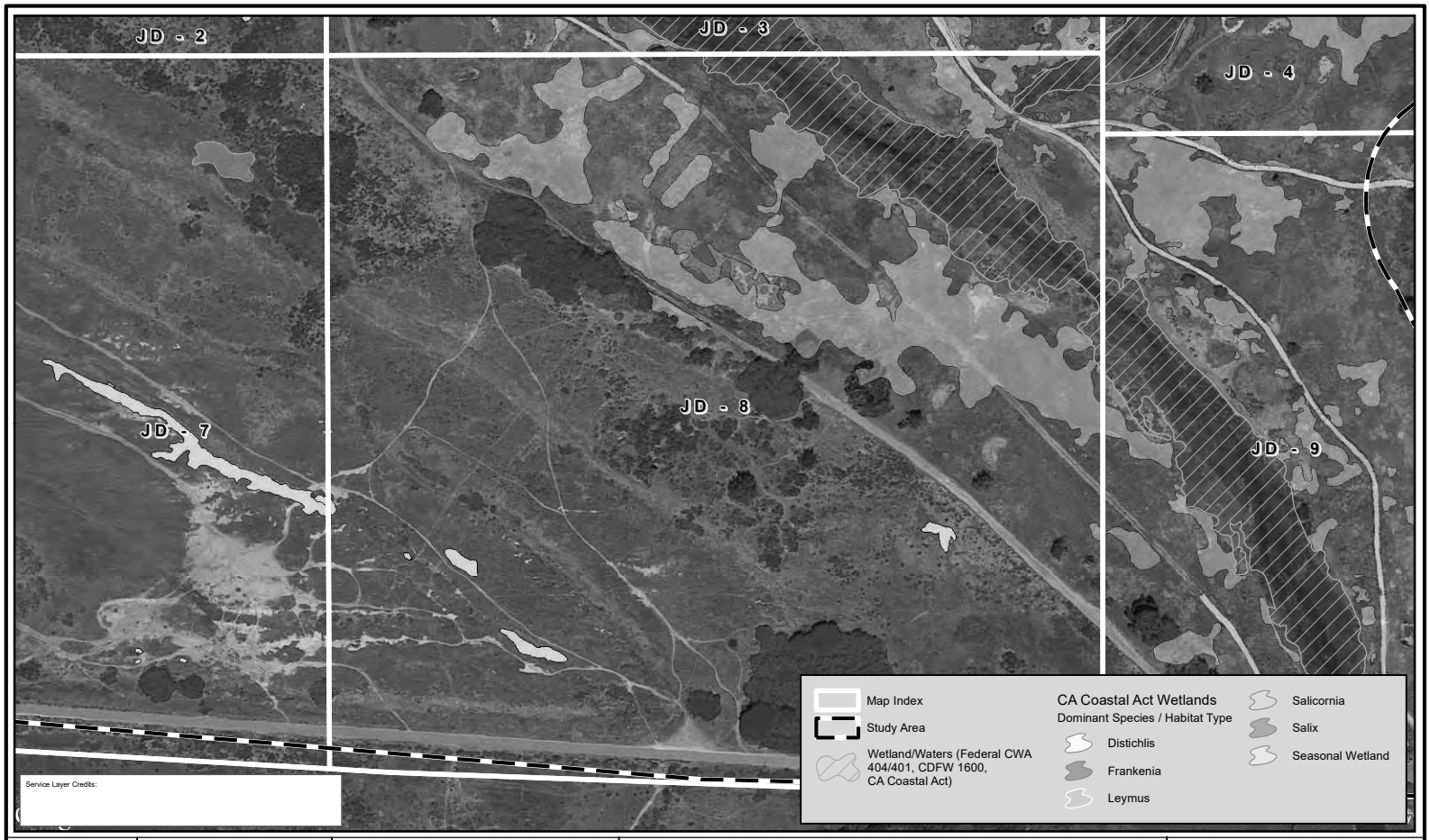
University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 7 (a)

Jurisdictional Determination



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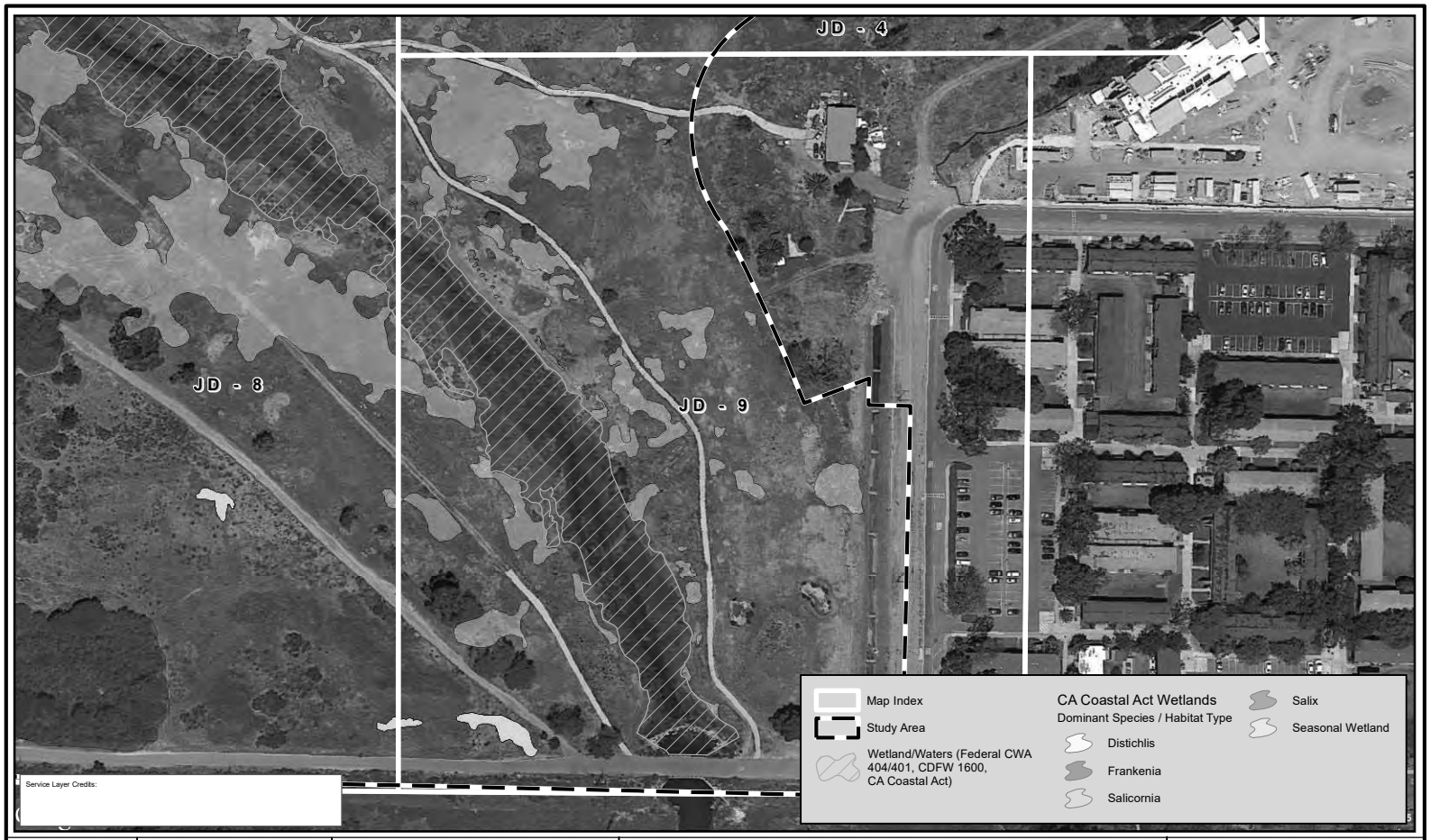
University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 8 (a)

Jurisdictional Determination



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University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 9 (a)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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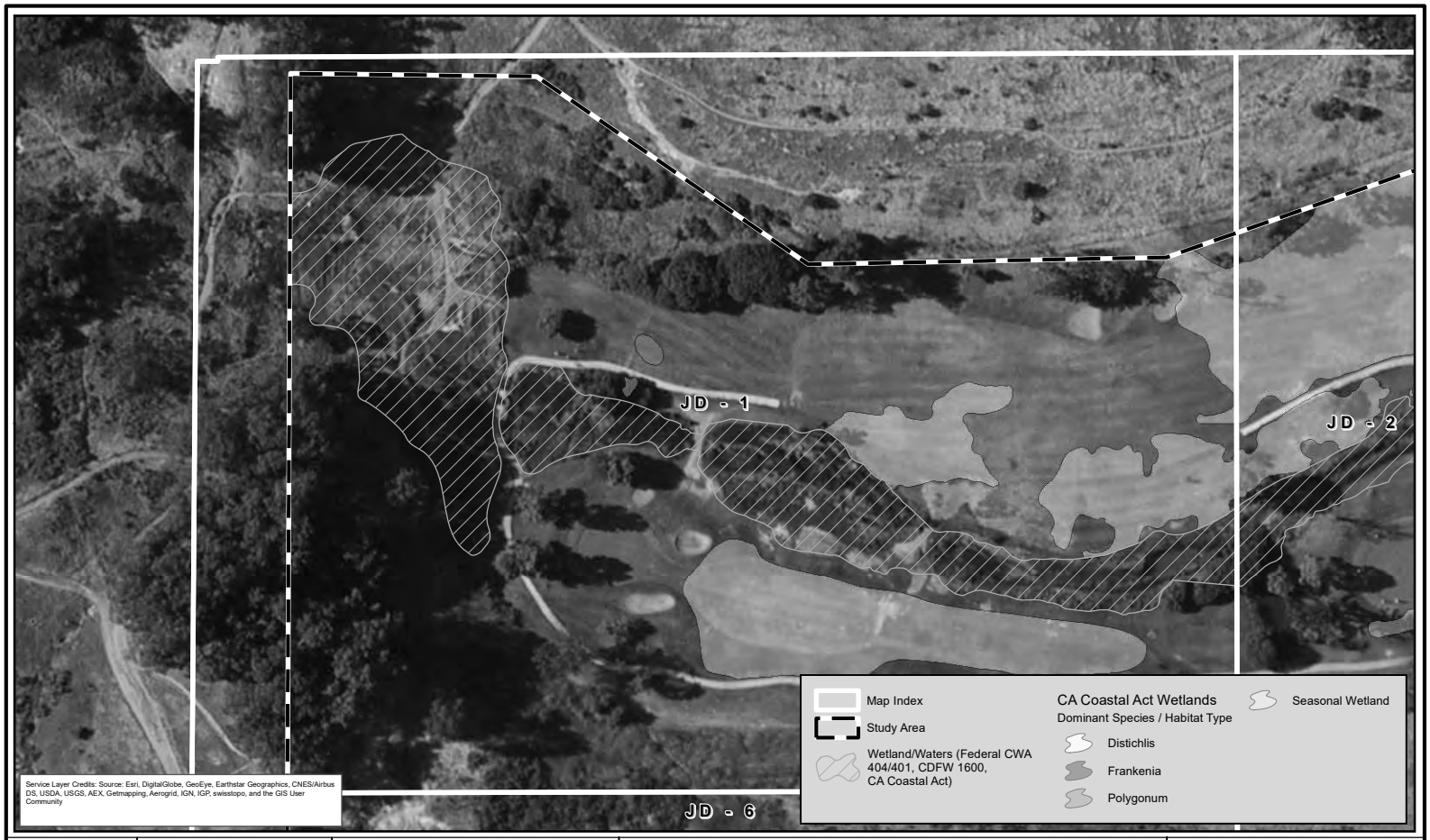
University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 10 (a)

Jurisdictional Determination

sage institute December 3, 2015	Source(s): Sage Institute Field Notes, 2015.	1:3,650 0 290 580 Feet	**University of California at Santa Barbara** North Campus Open Space Restoration Project	**JD - Index Map (b)** **Jurisdictional Determination**



sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 1 (b)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

1:1,190
0 90 180 Feet

University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 2 (b)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

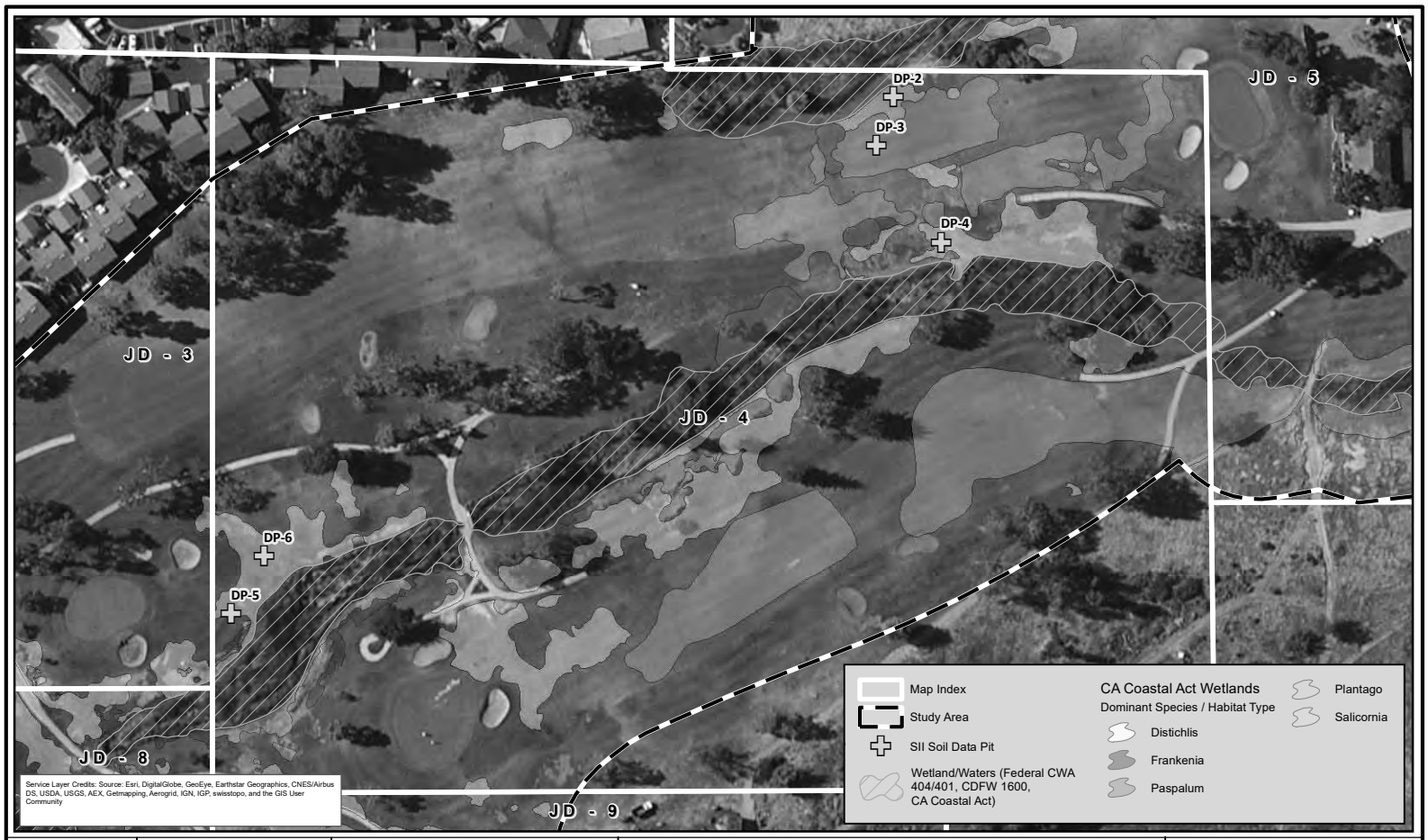
1:1,190
0 90 180 Feet

University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 3 (b)

Jurisdictional Determination



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sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

1:1,240
0 90 180 Feet

University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 5 (b)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

1:980
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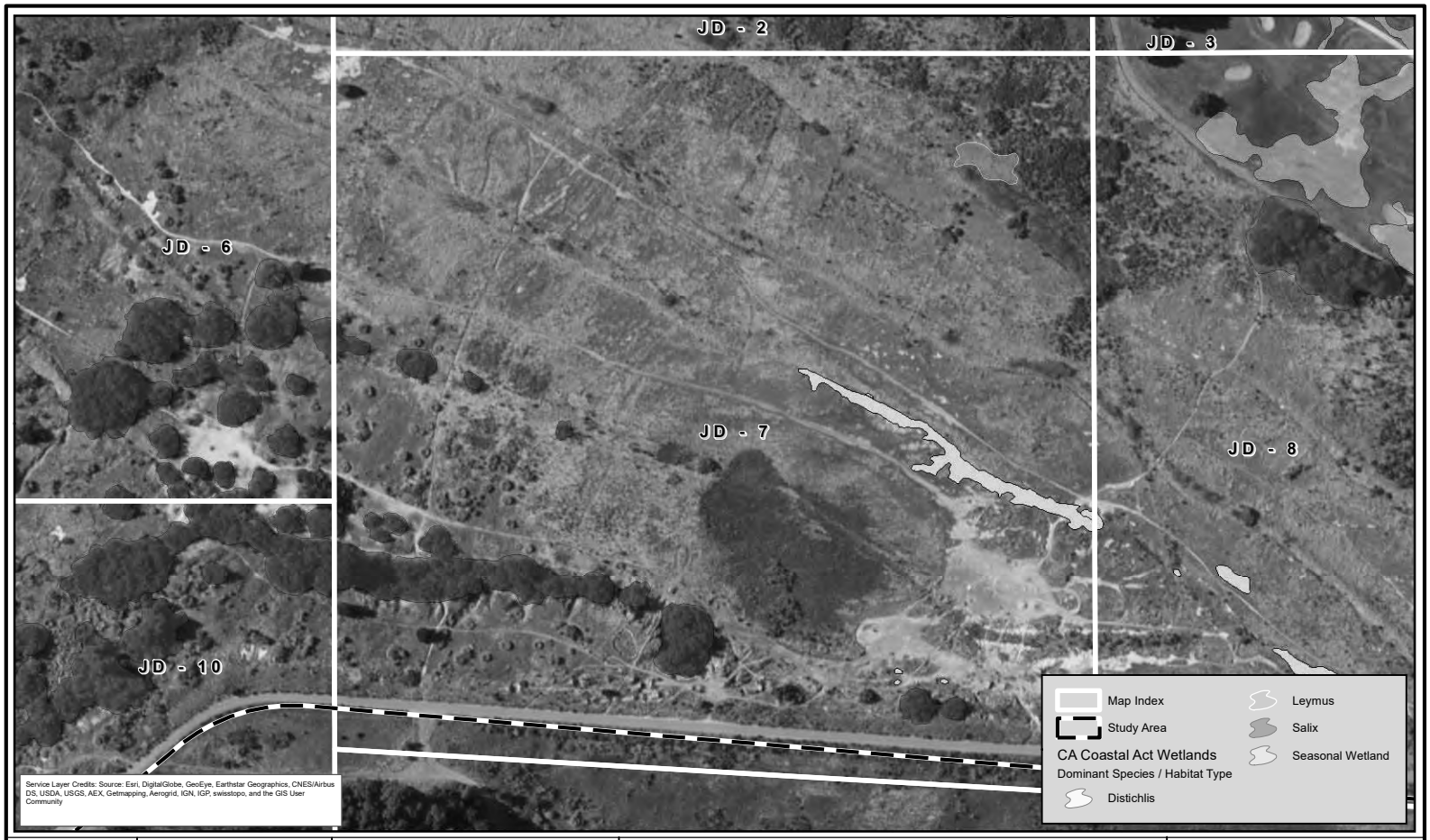
University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 6 (b)

Jurisdictional Determination



sage institute
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Source(s): Sage Institute Field Notes, 2015.

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University of California at Santa Barbara

North Campus Open Space Restoration Project

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Jurisdictional Determination

sage institute December 3, 2015	Source(s): Sage Institute Field Notes, 2015.	1:1,360 0 100 200 Feet	**University of California at Santa Barbara** North Campus Open Space Restoration Project	**JD - 8 (b)** **Jurisdictional Determination**

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 9 (b)

Jurisdictional Determination

sage institute
December 3, 2015

Source(s): Sage Institute Field Notes, 2015.

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University of California at Santa Barbara

North Campus Open Space Restoration Project

JD - 10 (b)

Jurisdictional Determination

APPENDIX B

WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCSB North Campus Open Space Restoration Prj City/County: Santa Barbara County Sampling Date: 9/22/2015

Applicant/Owner: Univerity of California Santa Barbara State: CA Sampling Point: DP-1

Investigator(s): David Wolff, Jason Kirschenstein Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): level lowlands Slope (%): 0-3%

Subregion (LRR): LRRC Lat: 34.42205 Long: -119.872489 Datum: NAD 83

Soil Map Unit Name: Aquents, fill areas (AC) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Former golf course constructed with fill material, closed in 2013, still periodically sprinkler irrigated and mowed. Data point characterizes Distichlis spicata/Plantago coronopus dominant area near drainage channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 500 sq ft)			
1. Distichlis spicata	90%	yes	FAC
2. Plantago coronopus	20%	yes	FACW
3. Lolium perenne	10%	no	FAC
4. Bromus diandrus	5%	no	UPL
5. Foeniculum vulgare	5%	no	UPL
6.			
7.			
8.			
	130% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Dense mostly Distichlis spicata patch in former fairway rough.

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3"								Root Zone
3"-10"	10YR 4/3	90%	NONE				clay/loam	
10"-12"	10YR 5/6	75%	NONE				clay/loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology in level former golf course fairway rough. Periodically sprinkler irrigated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCSB North Campus Open Space Restoration Prj City/County: Santa Barbara County Sampling Date: 9/22/2015

Applicant/Owner: Univerity of California Santa Barbara State: CA Sampling Point: DP-2

Investigator(s): David Wolff, Jason Kirschenstein Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): level lowlands Slope (%): 0-3%

Subregion (LRR): LRRC Lat: 34.421776 Long: -119.873066 Datum: NAD 83

Soil Map Unit Name: Aquents, fill areas (AC) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Former golf course constructed with fill material, closed in 2013, still periodically irrigated and mowed.
Data point characterizes Distichlis spicata/Frankenia salina dominant former fairway area near drainage channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 500 sq ft)			
1. Distichlis spicata	50%	yes	FAC
2. Frankenia salina	30%	yes	FACW
3. Lolium perenne	20%	yes	FAC
4. Atriplex lentiformis	10%	no	FAC
5. Rumex crispus	5%	no	FAC
6.			
7.			
8.			
	115% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Dense mostly Distichlis spicata and Frankenia salina patch in former fairway.

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"								Root Zone
4"-10"	10YR 2/2	90%	NONE				clay	
10"-15"	10YR 2/2	75%	NONE				clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Chroma of 2 with no redox features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology in level former golf course fairway. Periodically sprinkler irrigated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCSB North Campus Open Space Restoration Prj City/County: Santa Barbara County Sampling Date: 9/22/2015

Applicant/Owner: Univerity of California Santa Barbara State: CA Sampling Point: DP-3

Investigator(s): David Wolff, Jason Kirschenstein Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): level lowlands Slope (%): 0-3%

Subregion (LRR): LRRC Lat: 34.421776 Long: -119.873066 Datum: NAD 83

Soil Map Unit Name: Aquents, fill areas (AC) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Former golf course constructed with fill material, closed in 2013, still periodically irrigated and mowed.
Data point characterizes Plantago coronopus dominant former fairway.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 500 sq ft)			
1. Plantago coronopus	90%	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Patch of Plantago coronopus in former fairway.

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3"								Root Zone
3"-8"	10YR 2/2	90%	NONE				clay	
8"-12"	10YR 2/2	90%	NONE				clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Chroma of 2 with no redox features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology in level former golf course fairway. Periodically sprinkler irrigated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCSB North Campus Open Space Restoration Prj City/County: Santa Barbara County Sampling Date: 9/22/2015

Applicant/Owner: Univerity of California Santa Barbara State: CA Sampling Point: DP-4

Investigator(s): David Wolff, Jason Kirschenstein Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): level lowlands Slope (%): 0-3%

Subregion (LRR): LRRC Lat: 34.421374 Long: -119.872896 Datum: NAD 83

Soil Map Unit Name: Aquents, fill areas (AC) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Former golf course constructed with fill material, closed in 2013, still periodically sprinkler irrigated and mowed. Data point characterizes Distichlis spicata dominant area on low flat of former fairway rough along drainage channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 500 sq ft)			
1. Distichlis spicata	100%	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Dense Distichlis spicata patch in former fairway rough.

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3"								Root Zone
3"-8"	10YR 4/2	95%	5YR 4/6	5%	C	M	clay/loam	
8"-12"	10YR 4/2	95%	5YR 4/6	5%	C	M	clay/loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Matrix value of 4 with redox features does not meet hydric soil F6 criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology in level former golf course fairway rough. Periodically sprinkler irrigated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCSB North Campus Open Space Restoration Prj City/County: Santa Barbara County Sampling Date: 9/22/2015

Applicant/Owner: Univerity of California Santa Barbara State: CA Sampling Point: DP-5

Investigator(s): David Wolff, Jason Kirschenstein Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): level lowlands Slope (%): 0-3%

Subregion (LRR): LRRC Lat: 34.420305 Long: -119.875256 Datum: NAD 83

Soil Map Unit Name: Aquents, fill areas (AC) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Former golf course constructed with fill material, closed in 2013, still periodically sprinkler irrigated and mowed.
Data point characterizes Distichlis spicata and Sarcocornia pacifica dominant area on low flat of former fairway along drainage channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 500 sq ft)			
1. Distichlis spicata	80%	yes	FAC
2. Sarcocornia pacifica	20%	yes	OBL
3. Atriplex semibaccata	10%	no	FAC
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Dense Distichlis spicata patch with spreading Sarcocornia pacifica in former fairway .

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2"								Root Zone
2"-8"	10YR 4/2	80%	2.5Y 3/6	20%	C	M	clay	deep cracks to 10"
8"-12"	2.5Y 5/6	80%	5YR 5/8	20%	C	M	clay	deep cracks to 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Matrix value of 4 & 5 with redox features does not meet hydric soil F6 criteria. Compacted fill material with long term irrigation likely produced redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology in level former golf course fairway. Periodically sprinkler irrigated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCSB North Campus Open Space Restoration Prj City/County: Santa Barbara County Sampling Date: 11/20/2015

Applicant/Owner: Univerity of California Santa Barbara State: CA Sampling Point: DP-6

Investigator(s): David Wolff, Jason Kirschenstein Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): level lowlands Slope (%): 0-3%

Subregion (LRR): LRRC Lat: 34.420466 Long: -119.875149 Datum: NAD 83

Soil Map Unit Name: Aquents, fill areas (AC) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Former golf course constructed with fill material, closed in 2013, still periodically sprinkler irrigated and mowed. Data point characterizes dense Distichlis spicata dominant area on former fairway.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 500 sq ft)			
1. Distichlis spicata	100%	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Dense Distichlis spicata patch in former fairway.

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6"	2.5Y 3/1	100%	NONE				clay/loam	Root Zone
6"-10"	2.5Y 5/3	80%	5Y 4/6	20%	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Matrix value of 5 with redox features does not meet hydric soil F6 criteria. Compacted fill material with long term irrigation likely produced redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology in level former golf course fairway. Periodically sprinkler irrigated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCSB North Campus Open Space Restoration Prj City/County: Santa Barbara County Sampling Date: 11/20/2015

Applicant/Owner: Univerity of California Santa Barbara State: CA Sampling Point: DP-7

Investigator(s): David Wolff, Jason Kirschenstein Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): level lowlands Slope (%): 0-3%

Subregion (LRR): LRRC Lat: 34.420866 Long: -119.877412 Datum: NAD 83

Soil Map Unit Name: Aquents, fill areas (AC) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Former golf course constructed with fill material, closed in 2013, still periodically sprinkler irrigated and mowed. Data point characterizes patch of Polygonum aviculare dominant area on former fairway.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 500 sq ft)			
1. Polygonum aviculare	80%	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20% % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Polygonum aviculare patch in former fairway.

SOIL

Sampling Point: DP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3"								Root Zone
3"-6"	2.5Y 3/3	100%	NONE				sandy clay	blocky
6"-12"	2.5Y 3/2	100%	NONE				sandy clay	blocky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology in level former golf course fairway. Periodically sprinkler irrigated.