

NOTICE OF IMPENDING DEVELOPMENT

10-2

A Notice of Impending Development (NOID) provides notice to the public and the California Coastal Commission of UC Santa Cruz' intention to undertake a development project at its Marine Science Campus. In order for a project to be implemented, it must be contemplated by and within the parameters of the Marine Science Campus Coastal Long Range Development Plan (CLRDP). The CLRDP is available at UCSC's McHenry Library, the Santa Cruz Public Library and at: <http://ppc.ucsc.edu/cp/projects/11407>

The California Coastal Commission will review the project that is the subject of this NOID and determine if it is consistent with the CLRDP. The California Coastal Commission will provide advanced public notice of the date of the hearing.

Project Summary for NOID 10-2

The project is the Specific Resource Plan Phase 1A located in the Younger Lagoon Natural Reserve (YLR) Terrace Lands. The CLRDP Resource Management Plan (RMP) calls for preparation of a series of Specific Resource Plans (SRPs), to further describe the timing and conduct of specific activities through which RMP goals and objectives will be met, in successive phases.

SRP Phase 1A consists of vegetation management and defines the RMP implementation activities for initial restoration and enhancement of habitats over about one-third of campus natural areas (i.e. areas outside of defined development zones on the Marine Science Campus) during the first seven years of the CLRDP program.

Supporting Information, which includes more details about this project, is available at: <http://ppc.ucsc.edu/cp/projects/11407> A hard copy is available for review at UC Santa Cruz Office of Physical Planning and Construction, 1156 High Street, Barn G, Santa Cruz, CA 95064

University Approval
see CLRDP 8.1.4 (5)

Date **July 27, 2010**

NOID Posting
see CLRDP 8.2.4

Date **July 30, 2010**

Environmental Compliance (CEQA/NEPA)
see CLRDP 8.1.4 (5)

Date **July 27, 2010**

X CEQA CLRDP EIR Addendum
CEQA document

NA NEPA _____
NEPA document

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Supporting Information

see CLRDP 8.2.5

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(this section used if Technical Reports are extensive)

1. Project Report

1a. NOID 10-2 Project Description

The 2008 Coastal Long Range Development Plan (CLRDP) for the University of California, Santa Cruz's (UCSC's) Marine Science Campus (MSC) includes a Resource Management Plan (RMP) that sets goals and objectives for habitat restoration and enhancement in the areas of the Marine Science Campus that are protected from development. The RMP calls for preparation of a series of Specific Resource Plans (SRPs), to further describe the timing and conduct of specific activities through which RMP goals and objectives will be met, in successive phases, during the term of the CLRDP.

The SRP defines the RMP implementation activities for initial restoration and enhancement of habitats over about one-third of campus natural areas (i.e. areas outside of defined development zones on the Marine Science Campus) during the first seven years of the CLRDP program. Phase 1 is divided into two sub-phases. Phase 1A consists of removal of invasive non-native plants and hand planting to improve the habitat mosaic over an area of about 16 acres within the Younger Lagoon Reserve Terrace Lands (Figure 1, below). Phase 1B will propose minor hydrologic modifications to improve wetland functioning and enhance plant and wildlife habitat in wetlands W1 and W2. Phase 1A is proposed for immediate implementation. Phase 1B wetland work will be subject to Clean Water Act and other permitting, and related agency consultation regarding potential effects to California red-legged frogs.

Background: Relationship between the CLRDP RMP and SRP Phase 1

Younger Lagoon Natural Reserve (YLR) was established in 1987, as one of the 36 reserves that make up the University of California Natural Reserve System of protected natural lands available for university-level instruction, research, and public outreach. The original reserve consisted of approximately 25 acres encompassing the lagoon itself and the upland habitat on the surrounding slopes. An additional 47 acres of natural areas outside of the development zones on the Marine Science Campus were incorporated into YLR in July 2008, bringing the size of the reserve to approximately 72 acres. These natural areas added to YLR are collectively referred to as the Terrace Lands. The CLRDP Resource Management Plan (RMP) outlines parameters for the restoration, enhancement, and management of biological and open space resources on the Terrace Lands. Conceptually, the RMP provides the initial framework for planned habitat improvements. The RMP will be implemented through development and execution of a series of Specific Resource Plans, developed under the guidance of a Scientific Advisory Committee (SAC). The RMP organizes restoration and enhancement efforts into two seven-year phases and one six-year phase. Each phase encompasses restoration and enhancement of the natural habitat on approximately one-third of reserve on the Terrace Lands. The SRPs, through which habitat restoration and enhancement are to be carried out, are to be designed to meet the goals and performance standards set forth in the RMP; however, each SRP may adapt these goals and performance standards to address the physical and ecological conditions existing at the time the program is implemented, and as appropriate to the then-current understandings of biological and ecological processes, and approaches to habitat re-vegetation, restoration, and enhancement. With approximately 47 acres outside of the development zone to be restored over the next 20 years, approximately 16 acres—or about one-third of the area overall—will be restored during each of the three SRP phases. SRP Phase 1 addresses the first seven-year phase of RMP implementation. In the concluding year of the first 7-year phase of restoration, a second SRP will be written to direct Phase 2 of the restoration effort (years 7-14) and, during year 14, the final SRP will be written for Phase 3 (years 14-21).

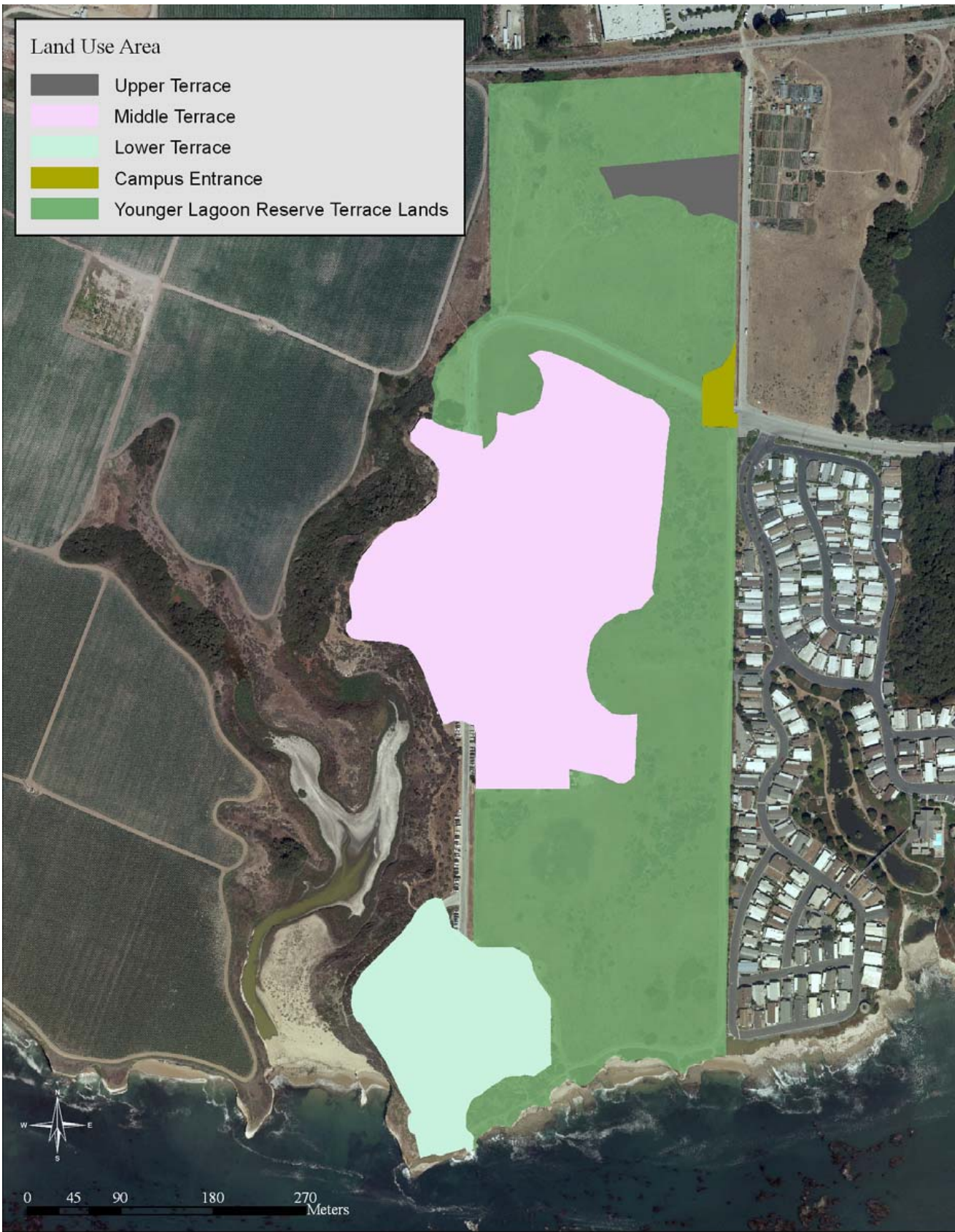


Figure 1. Campus Development Zones and YLR Terrace Lands.

Project Objectives

The goal of restoration efforts on the Terrace Lands is to create and enhance a mosaic of coastal habitats. Such a mosaic provides substantial ecosystem services, including the preservation and enhancement of biodiversity and provision of habitat for special status species. These habitats include coastal bluff, seasonal wetlands, and forested wetlands. Additionally, because the project site is a UC Natural Reserve, restoration efforts focused on native flora and fauna will provide research opportunities to guide future restoration in similar habitats. Research and educational uses will offer unique opportunities for scientists, students, and the public to observe and participate in restoration projects; thus, functioning as outdoor classroom and living laboratory. The overarching objective of the proposed SRP Phase 1 is to meet the CLRDP RMP habitat restoration and enhancement objectives for one-third of the Terrace Lands. The SRP also includes the following specific objectives:

- 1) In coyote brush scrub-grassland areas, increase native plant species richness and percent cover and decrease non-native plant cover.
- 2) In non-native grassland areas, increase native grass species and decrease non-native plant cover.
- 3) In coastal bluff habitat, increase native plant species richness and percent cover and decrease non-native plant cover.
- 4) Within the central areas of wetlands W4 and W5 (delineated in the CLRDP RMP), increase native plant species richness and percent cover and decrease non-native plant cover.
- 5) In wetland buffers, increase native plant species richness and percent cover and decrease non-native plant cover.
- 6) Manage the hydrology of wetlands W1 and W2 to increase the cover of native wetland plant species, potentially enhance breeding habitat for amphibians, maintain raptor foraging habitat, improve the quality of water flowing to YLR, and create a continuous north-south area for wildlife movement to YLR.
- 7) Control priority-one weeds (non-native invasive species) throughout the Terrace Lands.

Phase 1A of the SRP focuses on those goals related to removal of non-native plants and plantings to improve native habitats, but would not include topographic or hydrological modifications to improve wetland functioning. These aspects of the Phase 1 plan would be addressed by implementation of Phase 1B, which would be subject to subsequent approvals.

Project Description

SRP Phase 1A will focus on enhancement of five habitat areas within the Terrace Lands: coyote-brush scrub-grassland, grassland, coastal bluff, wetland willow, and wetland buffer areas (Figures 2 and 3); enhancement and protection of vegetation in other natural areas of the Terrace Lands will also take place as opportunities arise. Phase 1A also will include hand planting in central wetland habitat in wetlands W4 and W5 (Figure 3) as well as control and removal of Priority 1 weeds throughout the Terrace Lands. The following sections describe the proposed activities within each area that would take place during SRP Phase 1A and the envisioned SRP Phase 1B.

SRP Phase 1A

Coyote Brush Scrub-Grassland Areas

During Phase 1A coyote brush scrub-grassland will be protected and enhanced, over the approximately 11 acres where coyote brush is already patchily distributed (Figure 2). Vegetation in

these areas currently is dominated by non-native grasses and coyote brush. The enhancement efforts will focus on filling in grassy interstitial spaces between existing coyote brush plants and patches in the middle and lower terrace with coyote brush and other shrub species. Native grasses will also be planted to create patches of native grassland within the Coyote Brush Scrub-Grassland areas. The SRP does not propose any changes in the topography and/or hydrology of these areas.

Grasslands

Phase 1A would include restoration of native grassland throughout the Terrace Lands, but would focus primarily on restoration of native grasslands in wetland buffer areas. Native grasses would be planted in relatively dense patches throughout approximately 2 acres of wetland buffers around wetlands W4 and W5 as well as throughout other areas of the Lower Terrace. The intent is to increase coverage of native grass species and decrease non-native plant cover. It is anticipated that native shrubs also will scatter throughout these areas through natural recruitment. SRP Phase 1 does not propose any changes in topography and/or hydrology in these areas.

Coastal Bluff Expansion

Although ongoing weed abatement activities have reduced invasive species along the coastal bluff area, vegetation within this region of the Terrace Lands is dominated by ice plant and non-native grasses. The coastal bluff scrub area currently covers approximately 1.5 acres. SRP Phase 1A restoration within coastal bluff habitat would focus on increasing native plant species richness and percent cover and decreasing non-native plant cover within the coastal bluff scrub, and increasing the width of this area, from bluff edge, to approximately 100 feet inland. SRP Phase 1A would not alter topography and/or hydrology in these areas. It is anticipated that improvements to an existing overlook area on the coastal bluff--a separate project that would implement a CLRDP requirement—would be constructed early in SRP Phase 1.

Wetland Willow

The proposed wetland willow restoration area is an approximately 1-acre area at the top of the eastern arm of Younger Lagoon (Figures 2 and 3) that encompasses Wetland W6 and its buffer. This area is currently dominated by non-native grasses and willow. Under the proposed SRP Phase 1A, native willow, grasses, and shrubs would be hand planted in these areas.

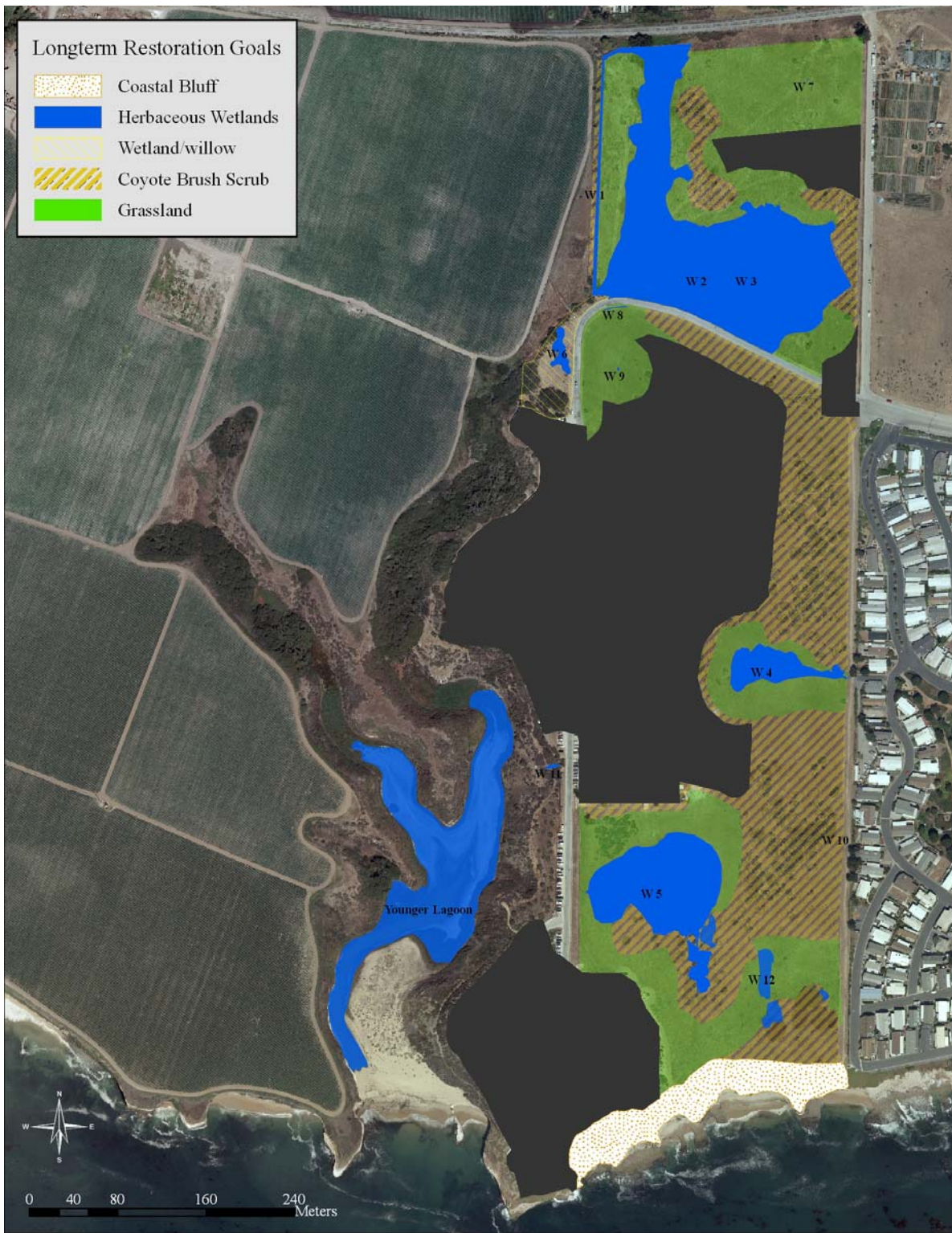


Figure 2. Phase 1A Primary Restoration Areas



Figure 3. Younger Lagoon Reserve Wetlands and Wetland Buffers

Wetland Buffers

Wetland buffers (Figure 3) represent prescribed distances from wetland edges (100 ft for all wetlands with the exception of W5, which has a 150 ft buffer), within which development activity would not occur. During SRP Phase 1A, primary restoration efforts in wetland buffers would focus on approximately 1 acre of buffer area in buffers W4 and W5; however, other buffer areas also may be planted. The wetland buffer areas are currently dominated primarily by non-native grasses, coyote brush, Douglas' baccharis, and willow. Soil conditions within and among wetland buffer areas differ greatly and thus significantly influence the potential plant species mix, which would vary from wetland to wetland. Restoration efforts in wetland buffers would focus on increasing native plant species richness and percent cover and decreasing non-native plant cover, adhering to interim and long-term goals of the RMP for restoration of ruderal, coyote brush scrub-grassland, and native grassland. In order to achieve the goal of "insulating" wetland habitat from physical and visual noise and intrusion by people, shrubs will be planted near the outer edge of the wetland buffer areas where appropriate soil conditions exist. No changes in topography and/or hydrology in the wetland buffers are proposed.

Priority One Weed Removal

During SRP Phase 1A, all Priority 1 weeds (Table 1) would be controlled as they are detected throughout the Terrace Lands. The proposed SRP Phase 1 assigns Priority 1 weed status to exotic (non-native) plants that are large in stature, slow-spreading, and capable of invading and out-competing native plants in established plant communities. On the MSC these include Jubata grass, Monterey cypress, cape ivy, panic veldgrass, fennel, French broom, Harding grass, Monterey pine, and Himalayan blackberry. Discrete patches and scattered individuals of Priority 1 weeds are located throughout YLR Terrace Lands and MSC. Medium- and low-priority weeds will be controlled on an as needed basis until active restoration projects are taking place at a specific site.

Removal techniques for Priority 1 weeds may include hand pulling/ mechanical control, winching, clipping / weed whacking, flaming, solarization by laying down black agricultural plastic, burning, grazing, mowing, and herbicide application. Mature Monterey cypress and Monterey pine would be controlled by cutting the above-ground material from the root. Seedlings would be controlled by hand pulling and/or digging. When hand removal is employed, soil may be raked after removal of above-ground material to expose and remove any remaining roots or stolons. All herbicide application would follow California Department of Pesticide Regulation (CaDPR) regulations and would be done by a CaDPR qualified applicator. Herbicides would be chosen based on the target weed and surrounding habitat (e.g. species-specific targeted applications). Only registered aquatic herbicides would be used in wetland areas. Due to their potential to re-invade, all Priority 1 weeds with viable propagules would either be solarized and composted on site or bagged after removal and disposed of offsite. Some Priority 1 weed control activities would be ongoing throughout the year. Other activities would be restricted to the winter and spring months. Exact timing would be dependent on soil moisture conditions and seed-set.

Table 1. Known Non-Native Weeds on YLR Terrace Lands and Adjacent Lands

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Blackwood acacia	<i>Acacia melanoxylon</i>	W
Everblooming acacia	<i>Acacia retinodes</i>	W

Table 1. Known Non-Native Weeds on YLR Terrace Lands and Adjacent Lands

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Crofton weed	<i>Ageratina adenophora</i>	W
European beachgrass	<i>Ammophila arenaria</i>	W
Giant reed	<i>Arundo donax</i>	W
Mediterranean Linseed	<i>Bellardia trixago</i>	W
Portuguese Broom	<i>Cytisus multiflorus</i>	W
Scotch broom	<i>Cytisus scoparius</i>	W
Purple awned wallaby grass	<i>Danthonia pilosa</i>	W
Pepperweed	<i>Lepidium latifolium</i>	W
Yellow parentucellia	<i>Parentucellia viscosa</i>	W
Fountain grass	<i>Pennisetum setaceum</i>	W
Spanish broom	<i>Spartium junceum</i>	W
Ice plant	<i>Carpobrotus edulis</i>	1
Jubata grass	<i>Cortaderia jubata</i>	1
Monterey cypress	<i>Cupressus macrocarpa</i>	1
Cape ivy	<i>Delairea odorata</i>	1
Panic veldgrass	<i>Ehrharta erecta</i>	1
Fennel	<i>Foeniculum vulgare</i>	1
French broom	<i>Genista monspessulana</i>	1
Harding grass	<i>Phalaris aquatica</i>	1
Monterey pine	<i>Pinus radiata</i>	1
Himalayan blackberry	<i>Rubus discolor</i>	1
Wild oat	<i>Avena barbata</i>	2
Oat	<i>Avena fatua</i>	2
Common mustard	<i>Brassica rapa</i>	2
Rescue grass	<i>Bromus catharticus</i>	2
Ripgut brome	<i>Bromus diandrus</i>	2
Soft chess	<i>Bromus hordeaceus</i>	2
Italian thistle	<i>Carduus pycnocephalus</i>	2
Bull thistle	<i>Cirsium vulgare</i>	2
Bermuda grass	<i>Cynodon dactylon</i>	2
Poison hemlock	<i>Conium maculatum</i>	2
Black mustard	<i>Hirschfeldia incana</i>	2
Velvet grass	<i>Holcus lanatus</i>	2
Farmer's foxtail	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	2
Prickly lettuce	<i>Lactuca serriola</i>	2

Table 1. Known Non-Native Weeds on YLR Terrace Lands and Adjacent Lands

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Wild lettuce	<i>Lactuca virosa</i>	2
Italian ryegrass	<i>Lolium multiflorum</i>	2
Perennial ryegrass	<i>Lolium perenne</i>	2
Mallow	<i>Malva parviflora</i>	2
Sourgrass	<i>Oxalis pes-caprae</i>	2
Bristly ox-tongue	<i>Picris echioides</i>	2
Rabbitsfoot grass	<i>Polypogon monspeliensis</i>	2
Wild radish	<i>Raphanus sativus</i>	2
Curly dock	<i>Rumex crispus</i>	2
Prickly sow thistle	<i>Sonchus asper</i>	2
Sow thistle	<i>Sonchus oleraceus</i>	2
Scarlet pimpernel	<i>Anagallis arvensis</i>	3
Pineapple weed	<i>Chamomilla suaveolens</i>	3
Lambs quarters	<i>Chenopodium album</i>	3
Nettle-leaved goosefoot	<i>Chenopodium murale</i>	3
Brass buttons	<i>Cotula coronopifolia</i>	3
Filaree	<i>Erodium moschatum</i>	3
Cut-leaved geranium	<i>Geranium dissectum</i>	3
Rough cat's ear	<i>Hypochaeris radicata</i>	3
Loosestrife	<i>Lythrum hyssopifolium</i>	3
Bur clover	<i>Medicago polymorpha</i>	3
Cut-leaved plantain	<i>Plantago coronopus</i>	3
English plantain	<i>Plantago lanceolata</i>	3
Annual bluegrass	<i>Poa annua</i>	3
Common knotweed	<i>Polygonum arenastrum</i>	3
Sheep sorrel	<i>Rumex acetosella</i>	3
Common groundsel	<i>Senecio vulgaris</i>	3
Chickweed	<i>Stellaria media</i>	3
Rattail fescue	<i>Vulpia myuros</i>	3

Notes: *Priority rating:

- W. Watch List. These weeds are currently undetected at YLR Terrace Lands but are known to exist on nearby lands. Reserve staff will actively patrol for these weeds and eliminate them as soon as they are detected as part of YLR's Early Detection Rapid Response (EDRR) program (outlined in SRP 3).
1. High priority. These weeds are capable of invading and out-competing native plants in established plant communities. They are typically large stature, slow spreading perennial or biennials. Effective removal techniques for these weeds are generally well documented, and reserve staff will actively work to eliminate these weeds from YLR Terrace Lands. Once eliminated, on-going monitoring for reemergence of these weeds will take place in conjunction with patrols for Watch List weeds.

2. Medium priority. These weeds are mostly biennial or annual and are ubiquitous on YLR Terrace Lands. They are typically smaller in stature than Priority 1 weeds and more difficult to control. Weed control efforts for Priority 2 weeds will take place in conjunction with active restoration projects (e.g. planting), but P2 weeds are not expected to be eliminated from YLR Terrace Lands.
3. Low priority. These weeds are mostly annuals and are ubiquitous on YLR Terrace Lands. They are typically smaller in stature than Priority 1 weeds and more difficult to control. While many can effectively compete with native plants once they are established, they typically do not aggressively push out native plants. Most are commonly associated with native and non-native grasses and forbs in grasslands. Incidental weed control efforts for Priority 3 weeds may take place in conjunction with active restoration projects (e.g. planting), but P3 weeds are not expected to be eliminated from YLR Terrace Lands.

Source: Modified from John Gilcrest and Associates and Environmental Hydrology 1998.

Planting

Native plantings will be used throughout the SRP Phase 1 area, during Phase 1, to replace non-natives that are removed, improve plant cover as appropriate, and enhance native habitats. The proposed planting palette is made up exclusively of native taxa that are appropriate to the habitat and region. Seed and/or vegetative propagules would be obtained from local natural habitats so as to protect the genetic makeup of natural populations and increase the probability of successful establishment. Horticultural varieties will not be used.

Planting density will be approximately 12 to 36 inches (30 to 90 cm) on center, depending on species. Smaller stature plants will be grouped and spaced closer together, while larger stature plants would be spaced further apart. In general, plants will be placed in non-linear arrangements to mimic plant distribution patterns observed in nature. All planting will be done by hand and ground disturbance would be limited to individual holes for the plants. Supplies will be brought to each area using a pickup truck, gas powered mule, or by hand. Motor vehicle use will be limited primarily on the existing perimeter trail and to days when the soil is dry. Planting will begin after the first winter rains.

Seeds will be collected from local sources and grown by UCSC staff and students at the UCSC Arboretum, UCSC Teaching Greenhouses, YLR, or by local restoration contractors.

Erosion control

The proposed removal of ice plant, a Priority 1 plant, along the bluff edge will expose bare soil areas temporarily, while new plantings are established. If needed, biodegradable silt fencing will be installed along the bluff edge after ice plant removal, and the new plants will be mulched to control erosion while vegetation is re-established. Because the Terrace Lands are essentially flat, and the restoration efforts will entail minimal ground disturbance, erosion is not likely to be a concern elsewhere in the area. However, Reserve staff will visually inspect all areas for bare ground following planting or weeding efforts and after storm events, and will install erosion control materials such as wood-chip mulch, jute netting, or other similar materials, as needed to prevent erosion.

Irrigation

Ideally, plant installation will commence after the first winter rain and end well before the rains stop, ensuring that plants are naturally watered in and established before the summer dry period. However, if observations indicate that supplemental irrigation is needed, plants will be watered using one or all of the following methods: application using a water truck, hose, by hand, and/or overhead sprinkling. Water will be obtained from existing MSC infrastructure. Supplemental irrigation is likely to be needed only in the summer and fall months in the first year after planting. Because the soil generally is dry during those months, the potential for disturbance, damage, and erosion as the result of water vehicle traffic is low. If vehicle (water truck) application is used, vehicles will be restricted to the perimeter of the terrace, along the paved road and a fire break maintained by the campus. If needed,

temporary drip hoses and sprinklers will be installed above ground by hand and run off of existing water lines. All irrigation materials will be removed as soon as the vegetation is established.

Interpretive and Protective Signage

Signage will be placed throughout the Terrace Lands during Phase 1 to interpret restoration projects and research to the public. Signs or minimal low fencing also could be installed along active restoration areas adjacent to public trails to protect new plantings. All signage and fencing will be designed to comply with CLRDP design standards (CLRDP, Chapter 6) to avoid visual impacts while also providing the maximal public access consistent with restoration.

Research Activities

SRP Phase 1 also will include manipulative experiments focused on evaluating various restoration strategies and techniques (as described in SRP Phase 1, p 8). The objective of these experiments will be to identify the most effective strategies for habitat restoration that meets the goals of the RMP.

Remediation (Plant Maintenance and Replacement)

It is anticipated that initial plant mortality will likely be in the 10% to 40% range due to wildlife browsing, desiccation, and/or accidental trampling (by volunteers during planting and monitoring). Plants will be installed at relatively high densities to provide an allowance for plant mortality. If mortality is lower than anticipated, plants will be thinned as necessary to ensure successful growth and reproduction and future planting densities will be adjusted. If a particular planting effort fails, plants will be replanted that season, or the following year if failure occurs after the planting season.

Monitoring Program

The proposed SRP Phase 1 includes a monitoring program to evaluate whether success criteria for native plant cover and richness are being met. Hydrological monitoring may include monitoring of water levels in each major wetland, mapping the area with water at the ground surface, collecting soil samples from the wetlands, and collecting rainfall data. In addition, spring season vegetation monitoring will be conducted in coyote brush shrub-grassland, grassland, coastal bluff, willow riparian and ruderal areas in years 1, 4 and 7; and ten permanent photo points around the project area will be photomonitored annually. Results from the monitoring efforts will be included in reports that will be submitted by December 31st of each year to UC Santa Cruz, the California Coastal Commission, and the SAC. A final monitoring report will be submitted to the California Coastal Commission at the end of the final monitoring period of Phase 1. If the final report indicates that the project has been unsuccessful in achieving habitat restoration and enhancement in the subject area, in part or in whole, based on the approved success criteria, then the final report shall identify remediation measures to be implemented to compensate for those portions of the original plan that did not meet the approved success criteria.

SRP Phase 1B

As noted above, Phase 1B of the SRP is described here to the extent it has been developed to date. Implementation details will be subject to agency consultation and permitting and likely will vary, at least in some details, from the conceptual outline provided here. The implementation of SRP Phase 1B will be independent of the implementation of Phase 1A, although results of both will be monitored and reported at the end of SRP Phase 1. Due to the uncertainty related to the Phase 1B elements and implementation criteria it will be too speculative to evaluate the environmental effects of Phase 1B implementation at this time.

Topographic Modification to Reconnect Wetlands 1 and 2

Wetland W1 is essentially a drainage ditch, which was excavated sometime during the agricultural use of the plot to diminish the extent of natural seasonal inundation of active agricultural fields. The ditch is fed by a culvert under the railroad that defines the northern end of the Terrace Area of YLR at the upstream end of the ditch, and terminates at a culvert structure just north of the MSC entry road. Wetland W2, adjacent to the east of W1 (see Figure 3, above) and separated from W1 also is supplied by water entering the site through the railroad culvert, but is much more extensive than W1 and is not defined by artificial berms.

The primary focus of SRP Phase 1B will be work in the wetlands W1 and W2 to connect the wetlands hydrologically for hydrologic and habitat improvements as required by the RMP. The intent of the proposed alterations is to remediate historical modifications to site hydrologic function that served to drain wetlands on the site (e.g. the existing W1 drainage ditch), but leave intact and improve past modifications that may have increased the historical extent and duration of wetland inundation (e.g. the entry roadway berm at the south end of W1). It is envisioned that the initial modifications to wetlands W1 and W2 will consist of installation of a temporary, removable water control structure in the culvert at the south (downstream) end of W1 and, potentially, installation of earthen berm(s) near the upstream end of W1 to increase flows from W1 into W2 and potentially at other locations throughout W1.

It is anticipated that management of site hydrology will increase the cover of native wetland plant species, maintain raptor foraging habitat, improve water quality of inputs to YLR, create a continuous north-south corridor across the north end of the MSC for wildlife movement to YLR, and promote infiltration and subsurface storage of winter runoff. An increase in water pooled in W1 and W2 may also provide amphibian breeding habitat by creating small open water pools. Reserve staff will implement the diversions incrementally and monitor the effects of the modifications on hydrology and habitat, during SRP Phase 1B, before designing and installing any permanent diversion structures. If the measures described do not provide the anticipated benefits during Phase 1B, additional design and planning for enhancement of these wetlands will occur during SRP Phase 2.

Central Areas of Wetlands 4 and 5

Restoration within the central areas of wetlands 4 and 5 (Figure 3), with a total of 3 acres, will focus on increasing native plant species richness and percent cover and decreasing non-native plant cover. Activities in these areas will include weed control, enhancement of existing native vegetation with small-scale plantings, and collection of seeds and cuttings for propagation. No alternations to topography and/or hydrology in these wetlands are proposed.

1b. CLRDP Consistency Determination

As stated in Policy 1.1 (Development Consistency), “Development shall be deemed consistent with the CLRDP if it is consistent with the provisions of Chapters 5, 6, 7, 8, 9, and Appendices A and B.”

The following is a list of all the Policies, Implementation Measures and Figures found in Chapter 5. Those that apply directly to this NOID are highlighted in black and followed with a comment regarding the project’s consistency. In addition, sections of Chapters 6, 7, 8, 9, and Appendices A and B that also apply to this NOID are referenced with comments.

CHAPTER 5 Long Range Land Use Development Plan

5.1 Application of the Long Range Land Use Development Plan

Policy 1.1 Development Consistency

The University finds the project contemplated under NOID 09-1 to be consistent with the CLRDP.

IM 1.1.1 Figures of Chapter 5.

The project does not involve physical development, but is “development” as defined in Section 8.1.1 and the Coastal Act as a “the removal or harvesting of major vegetation other than for agricultural purposes.” Only the resource protection policies and implementation measures of Chapter 5, and Appendix B apply, and the project is consistent with these elements of the CLRDP..

~~IM 1.1.2 Lease Agreements.~~

~~IM 1.1.3 Federal In-holding and CLRDP.~~

Policy 1.2 University Commitments

The project implements a portion of the Resource Management Plan, one of the commitments identified in Chapter 9. It does not trigger any of the other commitments identified in Chapter 9.

5.2. Land Use

~~Figure 5.1 Building Program~~

~~Figure 5.2 Land Use Diagram~~

~~Figure 5.3 Locational Restrictions for Building Program~~

~~Stable Urban / Rural Boundary~~

Policy 2.1 Maintaining a Stable Urban / Rural Boundary

~~IM 2.1.1 Over sizing of Utility Lines Prohibited.~~

~~IM 2.1.2 Utility Prohibition Zone.~~

Policy 2.2 Strengthening the Urban / Rural Boundary through the Protection of Adjacent Agricultural Resources

~~IM 2.2.1 Setback of Development and Uses from Adjacent Agricultural Use.~~

Policy 2.3 Designing for the Urban Edge

~~IM 2.3.1 Cluster Development.~~

~~IM 2.3.2 Impervious Coverage.~~

~~IM 2.3.3 Windbreak/Screening Trees~~

~~IM 2.3.4 Buildout Planning.~~

~~IM 2.3.5 Interim Weed Abatement Measures for Undeveloped Land Within Development Zones.~~

Short-term and Caretaker Accommodations

Policy 2.4 Short-term and Caretaker Accommodations

~~IM 2.4.1 Short-Term Accommodation Use Restrictions.~~

~~IM 2.4.2 Caretaker Accommodations.~~

~~IM 2.4.3 Use Conversion.~~

Campus Land Uses Limited to Marine / Coastal Research and Education, Resource Protection, and Public Access

Policy 2.5 Ensuring Appropriate Land Uses on the Marine Science Campus

5.3 Natural Resource Protection

Policy 3.1 Protection of the Marine Environment

~~IM 3.1.1 Seawater System.~~

~~IM 3.1.2 Discharge of Drainage/Storm water.~~

Policy 3.2 Protection and Restoration of Habitat Areas

IM 3.2.1 Restoration of Wetlands on the Marine Science Campus.

The project will initiate the restoration work in compliance with IM 3.2.1.

IM 3.2.2 Management of Terrace Wetlands.

The project includes removal of non-native and invasive plants and planting native species in Wetlands W4 and W5, in compliance with IM 3.2.2.

IM 3.2.3 Protection and Enhancement of Wildlife Movement.

This project is likely to increase protection and enhance wildlife movement by increasing cover of native plant species.

IM 3.2.4 Management of Special Status Species Habitat.

The project includes enhancement of wetland and grassland/scrub-grassland habitats in compliance with IM 3.2.4.

~~IM 3.2.5 Protect Habitat Areas From Human Intrusion.~~

IM 3.2.6 Natural Area Management.

The purpose of the project is to restore, enhance and manage natural areas on the campus as high-quality open space and natural habitat area in compliance with IM 3.2.6.

~~IM 3.2.7 Management of Water Quality and Drainage Features.~~

IM 3.2.8 Maintenance and Monitoring of Terrace Habitats.

The project includes a monitoring program to evaluate whether success criteria for native plant cover and richness are being met.

~~IM 3.2.9 Wetland Buffers.~~

IM 3.2.10 Natural Areas Habitat Management.

The project partially implements Phase 1 restoration in compliance with IM 3.2.10. The Phase 1A SRP was developed in compliance with this measure and is consistent with the Resource Management Plan.

IM 3.2.11 CRLF Protection.

In compliance with IM 3.2.11., the project will implement CLRDP EIR Mitigation 4.4-1 to ensure that restoration activities in Phase 1B do not harm of CRLF.

IM 3.2.12 USFWS Consultation Required

Prior to Phase 1B activities, a preconstruction survey for CRLF will be performed by a qualified biologist, approved by the USFWS, and if CRLF are observed, USFWS shall be consulted to determine appropriate actions to avoid impact.

~~IM 3.2.13 Rodenticides.~~

IM 3.2.14 Non-Invasive Native Plant Species Required.

Seed and/or vegetative propagules will be obtained from local natural habitats so as to protect the genetic makeup of natural populations and enhance likelihood of plant survivorship, in compliance with IM 3.2.14.

Policy 3.3 Use and Protection of Coastal Waters and Wetlands

~~IM 3.3.1 Pre-development Evaluation of Wetland Conditions.~~

~~IM 3.3.2 Update CLRDP With Respect to Wetlands.~~

Policy 3.4 Protection of Environmentally Sensitive Areas (ESHAs)

~~IM 3.4.1 Additional Measures to Protect Habitat Areas.~~

~~IM 3.4.2 Noise Intrusion into Terrace ESHA.~~

~~IM 3.4.3 Noise Intrusion into YLR.~~

~~IM 3.4.4 Pre-development Evaluation of ESHA Conditions.~~

~~IM 3.4.5 Update CLRDP With Respect to ESHA.~~

Younger Lagoon Reserve

Policy 3.5 Special Protection for Younger Lagoon Reserve

IM 3.5.1 Protection and Enhancement of YLR Habitats.

The original 25-acre Younger Lagoon Reserve will continue to be protected and enhanced through ongoing weed management, restoration activities and by controlling human access.

~~IM 3.5.2 Protection of Special Status Species in YLR.~~

~~IM 3.5.3 Protection of YLR Resources.~~

~~IM 3.5.4 Development of Monitoring and Maintenance Program.~~

~~IM 3.5.5 Siting of Windbreak/Screening Trees.~~

IM 3.5.6 YLR Manager Consultation.

The Administrative Director of the UCSC Natural Reserves and the Field Manager of the Younger Lagoon Natural Reserve have reviewed the scope of the SRP Phase 1A Project (NOID 10-2) and concur the Project would not result in impacts to the Reserve.

Gage Dayton, Administrative Director, UCSC Natural Reserves

Date

~~IM 3.5.7 Movement Not Visible From YLR. (known post-CLRDP approval as YLNR)~~

~~IM 3.5.8 Protective Measures for YLR in Middle Terrace.~~

Policy 3.6 Public Access to and within YLR

~~IM 3.6.1 Provision of Controlled Access within YLR.~~

~~IM 3.6.2 Visual Access to YLR.~~

~~IM 3.6.3 Public Beach Access within YLR.~~

Coastal Bluffs and Blufftops

Policy 3.7 Protection of Coastal Bluff and Bluff top Areas

~~IM 3.7.1 Bluff Setbacks.~~

IM 3.7.2 Coastal Bluff and Bluff top Area Protection and Enhancement Measures.

The project includes removal of ice plant and planting of native plant species along the bluff edge in compliance with IM 3.7.2.

~~IM 3.7.3 Protecting Existing Development from Coastal Erosion.~~

Agricultural Resources

Policy 3.8 Protection of Adjacent Agricultural Resources

~~IM 3.8.1 Cooperation.~~

~~IM 3.8.2 Agreement to Indemnify and Hold Harmless.~~

Cultural Resources

Policy 3.9 Conservation of Cultural Resources

~~IM 3.9.1 Construction Monitoring.~~

Hazardous Materials Management

Policy 3.10 Hazardous Materials Management

~~IM 3.10.1 Hazardous Materials Management.~~

~~IM 3.10.2 Protective Measures for Laydown Yard.~~

Air Quality and Energy Consumption

Policy 3.11 Energy Efficiency in New Construction

~~IM 3.11.1 Energy Efficiency in New Construction.~~

~~IM 3.11.2 Energy Efficiency in Use.~~

Policy 3.12 Air Quality and Energy Conservation through Land Use and Transportation Controls

~~IM 3.12.1 Air Quality and Energy Conservation through On-Campus Short-Term Accommodations.~~

~~IM 3.12.2 Air Quality and Energy Conservation through Controlling Travel Mode Split.~~

~~IM 3.12.3 Air Quality and Energy Conservation through Parking Control.~~

~~IM 3.12.4 Air Quality and Energy Conservation through Alternative Transportation.~~

~~IM 3.12.5 Air Quality and Energy Conservation through Transportation Demand Management.~~

Natural Resource Protection Analysis

Policy 3.13 Natural Resource Protection Analysis Required

Policy 3.14 Permanent Protection

~~IM 3.14.1 Natural Areas Protection.~~

In 2008, all natural areas outside of the development zones were incorporated into the University of California Natural Reserve System as an integral part of Younger Lagoon Reserve (incorporation documents are included with this NOID under Section 2 – University Approval Documentation).

5.4. Scenic and Visual Qualities

~~Figure 5.4 Development Subareas~~

Policy 4.1 Protection of Scenic Views

~~IM 4.1.1 Location of Development.~~

Policy 4.2 Protection of Scenic Quality

~~IM 4.2.1 Design Standards and Illustrative Campus Build-out Site Plan.~~

~~IM 4.2.2 Alteration of Natural Landforms.~~

~~IM 4.2.3 Building and Other Structure Heights.~~

~~IM 4.2.4 Laboratory Buildings.~~

~~IM 4.2.5 Maximum Building Gross Square Footage.~~

~~IM 4.2.6 Maximum Additional Gross Square Footage in Lower Terrace.~~

~~IM 4.2.7 Construction Materials.~~

~~IM 4.2.8 Building Setbacks.~~

~~IM 4.2.9 Building Length Limitations.~~

~~IM 4.2.10 Placement of Utility Lines Underground.~~

~~IM 4.2.11 Windbreak/Screening Trees.~~

~~IM 4.2.12 Development in Northernmost Portion of Middle Terrace.~~

~~IM 4.2.13 Development Along Edge of Lower Terrace.~~

~~IM 4.2.14 Building Development West of McAllister Way in Lower Terrace.~~

~~IM 4.2.15 Building Development West of McAllister Way in Middle Terrace.~~

~~IM 4.2.16 Building Development Outside of Subareas Prohibited.~~

Policy 4.3 Visual Intrusion and Lighting

~~IM 4.3.1 Visual Intrusion into YLR.~~

~~IM 4.3.2 Visual Intrusion into Terrace ESHA and Other Areas Outside of Development Zones.~~

~~IM 4.3.3 All Lighting.~~

~~IM 4.3.4 Building Lighting.~~

~~IM 4.3.5 Street and Trail Lighting.~~

~~IM 4.3.6 Parking Lot and Maintenance Yard Lighting.~~

~~IM 4.3.7 Sign Lighting.~~

~~IM 4.3.8 Lighting Plan Required.~~

5.5. Circulation and Parking

Figure 5.5 Circulation and Parking Diagram

Auto Circulation

Policy 5.1 Vehicular Access

IM 5.1.1 New Circulation System.

IM 5.1.2 Improve Shaffer Road / Delaware Avenue Intersection

IM 5.1.3 Shaffer Road Improvements.

IM 5.1.4 Access for Wildlife Across Shaffer Road (Upper Wildlife Corridor).

IM 5.1.5 Access for Wildlife Across Shaffer Road (Lower Wildlife Corridor).

IM 5.1.6 Use of Former Access Road.

IM 5.1.7 Emergency Access.

Travel Mode Split

Policy 5.2 Travel Mode Split

IM 5.2.1 Encourage Alternatives to Single-Occupant Vehicle.

IM 5.2.2 Alternatives to the Single-Occupant Vehicle.

Parking

Policy 5.3 Parking for Campus Use and Public Coastal Access

IM 5.3.1 All Campus Users Off-Hour Parking.

IM 5.3.2 Public Coastal Access Parking.

IM 5.3.3 Campus Entrance Public Coastal Access Parking.

IM 5.3.4 Middle Terrace Public Coastal Access Parking.

IM 5.3.5 Lower Terrace Dual Use Parking (Public Coastal Access Parking and Discovery Center Parking).

IM 5.3.6 Lower Terrace Public Coastal Access Parking.

IM 5.3.7 Parking Demand Satisfied On-Campus.

IM 5.3.8 Free and/or Low Cost Public Coastal Access Parking.

Parking Supply

Policy 5.4 Parking Supply

IM 5.4.1 Development of New Parking

IM 5.4.2 Lease Agreements

IM 5.4.3 Distribution and Intensity of Parking

Parking Management

Policy 5.5 Parking Management

IM 5.5.1 Permits Required.

IM 5.5.2 Public Coastal Access Parking.

IM 5.5.3 Carpools and Vanpools.

IM 5.5.4 Parking Management Strategy for Special and/or Temporary Events.

IM 5.5.5 Entrance Kiosk.

IM 5.5.6 Parking Limitation Seaward of Whale Skeleton.

IM 5.5.7 Parking Enforcement.

Pedestrian and Bicycle Facilities

Policy 5.6 Promotion of Bicycle Use and Walking

IM 5.6.1 Sheltered and Secured Bike Parking.

IM 5.6.2 Bike Parking Outside Buildings.

IM 5.6.3 Personal Lockers and Showers.

IM 5.6.4 Coordinated Marketing with City of Santa Cruz.

IM 5.6.5 Crosswalk Design.

IM 5.6.6 Siting Buildings for Ease of Access.

Transit

Policy 5.7 Promotion of Transit Use

IM 5.7.1 Extension of Santa Cruz Municipal Transit District Transit Services.

IM 5.7.2 Expansion of Shuttle Services.

IM 5.7.3 Physical Infrastructure for Transit.

Transportation Demand Management (TDM) Coordination

Policy 5.8 TDM Coordination

IM 5.8.1 Carpool and Vanpool Services.

IM 5.8.2 TDM Coordination.

IM 5.8.3 Transportation Information.

Traffic Impacts on City Streets

Policy 5.9 Impacts Offset

Circulation and Parking Plan

Policy 5.10 Circulation and Parking Plan Required

5.6. Public Access and Recreation

Figure 5.6 Coastal Access and Recreation Diagram

Policy 6.1 Public Access to the Marine Science Campus

IM 6.1.1 Free Public Access for Visitors.

IM 6.1.2 Public Access Parking.

- ~~IM 6.1.3 Public Access Trails.~~
- ~~IM 6.1.4 Public Access Overlooks.~~
- ~~IM 6.1.5 Docent Led Tours and Education Programs for the Public.~~
- ~~IM 6.1.6 Educational Programs for Pre-College Students.~~
- ~~IM 6.1.7 Interpretive Information.~~

Policy 6.2 Management of Public Areas

- ~~IM 6.2.1 Public Use Hours for the Marine Science Campus.~~
- ~~IM 6.2.2 Public Trail Continuity.~~
- ~~IM 6.2.3 Access to Resource Protection Areas.~~
- ~~IM 6.2.4 Access to Resource Protection Buffer Areas.~~
- ~~IM 6.2.5 Access to Coastal Bluffs.~~
- ~~IM 6.2.6 Access to Laboratories and Research Areas.~~
- ~~IM 6.2.7 Carotaker Residence and Lab Security.~~
- ~~IM 6.2.8 Bicycles on the Marine Science Campus.~~
- ~~IM 6.2.9 Domestic Pets.~~
- ~~IM 6.2.10 Public Access Signage.~~
- ~~IM 6.2.11 Off Campus Trail Connectivity.~~
- ~~IM 6.2.12 Maintenance of Existing Public Access.~~
- ~~IM 6.2.13 Public Access to Younger Lagoon Beach.~~

Policy 6.3 Public Access and Recreation Plan Required

5.7. Hydrology and Water Quality

Figure 5.7 Utilities Diagram

Policy 7.1 Productivity and Quality of Coastal Waters

- ~~IM 7.1.1 Management of Storm water and Other Runoff.~~
- ~~IM 7.1.2 Water Quality Standards.~~
- ~~IM 7.1.3 Pre and Post Development Flows.~~
- ~~IM 7.1.4 Pre-Development Drainage Patterns Defined.~~
- ~~IM 7.1.5 Pre-Development Drainage Peak Flow Rates Defined.~~
- ~~IM 7.1.6 Groundwater Recharge.~~
- ~~IM 7.1.7 Seawater System (Seawater Containment)~~
- ~~IM 7.1.8 Irrigation and Use of Chemicals for Landscaping.~~
- ~~IM 7.1.9 Wastewater.~~
- ~~IM 7.1.10 Elements of the Storm water Treatment Train.~~
- ~~IM 7.1.11 Runoff Containment for Laydown Yard and Food Service Washdown Areas.~~
- ~~IM 7.1.12 Location of Treatment Train Components.~~
- ~~IM 7.1.13 Permeable Hardscape.~~
- ~~IM 7.1.14 Ocean Discharge.~~
- ~~IM 7.1.15 Drainage System Interpretive Signs.~~
- ~~IM 7.1.16 Design of Vegetated Storm water Basins.~~
- ~~IM 7.1.17 Designation of Treatment Train.~~

Policy 7.2 Long-Term Maintenance and Monitoring

- ~~IM 7.2.1 Drainage System Monitoring and Maintenance.~~
- ~~IM 7.2.2 Storm water System Natural Features Maintenance.~~
- ~~IM 7.2.3 Drainage System Sampling.~~
- ~~IM 7.2.4 Long Term Maintenance of Storm water System.~~

Policy 7.3 Drainage Discharge Points

- ~~IM 7.3.1 Discharge to Younger Lagoon Reserve.~~
- ~~IM 7.3.2 Discharge Siting and Design.~~

Policy 7.4 Drainage Plan Required

5.8 Utilities

Policy 8.1 Provision of Public Works Facilities

- ~~IM 8.1.1 Sizing of Utilities.~~
- ~~IM 8.1.2 Seawater System.~~

Policy 8.2 Protection of Biological Productivity and Quality of Coastal Waters When Providing Public Works Facilities

- ~~IM 8.2.1 Installation of New Utility Lines and Related Facilities.~~
- ~~IM 8.2.2 Seawater System.~~
- ~~IM 8.2.3 Evaluation of Western Utility Corridor.~~

Policy 8.3 Water Conservation Required

Policy 8.4 Impacts to City Water and Sewer Systems Offset

Policy 8.5 Utility Plan Required

CHAPTER 6 Design Guidelines

- 6.1 ~~Building Design~~
- 6.2 ~~Campus Street Design~~
- 6.3 ~~Parking Design~~
- 6.5 ~~Landscape Design~~
- 6.6 ~~Lighting Design~~
- 6.7 ~~Signage Design~~
- 6.8 ~~Fence / Barrier Design~~

CHAPTER 7 Illustrative Campus Buildout Site Plan and Preliminary Designs

This project will not construct any new buildings, roads or pathways. Low fencing may be installed as to protect new plantings, and will be consistent with the fencing/barrier design guidelines in Section 6.8 of the CLRDP.

CHAPTER 8 Development Procedures

This NOID and the public notification process are submitted in conformance with the requirements of the CLRDP.

CHAPTER 9 Capital Improvement Program

The proposed resource management activities are consistent with the Chapter 9 requirements.

APPENDIX A Resource Management Plan

The proposed project is consistent with the RMP and Younger Lagoon Natural Reserve policies.

APPENDIX B Drainage Concept Plan

The proposed project would create no impervious surface and thus would not affect storm water runoff.

1c. Environmental Compliance Documentation

See Section 3

1d. Technical Reports

See Section 5

1e. Consultation Documentation with other Agencies

Not required for this NOID.

1f. Implementing Mechanisms

See Section 3 – Environmental Compliance Documentation. There are no other implementing mechanisms for the proposed project.

1g. Correspondence Received

No correspondence has been received on the proposed project.

1h. Project Manager

Elizabeth Howard, Field Manager, Younger Lagoon Reserve

2. University Approval Documentation

See attached:

Approval Letter

Chancellor Approval Item

Younger Lagoon Reserve Resolution and Agreement

Campus Provost/Executive Vice Chancellor letter to Dean of Physical and Biological Sciences

3. Environmental Compliance Documentation

See attached: CLRDP EIR Addendum #2

CLRDP EIR: <http://ppc.ucsc.edu/cp/projects/11407>

4. Plans, Specifications, etc.

(this section used if project documentation is large format or extensive)

Not Used

5. Technical Reports

See attached: Specific Resource Plan Phase 1 – June 1, 2010

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

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PHYSICAL PLANNING AND CONSTRUCTION

SANTA CRUZ, CALIFORNIA 95064

July 15, 2010

VICE CHANCELLOR THOMAS VANI
Business and Administrative Services

Re: Project Approval: Specific Resource Plan, Phase 1A, UCSC Marine Science Campus

Dear Tom:

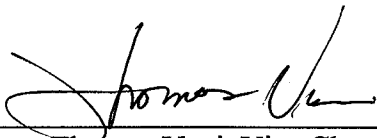
Enclosed for Chancellor Blumenthal's consideration and approval are the following documents, all of which have been prepared in consultation with the Office of the President and the Office of General Counsel:

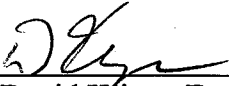
- Item for Action for Chancellor Approval
- Action Item Attachment #1 – CEQA Findings for the Specific Resource Plan Phase 1A Project
- CLRDP EIR (CEQA Findings Exhibit #1)
- CLRDP EIR Addendum #2 (CEQA Findings Exhibit #2)
- Specific Resource Plan, Phase 1 (CEQA Findings Exhibit #3)


I recommend approval of this project, which implements a required element of our Coastal Long Range Development Plan. Physical Planning and Construction staff and I are available to answer any questions that you or Chancellor Blumenthal have. Please return the signed documents to PP&C for appropriate distribution and filing.

Sincerely,

John Barnes, AIA
Interim Campus Architect
Physical Planning & Construction

Concurrence:  7.19.10
 Thomas Vani, Vice Chancellor date

Concurrence:  7/21/10
 David Kliger, Executive Vice Chancellor date

enclosures
 cc: Project files
 S Morgan
 Concurrence:  7/19/10
 Margaret L. Delaney, Vice Chancellor date

July 9, 2010

Drafted by:
Reviewed by:

S. Morgan
K. Drumm
M. O'Keefe

ITEM FOR ACTION

FOR CHANCELLOR APPROVAL

APPROVAL OF SPECIFIC RESOURCE PLAN, PHASE 1A, MARINE SCIENCE CAMPUS, UC SANTA CRUZ

The Interim Campus Architect, UC Santa Cruz Physical Planning and Construction, recommends that, upon review and consideration of the environmental consequences of the proposed Specific Resource Plan, Phase 1A Project as reflected in the attached Environmental Impact Report (EIR) and Addendum #2 for the adopted CLRDP, and in accordance with University Delegation of Authority, the Chancellor of the Santa Cruz campus:

- (1) Consider the CLRDP EIR (SCH #2001112014) and Addendum #2 (Exhibits #1 and #2 to the attached Findings)
- (2) Adopt the Findings set forth in Attachment #1 hereto.
- (2) Approve the Specific Resource Plan Phase 1A Project, as described in Addendum #2 and the Findings.

Background

The Board of Regents of the University of California (The Regents), acting as the Lead Agency, approved the Coastal Long Range Development Plan ("CLRDP") following certification of an EIR (SCH # 2001112014), which included analysis of the CLRDP Resource Management Plan (RMP), in conjunction with its approval of the UC Santa Cruz Marine Science Campus CLRDP, on September 21, 2004. Subsequent to certification of the CLRDP Final EIR, the University prepared Addendum #1 to the Final EIR, which described certain proposed changes to the CLRDP. Following consideration of the Final EIR and Addendum #1, the proposed revisions to the CLRDP were approved by the University on November 29, 2006.

The CLRDP includes Implementation Measure 3.2.10, which requires that the CLRDP be carried out through development and implementation of a series of Specific Resources Plans, consistent with the habitat restoration goals and objectives of the CLRDP RMP. In compliance with Implementation Measure 3.2.10, the UCSC staff and a Scientific Advisory Committee have prepared the first of these Specific Resource Plans, Specific Resource Plan ("SRP") Phase 1 (July 1, 2010), which describes how proposed vegetation management and wetland restoration activities consistent with the RMP would be implemented. For purposes of environmental review, SRP Phase 1 has been divided into two sub-phases. SRP Phase 1A, which is the subject of CLRDP EIR Addendum #2, describes specific activities and mechanisms through which SRP Phase 1 vegetation management for habitat restoration the CLRDP RMP would be implemented during the next seven years, over the first third of natural lands at the Marine Science Campus. SRP Phase 1B proposed plantings within jurisdictional wetland areas and modifications

to wetlands that would be subject to federal and state permitting. SRP Phase 1B methods and footprints may be refined through consultation with state and federal agencies, and will be the subject of a separate, subsequent environmental analysis and approval.

The Proposed Project

The SRP Phase 1A Project consists of vegetation management for habitat restoration on 16 acres of the marine terrace lands ("Terrace Lands") at the Marine Science Campus within the Younger Lagoon Natural Reserve. The project area is part of the 47 acres on the Marine Science Campus that were designated for permanent preservation from future development under the CLRDP land use plan. These 47 acres were incorporated into the Younger Lagoon Natural Reserve in July 2008. The SRP Phase 1A Project, consistent with and implementing the goals set forth in the previously-approved RMP, would focus on enhancement of coyote-brush scrub-grassland, grassland, and coastal bluff scrub expansion habitat areas within the Terrace Lands. Phase 1A also would include control and removal of non-native invasive weeds throughout the Terrace Lands. Habitat enhancement and protection of vegetation in other natural areas of the Terrace Lands, outside of delineated wetlands, also could take place as opportunities arise. The proposed work, including excavation of planting holes, installation of new plantings, and removal of non-natives by cutting, pulling, plastic cover, and selective application of herbicides, would be carried out primarily by hand. Small motorized equipment, such as mowers, saws and sprayers, might be used selectively as needed. Materials could be transported to and from work sites using pickup trucks or other motorized vehicles, but this use would be confined to existing roads and paths, and would occur only when roads are dry.

The proposed SRP Phase 1A initiates implementation of the CLRDP RMP. The proposed implementation activities, their objectives, and their proposed locations are consistent with the activities envisioned under the RMP and analyzed in the CLRDP EIR.

Environmental Impact Summary

Pursuant to State law and University procedures for implementation of the California Environmental Quality Act (CEQA), the environmental impacts of the RMP were analyzed in the certified Environmental Impact Report for the CLRDP. Addendum #2 to the CLRDP EIR further describes implementation of CLRDP Implementation Measure 3.2.10 and assesses whether the specific activities that would be implemented in the first phase of the RMP would result in new environmental impacts or increase the severity of environmental impacts identified in the CLRDP EIR and Addendum #1 thereto. Cumulative impacts and mitigation measures for all campus development proposed in the CLRDP, including the implementation of the RMP, are addressed in the CLRDP EIR and Addendum #1 thereto.

Based on the analysis of the significant environmental effects of the RMP as implemented through SRP Phase 1A, presented in the Draft CLRDP EIR (*Environmental Setting, Impacts, and Mitigation Measures*), CLRDP EIR Addendum #1, California Coastal Commission staff reports prepared for the December 2007 and April 2008 Coastal Commission hearings, and CLRDP EIR Addendum #2, the proposed SRP Phase 1A Project, which incorporates as part of the project mitigation measures identified in the CLRDP EIR, was determined not to result in any significant impacts as reflected in the attached Findings.

Findings

The attached Findings discuss the project's environmental review process, the relation of the project to the UCSC Marine Science Campus CLRDP EIR, cumulative impacts and mitigation measures addressed in the environmental analysis, and conclusions regarding approval of this project in conformance with CEQA.

Approval of Specific Resource Plan, Phase 1A
May 20, 2010

APPROVED



7/27/2010

Chancellor

Date

Attachment: 1, CEQA Findings for the Specific Resource Plan Phase 1A Project

Cc:
Thomas Vani, Vice Chancellor, UCSC BAS
John Barnes, Interim Campus Architect, UCSC PP&C
Charlotte Strem, Interim Director UCOP, PDC

**A RESOLUTION OF THE UNIVERSITY OF CALIFORNIA, UNIVERSITYWIDE
NATURAL RESERVE SYSTEM ADVISORY COMMITTEE ACCEPTING AND
APPROVING THE INCORPORATION OF CERTAIN UC SANTA CRUZ CAMPUS
LANDS INTO THE YOUNGER LAGOON RESERVE**

WHEREAS, the University of California (“UC”) Santa Cruz Campus (“UCSC”) Administration and the UC Santa Cruz Natural Reserve System (“UCSC NRS”) have proposed jointly to incorporate the campus-managed “Natural Areas” of the UCSC Marine Science Campus, as described in the UCSC Coastal Long Range Development Plan approved in December 2007 by the California Coastal Commission, into the Younger Lagoon Reserve, which is a unit of the UC Natural Reserve System; and

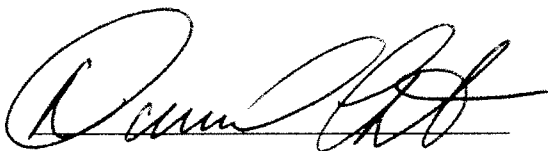
WHEREAS, the Universitywide NRS Advisory Committee (“Advisory Committee”) considered this proposal and expressed its support for the incorporation subject to the execution of a formal agreement between UCSC and UCSC NRS that addresses the points outlined in the summary section of the *“Evaluation of the Incorporation of Marine Science Campus Property in the UCSC Younger Lagoon Natural Reserve,”* which was presented by UCSC NRS Faculty Director Don Croll at the Advisory Committee’s May 24, 2007 meeting; and

WHEREAS, such an agreement has been executed between UCSC and the UCSC NRS, fulfilling the Committee’s condition, and is attached hereto.

NOW THEREFORE, BE IT RESOLVED, by the Advisory Committee, that this Committee accepts and approves the incorporation of the Natural Areas of the UCSC Marine Science Campus, as described in the UCSC Coastal Long Range Development Plan approved in December 2007 by the California Coastal Commission, into the Younger Lagoon Reserve.




IT IS FURTHER RESOLVED, and the Advisory Committee hereby directs UCSC to prepare and submit to the California Coastal Commission an amendment to the approved UCSC Coastal Long Range Development Plan to reflect the revised configuration of Younger Lagoon Reserve to include the incorporated Natural Areas, as required by Implementation Measure 3.14.1 of the approved Coastal Long Range Development Plan.

UNANIMOUSLY PASSED, APPROVED, AND ADOPTED by the Universitywide NRS Advisory Committee, this 2^{4th} day of July, 2008.



Daniel Costa
Chairman
Universitywide NRS Advisory Committee

Legend

-  Current Younger Lagoon Reserve
-  Natural Areas to be incorporated into Reserve
-  Mixed Use Areas



AGREEMENT

July 15, 2008

Relating to the UCSC Marine Science Campus Natural Areas and the
Younger Lagoon Reserve
2008

I. PURPOSE

The purpose of this agreement (Agreement) is to memorialize the commitments by and between the UCSC administration (Campus) and the UCSC Natural Reserves (UCSC NRS) to ensure that implementation of all provisions of the Marine Science Campus Coastal Long Range Development Plan (CLRDP) and the requirements of its CEQA documents that apply to the Natural Areas of the Marine Science Campus (as defined in the CLRDP) and the Younger Lagoon Reserve (YLR) (i) meets the requirements of approval imposed by the California Coastal Commission (Commission); and (ii) effectuates the protection, restoration and management of these affected lands in perpetuity. This Agreement, which specifies the obligations of each party regarding this subject matter, is intended to be binding by and between the parties.

II. BACKGROUND

The CLRDP, approved in December 2007 by the Commission, requires, among other things, that the University designate portions of the Marine Science Campus terrace lands as permanently protected natural areas (Natural Areas). These Natural Areas are defined as all areas outside of those designated as Research and Education Mixed Use in the CLRDP (see attached CLRDP *Figure 5.2 Land Use Diagram*), which are to be protected, restored, enhanced, and maintained as high-quality open space and natural habitat areas. The CLRDP requires the University to incorporate the Natural Areas permanently into the University of California Natural Reserve System (UCNRS)* as an integral part of its Younger Lagoon Reserve (YLR), and to protect, restore and manage these lands in accordance with the Resource Management Plan (RMP; see Appendix A to the CLRDP) and other CLRDP provisions. The CLRDP also imposes additional requirements on the management of YLR.

III. TERM

This Agreement will be effective upon the adoption of a Resolution by the NRS Advisory Committee that approves the incorporation of the Natural Areas into the Natural Reserve System as an addition to YLR subject to the terms and conditions provided hereunder, and will continue in effect in perpetuity. A copy of the Resolution is attached hereto as *Attachment A* and incorporated herein.

* The mission of the Natural Reserve System is "to contribute to the understanding and wise management of the Earth and its natural systems by supporting university-level teaching, research, and public service at protected natural areas throughout California." The University is a trustee agency under the California Environmental Quality Act with respect to the University's Natural Reserve System.

IV. CLRDP REQUIREMENTS

The CLRDP[†] imposes the following requirements on the University with respect to the Natural Areas and YLR:

- A. Implement a comprehensive permanent restoration, protection and management plan for Natural Areas newly incorporated into YLR pursuant to the RMP and other CLRDP provisions.
- B. Develop and implement a long-term monitoring program for enhancement, restoration, protection and limited public access to YLR.
- C. Implement a docent-led public access program to Younger Lagoon Beach via a Controlled Access Trail.
- D. Implement a public access program to Younger Lagoon Reserve via a system of overlooks.
- E. Implement a public access program to the Natural Areas via a system of defined public trails and overlooks.
- F. Maintain the existing hydrologic regime and control runoff on site.
- G. Submit annual reports to the Commission Executive Director on projects and other activities that demonstrate the efficacy of the enhancement, restoration, monitoring, management, and public access programs required by the CLRDP.

V. COMMITMENTS

The Campus and the UCSC Natural Reserves Advisory Committee agree that incorporation of the Natural Areas into YLR will benefit the UCSC environmental teaching and research programs, YLR, the Marine Science Campus overall, and supports the UCNRS mission.

Typically, UCNRS reserves do not have the resources to undertake an extensive restoration and management project like that required by the CLRDP. YLR staff presently does not have the capacity to undertake a project of this magnitude without adequate support for staffing, projects, management and monitoring. The budget projections included in this MOU are the result of diligent planning between the office of Physical Planning and Construction, Institute for Marine Sciences, Natural Reserve, Environmental Studies, and Ecology and Evolutionary Biology staff and faculty as well as outside consultants. Although we are confident in our estimates, adjustments may need to occur if objectives are not being met. Given the scale of the restoration and management obligations, the Campus is committed to identifying and providing the support necessary for the UCSC Natural Reserves to be successful and for the Campus to fully comply with the CLRDP.

[†] This Agreement is bound by all of the terms in the CLRDP, including all amendments thereto, that relate to the Natural Areas and YLR.

The Universitywide NRS Advisory Committee supports the incorporation of the Natural Areas into the UCNRS as an addition to YLR conditioned upon the Campus' commitments described hereunder. Upon the endorsement of this Agreement by the Universitywide NRS Advisory Committee, the Natural Areas will be incorporated into the UCNRS as an addition to YLR, and the Campus and the UCSC NRS agree to comply fully with their respective commitments below.

A. By the Campus

- The Campus will provide adequate and permanent funding to the YLR program, as described in detail below, to support the Resource Management Plan and other obligations under the CLRDP. These funds will ensure the University's full compliance with the Commission's requirements in the CLRDP with regard to the Natural Areas and Younger Lagoon Reserve that are described in Paragraph IV of this document. A 20-year budget forecast for implementation, management, and maintenance of the Resource Management Plan and other YLR obligations under the CLRDP which may be amended from time to time, is appended as *Attachment B*. The estimated budget for the first 7 years is summarized below.

Estimated Budget

	First 7 Years							Subtotal		
	08-09	09-10	10-11	11-12	12-13	13-14	14-15			
Ongoing Costs Funded Permanently*:										
Reserve Manager (1.00 FTE)	\$78,000	Merits and salary increases handled through divisional process.								
Reserve Director (.10 FTE)	\$10,000									
	\$88,000									
*Funding includes salary, benefits, and \$3,500/FTE for supplies.										
Estimated One-Time Costs:										
Phase I RMP - restore 1/3	\$84,200	\$168,400	\$168,400	\$168,400	\$84,200	\$84,200	\$84,200	\$842,000		
Implementation Plan	\$15,000								\$15,000	
SAC Support	\$20,000	\$20,000	\$20,000	\$10,000	\$10,000	\$10,000	\$10,000	\$100,000		
Monitoring & Upkeep of Terrace Lands	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$84,000		
Monitoring of Beach Access	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$17,500		
Trail Improvements		\$15,000								\$15,000
	\$133,700	\$217,900	\$202,900	\$192,900	\$108,700	\$108,700	\$108,700	\$1,073,500		
4 year Average = \$186,850/yr 3 Year Average = \$108,700/yr										

- The campus will provide permanent funding of \$88,000 for salaries, benefits, and S&E to support 1.00 FTE Reserve Manager and .10 FTE Reserve Director, effective July 1, 2008. Consistent with campus practice, merit funding for eligible staff increases after July 1, 2008 will be part of the block allocation provided to the Physical and Biological Sciences Division, based on campus funding formulas. Funding for other salary adjustments are a divisional responsibility, subject to the appropriate staff compensation guidelines.
- The estimated one-time costs for the first seven years (2008-09 to 2014-15) total just over \$1M. The campus will provide one-time funding of \$1,073,500 over the 7 year period for the activities summarized above. The estimated average annual funding for the first four years (2008-09 to 2011-12) is \$186,850/year, and drops to \$108,700/year for three years beginning in 2012-13. The budget for resource management plan should be updated and reviewed after the first 4 years. It is the

campus's expectation that any unused funds available during the initial implementation period will carry forward to help offset costs in the out-years, when additional costs related to maintenance and Phases II and III will be incurred. The cost estimate for Phase II (2015-2022) is \$885,000 to \$1,506,000. The estimate for Phase III (2022-2029) is \$965,500 to \$1,586,500. The estimates for Phase II and III should be updated and submitted for campus review prior to the completion of Phase I.

4. After the 20-year implementation of the Resource Management Plan, funding for maintenance, and monitoring as required to comply with the CLRDP will continue to be provided, as outlined in lines 1.8, and 1.9 in *Attachment B*. It is the campus's intention that the permanent funding provided for the Reserve Manager salary and 10% of the NRS Administrative Director salary will remain available to support the on-going protection, enhancement, restoration and management obligations under the CLRDP.
5. The Campus will provide additional funding to the UCSC NRS budget as necessary in the event that compliance with the RMP and/or other YLR-related CLRDP provisions requires additional or unforeseen costs. Such additional funding will be based on a proposed project or plan prepared by YLR staff, and approved in advance by the Executive Vice Chancellor, that complies with the Commission's requirements and is also within the scope of the CLRDP as it may be amended from time to time. All reasonable cost-containment efforts should be exercised to keep such projects within budget and within the original scope. External funding should be sought when ever possible to support the maintenance of YLR and the Natural Areas.
6. The Director of Campus Planning will oversee all communication with the Commission and the Notice of Impending Development process. Following CLRDP certification by the Commission, YLR staff will coordinate all YLR projects outlined in the CLRDP, including those in the Natural Areas, with the UCSC planning office prior to initiation.
7. The Campus will consult UCSC Reserve staff to consider and address, to the extent feasible, the direct and indirect impacts of development activities to YLR from the development zones of the Marine Science Campus.

B. By the UCSC NRS

1. YLR staff will undertake the long-term management of the Natural Areas and YLR including, but not limited to, the restoration and on-going monitoring thereof, in accordance with the CLRDP and the mission and policies of the UCNRS.
2. YLR staff will work closely with the Scientific Advisory Committee and follow its guidance on the development and implementation of the RMP as required in the CLRDP, with specific guidance regarding prescriptions. RMP provisions may include the implementation of manipulative research and/or management practices.

3. YLR staff will oversee and implement the RMP and other CLRDP provisions relating to the Natural Areas and YLR, in coordination with Physical Planning and Construction, Physical Plant and other affected Campus units.
4. YLR staff will manage the public access and outreach components of the CLRDP within YLR and the Natural Areas in coordination with Physical Planning and Construction and other affected Campus units.
5. YLR staff and other Campus units will cooperate and coordinate the initial implementation and ongoing operation and maintenance of the following required infrastructure and services: vehicle circulation, provision of public access, underground utilities, lighting, storm water detention, screening, and other "development" located outside the areas designated for development but within the Natural Areas (see attached CLRDP *Figure 5.6 Coastal Access and Recreation Diagram*).
6. YLR staff will provide the campus with an annual report on the projects undertaken and the status of the implementation budget for the RMP and other CLRDP provisions relating to the Natural Areas and YLR to provide the Campus with forecasts of foreseeable costs.

VI. AMENDMENT

This Agreement may not be changed or modified except in writing, signed by the parties hereto, and endorsed by the Universitywide NRS Advisory Committee.

UCSC ADMINISTRATION

By: David Kye Date: 7/15/08

Its: Campus Provost and Executive Vice Chancellor

UCSC NATURAL RESERVES

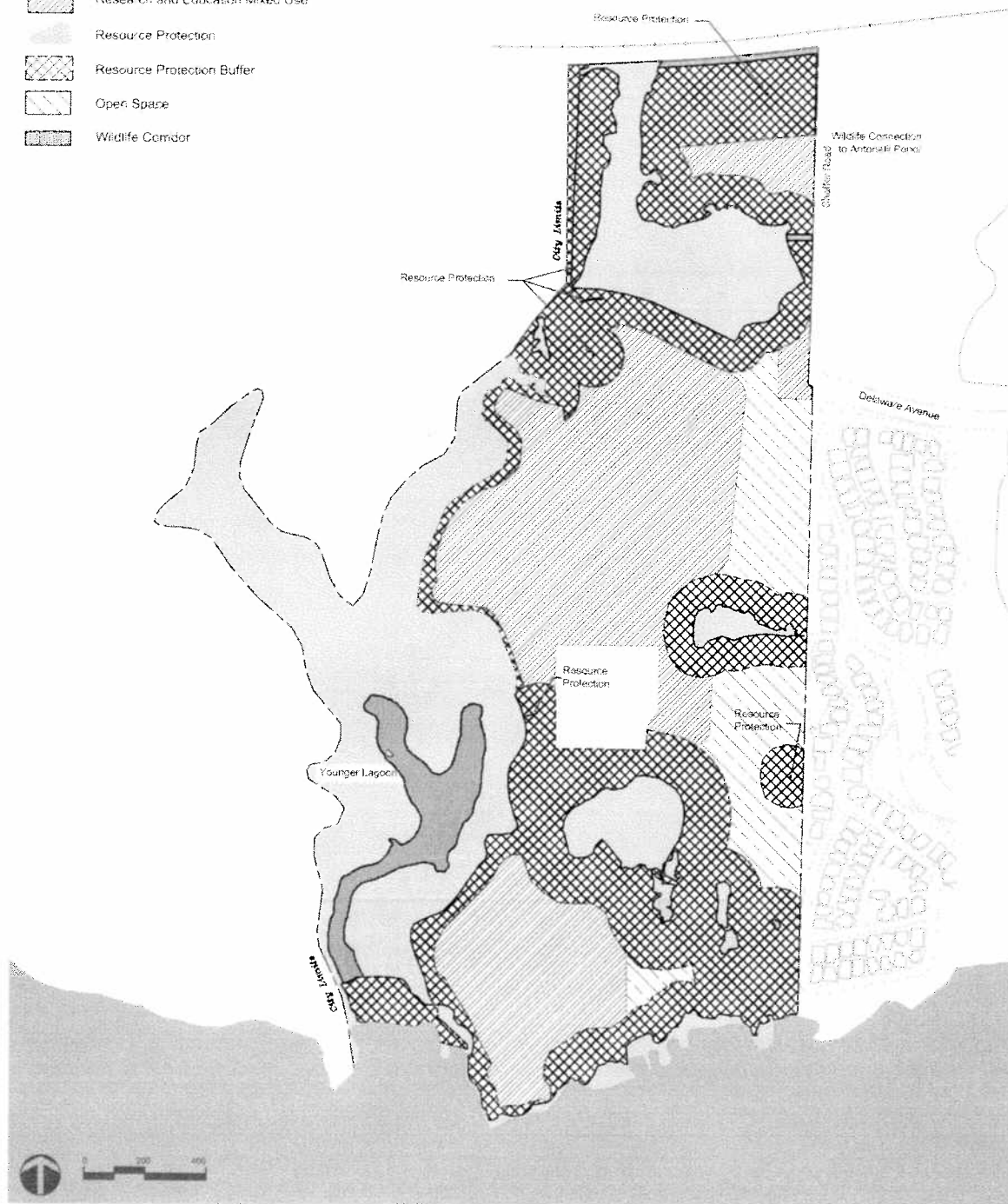
By: Jay Duff Date: 7/15/2008

Its: Administrative Director, UCSC Natural Reserves

Fig. 5.2 Land Use Diagram

Legend

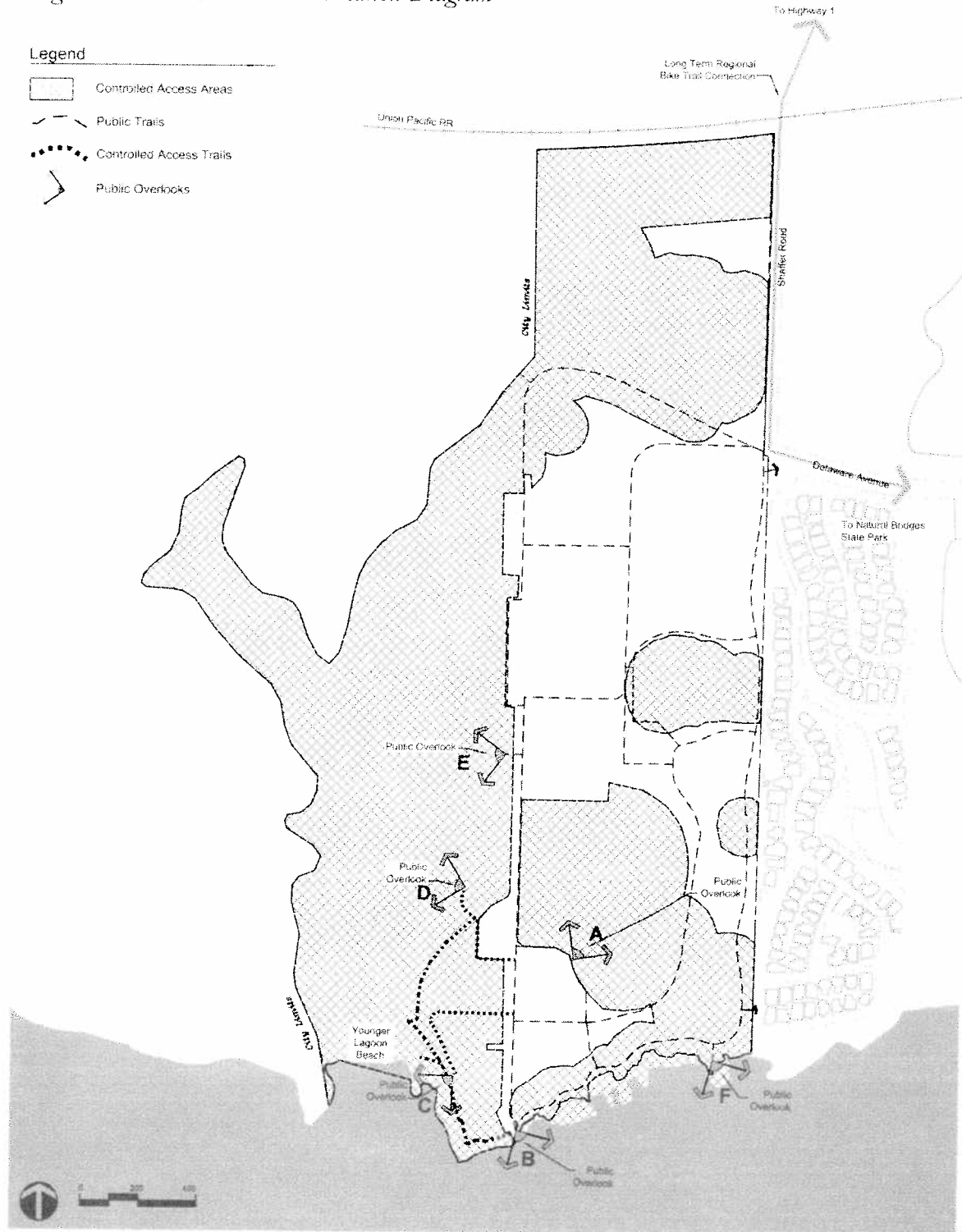
-  Research and Education Mixed Use
-  Resource Protection
-  Resource Protection Buffer
-  Open Space
-  Wildlife Corridor



Attachment A: UC Natural Reserve System Advisory Committee Resolution

(to be provided)

Fig. 5.6 Coastal Access and Recreation Diagram



July 10, 2008

Dean Thorsett
Physical and Biological Sciences

Dear Steve:

Re: UCSC Marine Science Campus Natural Areas and the Younger Lagoon Reserve

I write to confirm the funding details for the Resource Management Plan at Younger Lagoon and the Natural Areas at the Marine Science Campus to ensure compliance with the terms imposed by the California Coastal Commission as part of its approval of the Coastal Long Range Development Plan (CLRDP). The terms of this agreement are pending final action by the system wide Natural Reserve System (NRS) accepting Younger Lagoon as part of the system wide reserve.

This is an exciting opportunity for the campus. It has been years in the making and represents the hard work of many individuals. It provides many benefits, including:

- The ability of the University to develop the Marine Sciences Campus
- Expanded undergraduate research opportunities associated with the restoration of the designated areas

The attached agreement outlines the details of how funding will be provided for the first seven years. This first phase is broken into two segments to allow time to assess progress and funding needs. After a few years' experience with the Resource Management Plan, subsequent agreements will be developed for the out years of the implementation period. By allocating oversight responsibility and resources to the division, we hope to leverage the existing administrative infrastructure in Physical & Biological Sciences to provide budget oversight and project management that ensures the campus fulfils the terms of the agreement without expanding the scope.

It is my understanding that your staff will be working with the Planning and Budget Office to develop an annual report that tracks expenditures. While I am committing \$88,000 in permanent funding for 1.10 staff FTE at the reserve, and one-time funding totaling \$1,073,600 over the first 7 year period to implement the first phase of the Resource Management Plan, this is not intended to be automatic. I greatly appreciate that the division will take appropriate actions to ensure there are incentives to keep costs in check and not approve increases in scope that have not been specifically vetted and approved. We should keep the door open for potential grants and fundraising opportunities that could, in the future, help defray some of the costs. An endowment to support the ongoing maintenance of the Lagoon and Natural Areas would be of great benefit to the Reserve.

Please keep me apprised of progress on the formation of the Scientific Advisory Committee (SAC). To the extent that UCSC faculty are involved, this should be considered as part of their service to the University and I would not, except under extraordinary circumstances, expect to provide compensation. The estimated budget for SAC that was included in the Resource Implementation

Plan is intended to offset any costs for external or non-UCSC advisors.

In addition to the budget developed for the Resource Management Plan at the Marine Science Campus, which is specifically addressed in this letter and the attached agreement, the CLRDP Implementation identifies a number of other projects, including public access improvements, parking, road and circulation improvements, and infrastructure. The funding expectations for those projects will be addressed separately.

I appreciate the work of your staff in support of the CLRDP and the Resource Management Plan in the Natural Areas and Younger Lagoon Reserve. Once we have final agreement with the NRS, Assistant Director Free Moini in the Planning and Budget Office will coordinate the transfer of funding identified in this letter.

Sincerely,



David S. Kliger
Campus Provost and
Executive Vice Chancellor

Enclosure

cc: Director Barnes
Associate Professor Croll
Director Dayton
Assistant Vice Chancellor Eckert
Director Griggs
Assistant Dean Kenyon
Vice Chancellor Michaels
Assistant Director Moini

University of California Santa Cruz
Marine Science Campus
Specific Resource Plan Phase 1A
Addendum #2 to the Coastal Long Range Development Plan
Environmental Impact Report

Prepared By:

Office of Physical Planning & Construction
University of California Santa Cruz
1156 High Street, Barn G
Santa Cruz, CA 95064

July 2010

Contact: Sally Morgan, Senior Environmental Planner
(831) 459-2170

**Addendum #2 and Supporting Environmental Assessment to the Coastal Long-Range
Development Plan EIR**

**Specific Resource Plan, Phase 1A (Vegetation Management for Habitat Enhancement and
Restoration), Younger Lagoon Reserve Terrace Lands**

I. PROJECT INFORMATION

1. Project title:

Specific Resource Plan, Phase 1A (Vegetation Management for Habitat Enhancement and Restoration), Younger Lagoon Reserve Terrace Lands, UCSC Marine Science Campus

2. Lead agency name and address:

The Regents of the University of California
1111 Franklin Street
Oakland, CA

3. Contact person and phone number:

Sally Morgan, 831-459-1254
University of California Santa Cruz
1156 High Street
Santa Cruz, CA 95064

4. Project location:

UC Santa Cruz Marine Science Campus, Santa Cruz, California

5. Project sponsor's name and address:

(See #3)

6. Custodian of the administrative record for this project (if different from response to item 3 above.):

UC Santa Cruz Physical Planning and Construction

7. Identification of previous EIRs relied upon for tiering purposes (including all applicable LRDP and project EIRs) and address where a copy is available for inspection.)

1) UCSC Marine Science Campus CLRDP EIR, September 2004, SCH #2001112014.

2) Addendum # 1 to the CLRDP EIR, November 2006.

Both documents are available at the office of UC Santa Cruz Physical Planning and Construction, Barn G, UC Santa Cruz main campus, 1156 High Street, Santa Cruz, CA 95064

II. PURPOSE OF THIS ADDENDUM

The 2004 Coastal Long Range Development Plan (CLRDP) for the University of California, Santa Cruz's (UCSC's) Marine Sciences Campus includes a Resource Management Plan (RMP) that sets goals and objectives for habitat restoration and enhancement in the areas of the Marine Science Campus that are protected from development. The RMP—which was approved previously as part of the CLRDP by both the UC Regents and by the California Coastal Commissions—prescribes

July 2010

the types and locations of habitat restoration and enhancement activities that will be carried out on these lands. The RMP also calls for preparation of a series of Specific Resource Plans, to further describe the timing and conduct of specific activities through which RMP goals and objectives will be met, in successive phases, during the term of the CLRDP. The RMP was described and analyzed in the 2004 CLRDP EIR, a 2006 Addendum #1 to that EIR, and in the Coastal Commission's November 2007 and March 2008 staff reports and findings (hereinafter, referred to collectively, as "the CLRDP EIR").

The SRP, Phase 1, dated June 1, 2010, defines the implementation activities through which the previously-approved RMP will be carried out, for initial restoration and enhancement of habitats over about one-third of campus natural areas (i.e. areas outside of defined development zones on the Marine Science Campus) during the first seven years of the CLRDP program. SRP Phase 1 expands upon the adopted Resource Management Plan previously analyzed in the CLRDP, in that it defines the locations at which restoration and habitat enhancement work would be carried out and the specific methods that would be used to remove weeds and establish new plantings. However, SRP Phase 1 does not include any elements that were not contemplated in the RMP as previously analyzed.

Phase 1 is divided into two sub-phases for purposes of environmental analysis. Phase 1A would consist of removal of invasive non-native plants and hand planting to improve the habitat mosaic over an area of about 16 acres of the campus natural areas. Phase 1B would propose minor hydrologic modifications to improve wetland functioning and enhance plant and wildlife habitat in wetlands W1 and W2. Phase 1A is proposed for immediate implementation. Phase 1B wetland work would be subject to Clean Water Act and other permitting, and related agency consultation regarding potential effects to California red-legged frogs. The extent of Phase 1B wetland work and exactly how it would be carried out cannot be determined prior to this consultation. For this reason, SRP Phase 1B will be considered in a separate CEQA document, which will be prepared during the course of and with input from agency consultation.

This Addendum #2 to the CLRDP FEIR describes and analyzes the potential environmental effects of the specific activities that would implement Phase 1A of the SRP, involving habitat restoration under and consistent with the RMP. Analysis provided in this addendum augments the analysis of the RMP that was included in the CLRDP EIR, CLRDP EIR Addendum #1, and the November 2007 and March 2008 Coastal Commission staff reports and findings made as part of the Commission's CEQA certified regulatory program, all of which were previously approved and accepted by The Regents or, through delegated authority, by the Executive Vice President of the Board of Regents.

This addendum was prepared in accordance with CEQA to inform the University's consideration and action on Phase 1A of the proposed Specific Resource Plan. The purpose of this addendum is to provide additional detail on RMP implementation, and to evaluate whether the presence of changed circumstances or new information since The Board of Regents of the University of California (The Regents) adopted the 2004 CLRDP and certified the 2004 CLRDP FEIR in September 2004, triggers the need for the preparation of a subsequent EIR as described under "Project Approvals and Permits", below.

CLRDP RMP Implementation Measure 3.2.10 specifies that the University must file a Notice of Impending Development (NOID) with the California Coastal Commission for SRP Phase 1 habitat restoration and enhancement work within one year of CLRDP certification, which occurred in

July 2010

January 2009. This addendum provides CEQA compliance for Phase 1A of the SRP and the anticipated filing of the required NOID. It is anticipated that a separate NOID will be filed for Phase 1B when project plans for this phase of work are finalized through regulatory agency consultation and following the preparation of additional CEQA documentation.

III. PROJECT LOCATION AND DESCRIPTION

Project Location

The location of the proposed SRP Phase 1A project is UCSC's Marine Science Campus, specifically, 16 acres of the Terrace Lands within the Younger Lagoon Reserve (Figure 1, below). The relationship between the campus development areas, the Younger Lagoon Reserve and the Terrace Lands is detailed below.

Background: Relationship between the CLRDP RMP and SRP Phase 1

The proposed project is the implementation of Phase 1A of a Specific Resource Plan (SRP) for the restoration of natural habitat within Younger Lagoon Reserve (YLR) on the UCSC Marine Sciences Campus (MSC). YLR was established in 1987, as one of the 36 reserves that make up the University of California Natural Reserve System of protected natural lands available for university-level instruction, research, and public outreach. The proposed restoration is the first phase of implementation of a Resource Management Plan, one element of UCSC's Coastal Long Range Development Plan (CLRDP) for the MSC. Under the CLRDP, all "natural areas" outside of the Campus Development Zone on the MSC are to be incorporated into YLR, restored, and preserved in perpetuity. The approximately 47 acres of natural areas outside of the development zone on the Marine Science Campus were incorporated into YLR in July 2008, bringing the size of the reserve to approximately 72 acres. These natural areas added to YLR are collectively referred to as the Terrace Lands. The CLRDP Resource Management Plan (RMP) outlines parameters for the restoration, enhancement, and management of biological and open space resources on the Terrace Lands. Conceptually, the RMP provides the initial framework for planned habitat improvements. The RMP will be implemented through development and execution of a series of Specific Resource Plans, developed under the guidance of a Scientific Advisory Committee (SAC). The RMP organizes restoration and enhancement efforts into two seven-year phases and one six-year phase. Each phase encompasses restoration and enhancement of the natural habitat on approximately one-third of campus natural areas on the Terrace Lands. The SRPs through which habitat restoration and enhancement are to be carried out are to be designed to meet the goals and performance standards set forth in the RMP; however, each SRPs may adapt these goals and performance standards to address the physical and ecological conditions existing at the time the program is implemented, and as appropriate to the then-current understandings of biological and ecological processes, and approaches to habitat re-vegetation, restoration, and enhancement. With approximately 47 acres outside of the development zone to be restored over the next 20 years, approximately 16 acres—or about one-third of the area overall—will be restored during each of the three SRP phases. SRP Phase 1 (June 1, 2010) addresses the first seven-year phase of RMP implementation. In the concluding year of the first 7-year phase of restoration, a second SRP will

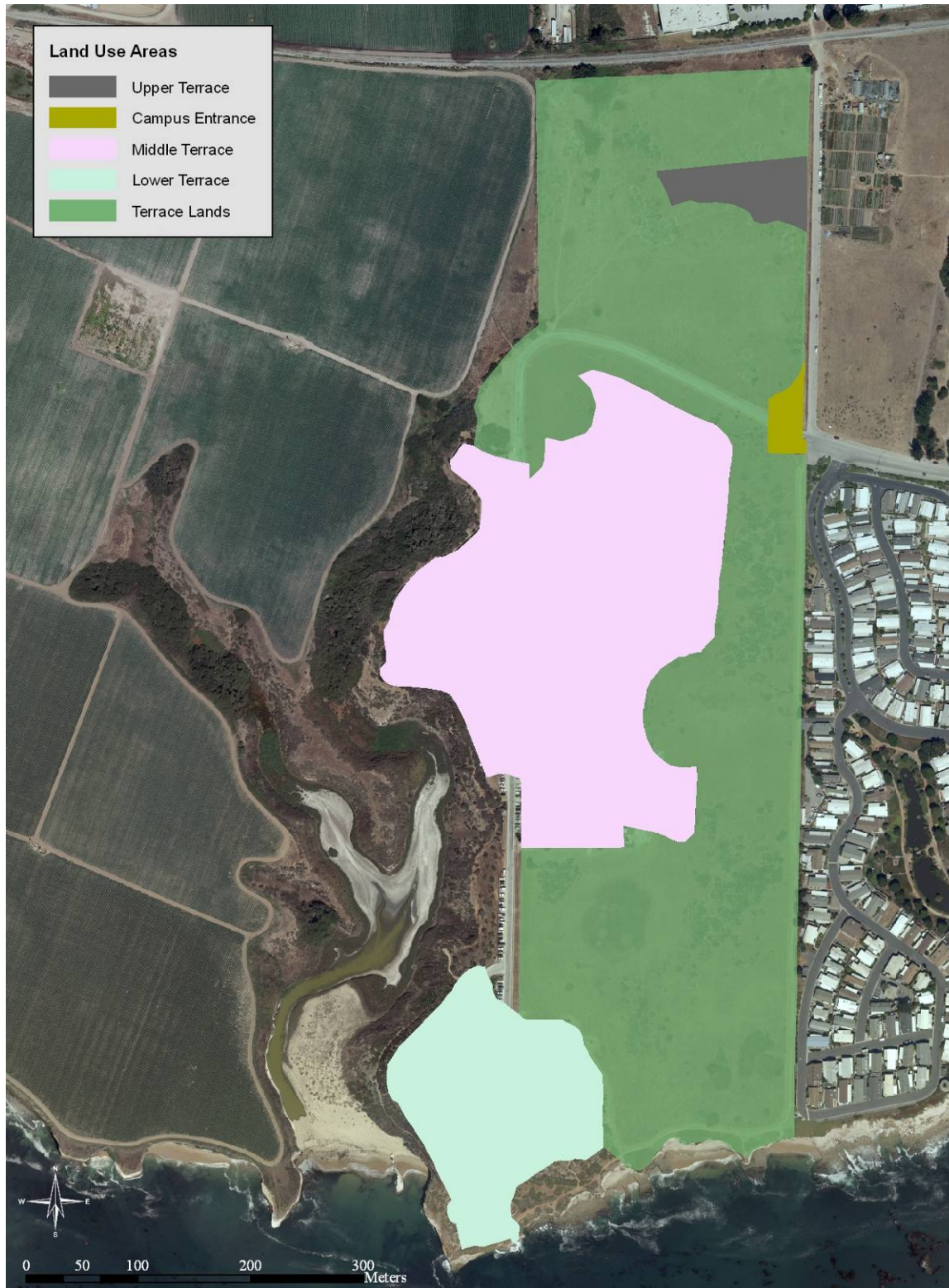


Figure 1. Campus Development Zones and YLR Terrace Lands.

be written to direct Phase 2 of the restoration effort (years 7-14) and, during year 14, the final SRP will be written for restoration Phase 3 (years 14-21).

The project description below outlines all the envisioned elements of SRP Phase 1, and provides detailed description of SRP Phase 1A, which is the subject of this addendum. SRP Phase 1A activities would be carried out independent of the approval of SRP Phase 1B. SRP Phase 1B, which proposes hydrologic modifications to wetlands W1 and W2, will be further defined through agency consultations and will be subject of further CEQA analysis and subsequent approval, when the potential impacts of wetlands alterations can be analyzed at an appropriate level of specificity. This Addendum #2 addresses the potential environmental effects of vegetation management for habitat restoration and enhancement under both phases of the SRP. Phase 1A is analyzed in detail herein; Phase 1B is analyzed to the extent known at this time.

Project Objectives

The goal of restoration efforts on the Terrace Lands is to create and enhance a mosaic of coastal habitats. Such a mosaic provides substantial ecosystem services, including the preservation of biodiversity, provision of habitat for special status species, and buffering of stormwater runoff. These habitats include coastal bluff, coastal prairie, seasonal wetlands, forested wetlands and grasslands. Additionally, because the project site is a UC Natural Reserve, restoration efforts focused on native flora and fauna will provide research opportunities to guide future restoration in similar habitats and offer unique opportunities for researchers, students, and the public to participate in and observe restoration, and to use the reserve as an outdoor classroom and living laboratory. The overarching objective of the proposed SRP Phase 1 is to meet the CLRDP RMP habitat restoration and enhancement success criteria for one-third of the Terrace Lands. The SRP also includes the following specific objectives:

- 1) In coyote brush scrub-grassland areas, increase native plant species richness and percent cover and decrease non-native plant cover.
- 2) In non-native grassland areas, increase native grass species and decrease non-native plant cover.
- 3) In coastal bluff habitat, increase native plant species richness and percent cover and decrease non-native plant cover.
- 4) Within the central areas of wetlands W4 and W5 (delineated in the CLRDP RMP), increase native plant species richness and percent cover and decrease non-native plant cover.
- 5) In wetland buffers, increase native plant species richness and percent cover and decrease non-native plant cover.
- 6) Manage the hydrology of wetlands W1 and W2 to increase the cover of native wetland plant species, potentially enhance breeding habitat for amphibians, maintain raptor foraging habitat, improve the quality of water flowing to YLR, and create a continuous north-south area for wildlife movement to YLR.
- 7) Control priority-one weeds (non-native invasives) throughout the Terrace Lands.

Phase 1A of the SRP focuses on those goals related to removal of non-native plants and plantings to improve native habitats, but would not include topographic or hydrological modifications to improve wetland functioning. These aspects of the Phase 1 plan would be addressed by implementation of Phase 1B, which would be subject to subsequent approvals.

Project Description

SRP Phase 1A would focus on enhancement of six habitat areas within the Terrace Lands: coyote-brush scrub-grassland, grassland, and coastal bluff scrub expansion (Figure 2). Phase 1A also would include hand planting in central wetland habitat in wetlands W4 and W5 (Figure 3), consistent and implementing the goals set forth in the previously-approved RMP. Phase 1A also addresses control and removal of Priority 1 weeds throughout the Terrace Lands. About 16 acres of the Terrace Lands would be subject to restoration during Phase 1; enhancement and protection of vegetation in other natural areas of the Terrace Lands will also take place as opportunities arise. The following sections describe the proposed activities within each area that would take place during SRP Phase 1A and the envisioned SRP Phase 1B.

SRP Phase 1A

Coyote Brush Scrub-Grassland Areas

During Phase 1A coyote brush scrub-grassland will be protected and enhanced, over the approximately 11 acres where coyote brush is already patchily distributed (Figure 2). Vegetation in these areas currently is dominated by non-native grasses and coyote brush. The enhancement efforts will focus on filling in grassy interstitial spaces between existing coyote brush plants and patches in the middle and lower terrace with coyote brush and other shrub species. Native grasses will also be planted to create patches of native grassland within the Coyote Brush Scrub-Grassland areas. The SRP does not propose any changes in the topography and/or hydrology of these areas.

Grasslands

Phase 1A would include restoration of native grassland throughout the Terrace Lands, but would focus primarily on restoration of native grasslands in wetland buffer areas. Native grasses would be planted in relatively dense patches throughout approximately 2 acres of wetland buffers around wetlands W4 and W5. The intent is to increase coverage of native grass species and decrease non-native plant cover. It is anticipated that native shrubs also will scatter throughout these areas through natural recruitment. SRP Phase 1 does not propose any changes in topography and/or hydrology in these areas.

Coastal Bluff Expansion

Vegetation within the coastal bluff area currently is dominated by ice plant and non-native grasses. The coastal bluff scrub area currently covers approximately 1.5 acre. SRP Phase 1A restoration within coastal bluff habitat would focus on increasing native plant species richness and percent cover and decreasing non-native plant cover within the coastal bluff scrub, and increasing the width of this area, from bluff edge, to 100 feet. SRP Phase 1A would not alter topography and/or hydrology in these areas. It is anticipated that improvements to an existing overlook on the coastal bluff--a separate project that would implement a CLRDP requirement—would be constructed early in SRP Phase 1.

Wetland Willow

The proposed wetland willow restoration area is an approximately 1-acre area at the top of the eastern arm of Younger Lagoon (Figures 2 and 3) that encompasses Wetland W6 and its buffer. This area is currently dominated by non-native grasses and willow. Under the proposed SRP Phase 1A, native willow, grasses, and shrubs would be hand planted in these areas, above the ordinary

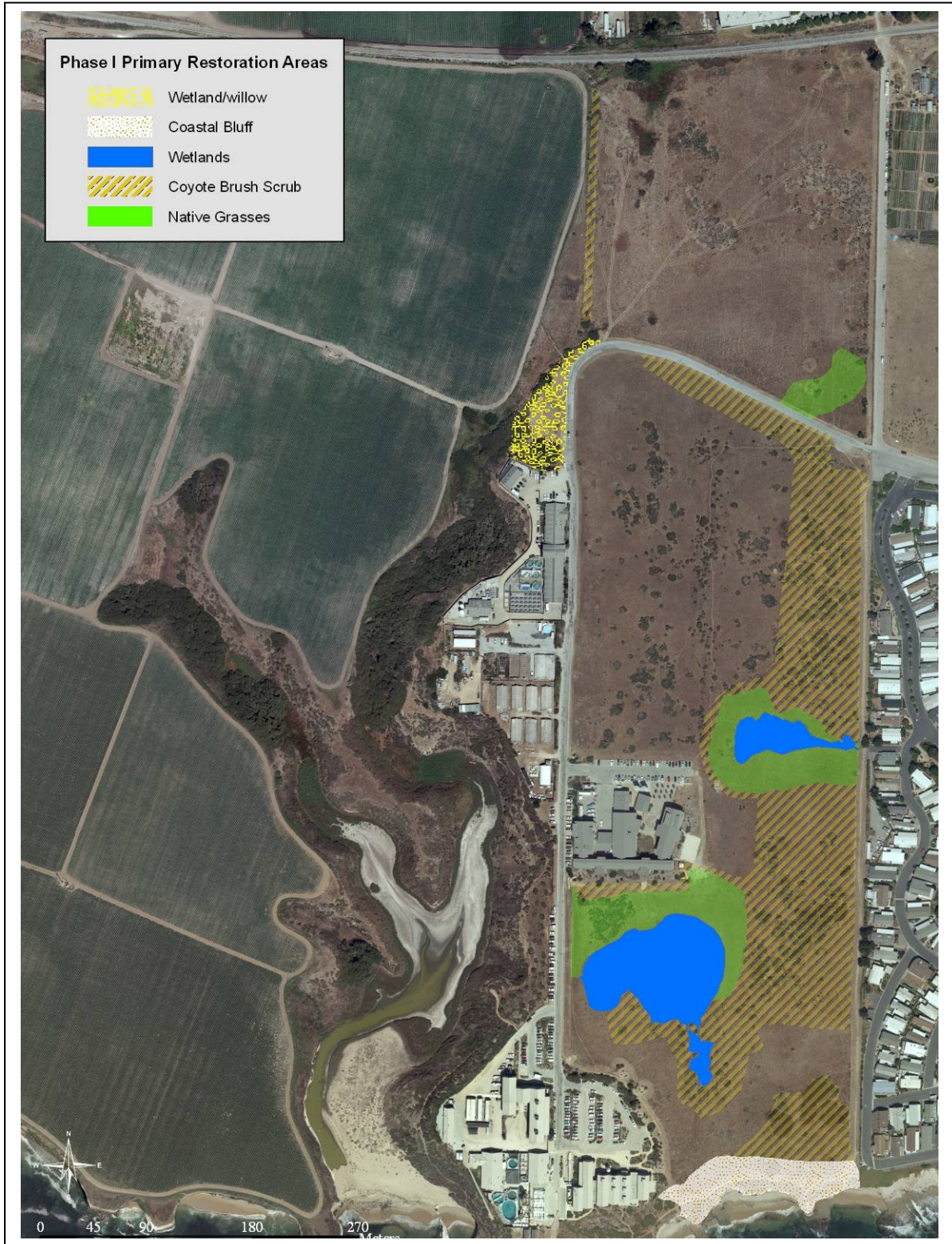


Figure 2. Phase 1A Primary Restoration Areas



Figure 3. Younger Lagoon Reserve Wetlands and Wetland Buffers

high water mark of the drainage channel (which has been determined to be Waters of the United States).

Wetland Buffers

Wetland buffers (Figure 3) represent prescribed distances from wetland edges (100 ft for all wetlands with the exception of W5, which has a 150 ft buffer), within which development activity would not occur. During SRP Phase 1A, primary restoration efforts in wetland buffers would focus on approximately 1 acre of buffer area- in buffers W4 and W5; however, other buffer areas also would be planted. The wetland buffer areas are currently vegetated primarily in non-native grasses, coyote brush, Douglas' baccharis, and willow. Soil conditions within and among wetland buffer areas differ greatly and thus significantly influence the potential plant species mix, which would vary from wetland to wetland. Restoration efforts in wetland buffers would focus on increasing native plant species richness and percent cover and decreasing non-native plant cover, adhering to interim and long-term goals of the RMP for restoration of ruderal, coyote brush scrub-grassland, and native grassland. In order to achieve the goal of "insulating" wetland habitat from physical and visual noise and intrusion by people, shrubs would be planted near the outer edge of the wetland buffer areas. No changes in topography and/or hydrology in the wetland buffers are proposed.

"Living Fence" Buffer along Younger Ranch Boundary

Presently, the agricultural land to the west of Wetland W1 is not being farmed and thus serves to augment the defined buffer for Wetland W1. It is possible that the unfarmed lands on the adjacent parcel may be put back into production in the future, which effectively would diminish the extent of the undeveloped buffer to the west of W1. SRP Phase 1A would include replanting of the narrow area between the western margin of W1 and the eastern margin of the adjacent Younger Ranch with native shrubs. This would provide a "living fence" between the wetland area and the agricultural land to the west, which would maintain an effective buffer for this wetland even in the event of agricultural development to the west. This SRP Phase 1 element is in addition to the low fence that would be constructed on the property line in conjunction with the first development project under the CLRDP, to implement CLRDP General Mitigation Measure 4.2-1.

Priority One Weed Removal

During SRP Phase 1A, all Priority 1 weeds (Table 1) would be controlled as they are detected, throughout the Terrace Lands. The proposed SRP Phase 1 assigns Priority 1 weed status to exotic (non-native) plants that are large in stature, slow-spreading, and capable of invading and out-competing native plants in established plant communities. On the MSC these include Jubata grass, Monterey cypress, cape ivy, panic veldgrass, fennel, French broom, Harding grass, Monterey pine, and Himalayan blackberry. Discrete patches and scattered individuals of Priority 1 weeds are located throughout YLR Terrace Lands and MSC. Medium- and low-priority weeds will not be controlled until active restoration projects are taking place at a specific site.

Removal techniques for Priority 1 weeds may include hand pulling/ mechanical control, winching, clipping / weed whacking, flaming, solarization by laying down black agricultural plastic, burning, grazing, and herbicide application. Mature Monterey cypress and Monterey pine would be controlled by cutting the above-ground material from the root. Seedlings would be controlled by hand pulling and/or digging. When hand removal is employed, soil may be raked after removal of above-ground material to expose and remove any remaining roots or stolons. All herbicide application would follow California Department of Pesticide Regulation (CaDPR) regulations and

would be done by a CaDPR qualified applicator. Herbicides would be chosen based on the target weed and surrounding habitat (e.g. species-specific targeted applications). Only registered aquatic herbicides would be used in wetland areas. All applications would be done by hand. Due to their potential to re-invade, all Priority 1 weeds with viable propagules would either be solarized and composted on site or bagged after removal and disposed of offsite. Some Priority 1 weed control activities would be ongoing throughout the year. Other activities would be restricted to the winter and spring months. Exact timing would be dependent on soil moisture conditions and seed-set.

Table 1. Known Non-Native Weeds on YLR Terrace Lands and Adjacent Lands

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Blackwood acacia	<i>Acacia melanoxylon</i>	W
Everblooming acacia	<i>Acacia retinodes</i>	W
Crofton weed	<i>Ageratina adenophora</i>	W
European beachgrass	<i>Ammophila arenaria</i>	W
Giant reed	<i>Arundo donax</i>	W
Mediterranean Linseed	<i>Bellardia trixago</i>	W
Portuguese Broom	<i>Cytisus multiflorus</i>	W
Scotch broom	<i>Cytisus scoparius</i>	W
Purple awned wallaby grass	<i>Danthonia pilosa</i>	W
Pepperweed	<i>Lepidium latifolium</i>	W
Yellow parentucellia	<i>Parentucellia viscosa</i>	W
Fountain grass	<i>Pennisetum setaceum</i>	W
Spanish broom	<i>Spartium junceum</i>	W
Ice plant	<i>Carpobrotus edulis</i>	1
Jubata grass	<i>Cortaderia jubata</i>	1
Monterey cypress	<i>Cupressus macrocarpa</i>	1
Cape ivy	<i>Delairea odorata</i>	1
Panic veldgrass	<i>Ehrharta erecta</i>	1
Fennel	<i>Foeniculum vulgare</i>	1
French broom	<i>Genista monspessulana</i>	1
Harding grass	<i>Phalaris aquatica</i>	1
Monterey pine	<i>Pinus radiata</i>	1
Himalayan blackberry	<i>Rubus discolor</i>	1
Wild oat	<i>Avena barbata</i>	2
Oat	<i>Avena fatua</i>	2
Common mustard	<i>Brassica rapa</i>	2
Rescue grass	<i>Bromus catharticus</i>	2

Table 1. Known Non-Native Weeds on YLR Terrace Lands and Adjacent Lands

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Ripgut brome	<i>Bromus diandrus</i>	2
Soft chess	<i>Bromus hordeaceus</i>	2
Italian thistle	<i>Carduus pycnocephalus</i>	2
Bull thistle	<i>Cirsium vulgare</i>	2
Bermuda grass	<i>Cynodon dactylon</i>	2
Poison hemlock	<i>Conium maculatum</i>	2
Black mustard	<i>Hirschfeldia incana</i>	2
Velvet grass	<i>Holcus lanatus</i>	2
Farmer's foxtail	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	2
Prickly lettuce	<i>Lactuca serriola</i>	2
Wild lettuce	<i>Lactuca virosa</i>	2
Italian ryegrass	<i>Lolium multiflorum</i>	2
Perennial ryegrass	<i>Lolium perenne</i>	2
Mallow	<i>Malva parviflora</i>	2
Sourgrass	<i>Oxalis pes-caprae</i>	2
Bristly ox-tongue	<i>Picris echioides</i>	2
Rabbitsfoot grass	<i>Polypogon monspeliensis</i>	2
Wild radish	<i>Raphanus sativus</i>	2
Curly dock	<i>Rumex crispus</i>	2
Prickly sow thistle	<i>Sonchus asper</i>	2
Sow thistle	<i>Sonchus oleraceus</i>	2
Scarlet pimpernel	<i>Anagallis arvensis</i>	3
Pineapple weed	<i>Chamomilla suaveolens</i>	3
Lambs quarters	<i>Chenopodium album</i>	3
Nettle-leaved goosefoot	<i>Chenopodium murale</i>	3
Brass buttons	<i>Cotula coronopifolia</i>	3
Filaree	<i>Erodium moschatum</i>	3
Cut-leaved geranium	<i>Geranium dissectum</i>	3
Rough cat's ear	<i>Hypochaeris radicata</i>	3
Loosestrife	<i>Lythrum hyssopifolium</i>	3
Bur clover	<i>Medicago polymorpha</i>	3
Cut-leaved plantain	<i>Plantago coronopus</i>	3
English plantain	<i>Plantago lanceolata</i>	3

Table 1. Known Non-Native Weeds on YLR Terrace Lands and Adjacent Lands

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Annual bluegrass	<i>Poa annua</i>	3
Common knotweed	<i>Polygonum arenastrum</i>	3
Sheep sorrel	<i>Rumex acetosella</i>	3
Common groundsel	<i>Senecio vulgaris</i>	3
Chickweed	<i>Stellaria media</i>	3
Rattail fescue	<i>Vulpia myuros</i>	3

Notes: *Priority rating:

- W. Watch List. These weeds are currently undetected at YLR Terrace Lands but are known to exist on nearby lands. Reserve staff will actively patrol for these weeds and eliminate them as soon as they are detected as part of YLR's Early Detection Rapid Response (EDRR) program (outlined in SRP 3).
1. High priority. These weeds are capable of invading and out-competing native plants in established plant communities. They are typically large stature, slow spreading perennial or biennials. Effective removal techniques for these weeds are generally well documented, and reserve staff will actively work to eliminate these weeds from YLR Terrace Lands. Once eliminated, on-going monitoring for reemergence of these weeds will take place in conjunction with patrols for Watch List weeds.
 2. Medium priority. These weeds are mostly biennial or annual and are ubiquitous on YLR Terrace Lands. They are typically smaller in stature than Priority 1 weeds and more difficult to control. Weed control efforts for Priority 2 weeds will take place in conjunction with active restoration projects (e.g. planting), but P2 weeds are not expected to be eliminated from YLR Terrace Lands.
 3. Low priority. These weeds are mostly annuals and are ubiquitous on YLR Terrace Lands. They are typically smaller in stature than Priority 1 weeds and more difficult to control. While many can effectively compete with native plants once they are established, they typically do not aggressively push out native plants. Most are commonly associated with native and non-native grasses and forbs in grasslands. Incidental weed control efforts for Priority 3 weeds may take place in conjunction with active restoration projects (e.g. planting), but P3 weeds are not expected to be eliminated from YLR Terrace Lands.

Source: Modified from John Gilcrest and Associates and Environmental Hydrology 1998.

Planting

Native plantings would be used throughout the SRP Phase 1 area, during Phase 1A, to replace non-natives that are removed, improve plant cover as appropriate, and enhance native habitats. The proposed planting palette is made up exclusively of native taxa that are appropriate to the habitat and region. Seed and/or vegetative propagules would be obtained from local natural habitats so as to protect the genetic makeup of natural populations. Horticultural varieties would not be used.

Planting density would be approximately 12 to 36 inches (30 to 90 cm) on center, depending on species. Smaller stature plants would be grouped and spaced closer together, while larger stature plants would be spaced further apart. In general, plants would be placed in non-linear arrangements to mimic plant distribution patterns observed in nature. All planting would be done by hand and ground disturbance would be limited to individual holes for the plants. Supplies would be brought to each area using a pickup truck or gas powered mule. Motor vehicle use would be limited primarily on the existing perimeter trail and to days when the soil is dry. Planting would begin after the first winter rains.

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Seeds would be collected from local sources and grown by UCSC staff and students at the UCSC Arboretum, UCSC Teaching Greenhouses, and YLR, or by local restoration contractors.

Erosion control

The proposed removal of ice plant, a Priority 1 plant, along the bluff edge would expose bare soil areas temporarily, while new plantings are established. Biodegradable silt fencing would be installed along the bluff edge after ice plant removal, and the new plants would be mulched to control erosion while vegetation is re-established. Because the Terrace Lands are essentially flat and the restoration efforts would entail minimal ground disturbance, erosion is not likely to be a concern elsewhere in the area. However, Reserve staff would visually inspect all areas for bare ground following planting or weeding efforts and after storm events, and would install erosion control materials such as wood-chip mulch, jute netting, or other similar materials, as needed to prevent erosion.

Irrigation

Ideally, plant installation would commence after the first winter rain and end well before the rains stop, ensuring that plants are naturally watered in and established before the summer dry period. However, if observations indicate that supplemental irrigation is needed, plants would be watered using one or all of the following methods: application using a water truck, drip hose, and/or overhead sprinkling. Water would be obtained from existing MSC infrastructure. Supplemental irrigation is likely to be needed only in the summer and fall months in the first year after planting. Because the soil generally is dry during those months, the potential for disturbance, damage, and erosion as the result of water vehicle traffic is low. If vehicle (water truck) application is used, vehicles would be restricted to the perimeter of the terrace, along the paved road and a fire break maintained by the campus. If needed, temporary drip hoses and sprinklers would be installed above ground by hand and run off of existing water lines. All irrigation materials would be removed as soon as the vegetation is established.

Interpretive and Protective Signage

Signage would be placed throughout the Terrace Lands during Phase 1, to interpret restoration projects and research to the public. Signs or minimal low fencing also could be installed along active restoration areas adjacent to public trails to protect new plantings. All signage and fencing would be designed to comply with CLRDP design standards (CLRDP, Chapter 6) to avoid visual impacts while also providing the maximal public access consistent with restoration.

Research Activities

SRP Phase 1 also may include manipulative experiments focused on evaluating various restoration strategies and techniques (as described in SRP Phase 1, p 8). The objective of these experiments will be to identify the most effective strategies for habitat restoration that meets the goals of the RMP.

Remediation (Plant Maintenance and Replacement)

It is anticipated that initial plant mortality would likely be in the 10% to 40% range due to wildlife browsing, desiccation, and/or accidental trampling (by volunteers during planting and monitoring). Plants would be installed at relatively high densities to provide an allowance for plant mortality. If mortality is lower than anticipated, plants would be thinned as necessary to ensure successful growth and reproduction and future planting densities would be adjusted. If a particular planting

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effort fails, plants would be replanted that season, or the following year if failure occurs after the planting season.

Monitoring Program

The proposed SRP Phase 1 includes a monitoring program to evaluate whether success criteria for native plant cover and richness are being met. Hydrological monitoring would include monitoring of water levels in each major wetland, mapping the area with water at the ground surface, collecting soil samples from the wetlands, and collecting rainfall data. In addition, spring season vegetation monitoring would be conducted in coyote brush shrub-grassland, grassland, coastal bluff, willow riparian and ruderal areas in years 1, 4 and 7; and ten permanent photo points around the project area would be photomonitored annually. Results from the monitoring efforts will be included in reports that will be submitted by December 31st of each year to UC Santa Cruz, the California Coastal Commission, and the SAC. A final monitoring report will be submitted to the California Coastal Commission at the end of the final monitoring period of Phase 1. If the final report indicates that the project has been unsuccessful in achieving habitat restoration and enhancement in the subject area, in part or in whole, based on the approved success criteria, then the final report shall identify remediation measures to be implemented to compensate for those portions of the original plan that did not meet the approved success criteria.

SRP Phase 1B

As noted above, Phase 1B of the SRP is described here to the extent it has been developed to date. Implementation details will be subject to agency consultation and permitting and likely will vary, at least in some details, from the conceptual outline provided here. The implementation of SRP Phase 1B would be independent of the implementation of Phase 1A, although results of both would be monitored and reported at the end of SRP Phase 1. Due to the uncertainty related to the Phase 1B elements and implementation criteria it would be too speculative to evaluate the environmental effects of Phase 1B implementation at this time.

Topographic Modification to Reconnect Wetlands 1 and 2

Wetland W1 is essentially a drainage ditch, which was excavated sometime during the agricultural use of the plot to diminish the extent of natural seasonal inundation of active agricultural fields. The ditch is fed by a culvert under the railroad that defines the northern end of the MSC at the upstream end of the ditch, and terminates at a culvert structure just north of the MSC entry road. Wetland W2, adjacent to the east of W1 (see Figure 3, above) and separated from W1 for most of its length by a raised berm, also is supplied by water entering the site through the railroad culvert, but is much more extensive than W1 and is not defined by artificial berms.

The primary focus of SRP Phase 1B would be work in the wetlands W1 and W2 areas to connect the wetlands hydrologically, for hydrologic and habitat improvements as required by the RMP. The intent of the proposed alterations is to remediate historical modifications to site hydrologic function that served to drain wetlands on the site (e.g. the existing W1 drainage ditch), but leave intact and improve past modifications that may have increased the historical extent and duration of wetland inundation (e.g. the entry roadway berm at the south end of W1). It is envisioned that the initial modifications to wetlands W1 and W2 would consist of installation of a temporary, removable water control structure in the culvert at the south (downstream) end of W1 and, potentially, installation of an earthen berm near the upstream end of W1 to increase flows from W1 into W2.

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It is anticipated that management of site hydrology would increase the cover of native wetland plant species, maintain raptor foraging habitat, improve water quality of inputs to YLR, create a continuous north-south corridor across the north end of the MSC for wildlife movement to YLR, and promote infiltration and subsurface storage of winter runoff. An increase in water pooled in W1 and W2 may also provide amphibian breeding habitat by creating small open water pools. Reserve staff would implement the diversions incrementally and monitor the effects of the modifications on hydrology and habitat, during SRP Phase 1B, before designing and installing any permanent diversion structures. If the measures described do not provide the anticipated benefits during Phase 1B, additional design and planning for enhancement of these wetlands will occur during SRP Phase 2.

Central Areas of Wetlands 4 and 5

Restoration within the central areas of wetlands 4 and 5 (Figure 3), with a total of 3 acres, would focus on increasing native plant species richness and percent cover and decreasing non-native plant cover. Activities in these areas would include weed control, enhancement of existing native vegetation with small-scale plantings, and collection of seeds and cuttings for propagation. No alternations to topography and/or hydrology in these wetlands are proposed.

Project Population

One new half-time staff person would be hired to work primarily on the proposed restoration and habitat enhancement work proposed in the SRP. Between two and 18 student assistants and interns would work on the project for up to 15 hours each. One graduate student researcher would work on the project part-time for 10-20 weeks a year, with time divided between the main campus and the Marine Science Campus. Finally, a short-term, seasonal crew of up to 20 non-students would be hired periodically to work full time planting or weeding, for one to two weeks at a time.

IV. PROJECT APPROVALS AND PERMITS

As discussed above, the proposed SRP Phase 1 project consists of activities consistent with the RMP previously approved by the Regents as an element of the CLRDP. The project would implement the habitat restoration program described in the RMP, for the first third of Terrace Lands, during the first seven years of CLRDP implementation. The proposed SRP Phase 1A is subject to approval by the Chancellor of UCSC. In addition, the University must file a Notice of Impending Development (NOID) for the project with the California Coastal Commission, which will determine whether the proposed project is consistent with the previously-approved CLRDP.

Based on the analyses provided below, implementation of SRP Phase 1A, which incorporates as part of the project description relevant CLRDP EIR mitigation and implementation measures (listed in each resource section below), would not result in any new significant environmental impacts, increase the severity of any impacts previously identified in the CLRDP EIR, or cause any environmental effects not previously examined in the CLRDP EIR. Since no effects to any wetlands or special status species are anticipated from the proposed vegetation management work, it also is not anticipated that permits from other public agencies will be required.

Consistency with the CLRDP

The proposed SRP Phase 1A Project responds to the requirement of Implementation Measure 3.2.10, as set forth in the previously-approved CLRDP, to implement the CLRDP Resource Management Plan, and therefore appears to be consistent with the applicable policy objectives and goals of the CLRDP. The project would not result in an increase in campus or community population levels. The project consists of habitat restoration in all areas on the Marine Science

Campus that are outside of the CLRDP-designated development sub areas shown on final CLRDP Figure 5.4 (as approved by the President of the Board of Regents in December 2008 and by the California Coastal Commission in January 2009). As required by the previously-approved CLRDP, these areas have been incorporated into the Younger Lagoon Reserve (YLR). The proposed SRP Phase 1A activities are consistent with the CLRDP land use designations for these areas.

Environmental Analysis of the CLRDP EIR.

The proposed project implements a portion of the Resource Management Plan, which was described and analyzed in the CLRDP EIR as a component of the CLRDP. The Resource Management Plan is incorporated into the Draft CLRDP EIR (January 2004) by reference (page 4.4-53). CLRDP Implementation Measure 3.2.10 requires that the RMP be implemented through a series of Specific Resource Plans, which set forth the timing, specific locations and activities through which the habitat restoration plan set forth in the previously-approved RMP will be implemented. The proposed project, Specific Resource Plan Phase 1A, does not change the previously-approved Resource Management Plan as analyzed in the EIR, but specifies how the vegetation management aspects of the first phase of that plan would be implemented, the areas that would be restored during Phase 1, and the specific techniques that would be used for planting and weed removal,

As described in the CLRDP EIR, implementation of the Resource Management Plan would include the following measures to protect and restore habitat areas on the Marine Science Campus:

- Consolidation, expansion, and enhancement of wetlands in the northern part of the site;
- Protection and enhancement of seasonal wetlands;
- Establishment of a corridor for unimpaired movement of wildlife along the northern boundary of the site;
- Protection of special status species through protection and enhancement of wetland habitats and grassland/scrub-grassland habitats outside of development areas and through other management measures contained in the CLRDP;
- Management of natural areas;
- Development of long-term maintenance and monitoring programs for terrace habitats

Table 4.4-7, on pages 4.4-54 through 4.4.59 of the CLRDP EIR, summarizes applicable CLRDP policies and implementation measures relevant to biological resources, and the performance standards specified in the Resource Management Plan. These policies and implementation measures include those that would be carried out as part of the SRP Phase 1: developing long-term maintenance and monitoring programs for the terrace habitats, and other habitat enhancement measures in accordance with the management measures contained in the CLRDP (Implementation Measure 3.2.8); controlling weeds; promoting the abundance and diversity of native plant species through small-scale plantings (Implementation Measure 3.2.2); protection and enhancement of the non-native grassland, ruderal, coyote brush scrub-grassland, and coastal bluff areas through eliminating highly invasive weeds; controlling lower priority weeds, and promoting the abundance and diversity of native plant species through small-scale plantings (Implementation Measure 3.2.6). Phase 1B of the SRP would focus on integrating the hydrology of Wetlands W1 and W2 (Implementation Measure 3.2.1), and protection and enhancement of the seasonal wetlands by improving surface water flow; and also would include plantings in wetlands W4 and W5. Again, as

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detailed in the project description above, Phase 1A, which is the subject of the current analysis, focuses on vegetation management and would not include any topographic or hydrological modifications or work within wetlands.

The CLRDP EIR was certified by The Regents in September 2004. Subsequently, the University revised the CLRDP in response to direction from the staff of the California Coastal Commission and prepared Addendum #1 to the CLRDP EIR for Regental approval of these changes. Addendum #1 determined that the CLRDP modification since certification of the EIR would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The University approved these revisions in November 2006.

The Coastal Commission subsequently requested a peer review of CLRDP wetland delineations and, based on this review, requested additional changes to wetland boundaries and buffers proposed in the CLRDP. Pursuant to Section 21080.5 of CEQA, the Secretary of Resources has certified the Coastal Commission's review and approval process as the functional equivalent of the environmental review under CEQA. Accordingly, the impacts of these suggested wetland and wetland buffer modifications to the CLRDP were analyzed in the Commission's November 21, 2007 staff report, which concluded that the suggested modifications to the CLRDP would not result in any significant impacts not previously identified in the CLRDP EIR or UCSC's CLRDP Addendum #1, or increase the severity of any previously identified impact. At a subsequent hearing in April 2008, the Commission adopted revised findings and suggested additional CLRDP modifications related to public access and to permanent protection of resource lands, which had been analyzed in a staff report in March 2008. With the inclusion of these suggested November 2007 and March 2008 modifications, the Commission determined in April 2008 that the CLRDP is consistent with the policies of the California Coastal Act and approved the CLRDP, conditional upon UCSC's acceptance of the revised conditions. The campus revised the CLRDP to reflect the Commission's requested November 2007 and March 2008 changes and published the revised CLRDP in December 2008. On December 29, 2008, having reviewed and considered the Commission's November 2007 and March 2008 staff report and April 2008 findings and approval, the Executive Vice President of the Board of Regents, through delegated authority, affirmed the Commission's 2008 findings and accepted the suggested modifications of the CLRDP as a condition of approval of the CLRDP. The California Coastal Commission then certified the December 2008 CLRDP in January 2009.

As discussed above, among the changes included in the approved December 2008 CLRDP, relative to the project analysis in the 2004 EIR and 2006 Addendum #1, were minor adjustments to the boundaries of wetlands and their associated buffers, and to CLRDP development area boundaries. These adjustments slightly altered the area and location of land that would be affected by implementation of the RMP that had been approved as an element of the earlier (2004) version of the CLRDP, but did not affect the overall location, implementation schedule or range of activities previously approved for the RMP. Another change in the certified (2008) CLRDP was inclusion of Implementation Measure (3.14.1), which required the University to diligently pursue the incorporation of open space and natural lands into the UC Natural Reserve System as a permanent addition to the Younger Lagoon UC Natural Reserve. This measure was implemented in July 2008 through incorporation of the 47 acres of lands identified in the CLRDP as "natural lands", located on an area referred to as the Terrace Lands of the Marine Science Campus into the YLR. The incorporation of the 47 acres into the YLR was required by the Commission to ensure the

protection of the lands in perpetuity and does not materially affect the land uses envisioned in the approved CLRDP, or any aspect of implementation of the RMP as previously approved.

V. ENVIRONMENTAL DETERMINATION

The purpose of the following Environmental Assessment is to determine the appropriate form of environmental review for the proposed SRP Phase 1A Project implementing the RMP approved by the Commission as part of the January 2008 certification of the CLRDP, and to document that determination.

Projects subsequently proposed following certification of the CLRDP must be examined for consistency with the program as described in the CLRDP and with the environmental impact analysis contained in the CLRDP EIR, Addendum #1 and Commission Findings (December 2007 and April 2008). If it is determined that project implementation would result in new significant impacts or a significant increase in previously identified significant impacts, or if new information changes prior significance conclusion or new mitigation measures would be required, a subsequent environmental document is required. As Section 15168(c) of the California Environmental Quality Act (CEQA) Guidelines (Title 14, California Code of Regulations) states in relevant part:

Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared....(2) If the agency finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required....(4) Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.

When an EIR has been certified for a project, no additional environmental review is required except as provided for in Section 15162 of the California Environmental Quality Act (CEQA) Guidelines (Title 14, California Code of Regulations, Sections 15000 *et seq*), which sets forth the circumstances under which a project may warrant a Subsequent EIR or Negative Declaration:

- (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;*
- (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or*
- (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:*

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Under Section 15163, a supplement to a certified EIR may be prepared when any of the conditions requiring preparation of a subsequent EIR are met, but only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation. Under Section 15164, in cases where only minor technical changes or additions are necessary to make the previous EIR adequately apply to the project and none of the conditions calling for a subsequent or supplemental EIR has occurred, an EIR addendum may be prepared. If none of the above conditions is present, no further environmental review is required.

This Addendum and the following assessment of Environmental Factors Potentially Affected find the Project to be consistent with the CLRDP, certified by the Coastal Commission in January 2009. The assessment below considers changes to the CEQA checklist since certification of the CLRDP EIR and also project refinements, and concludes that the Project would not cause any new significant environmental effects that was not considered in the CLRDP, Addendum #1 and December 2007 and April 2008 Commission findings, nor increase the severity of any impact previously found significant therein, and that no new information of substantial importance, which was not known at the time the CLRDP was certified, has become available. Accordingly, the University has determined that an Addendum to the CLRDP is the appropriate level of environmental review for the Project, and specifically describes the scope of the Project and its impacts in relation to the CLRDP, and provides an analysis under CEQA Guidelines 15162 in the following assessment of Environmental Factors Potentially Affected.

VI. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---------------------------------------------------|--------------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |

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Population/Housing

Transportation/Traffic

Public Services

Utilities/Service
Systems

Recreation

Mandatory Findings of
Significance

VII. DETERMINATION: (To be completed by lead agency)

On the basis of the initial evaluation that follows:

- I find that the proposed project could have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, and that these effects have not been adequately analyzed by an earlier EIR. A TIERED ENVIRONMENTAL IMPACT REPORT will be prepared.

- I find that although the proposed project could have a significant effect on the environment, because (1) all potentially significant effects have been addressed adequately in an earlier environmental document pursuant to applicable standards; and (2) all potentially significant effects have been avoided or mitigated to the extent feasible pursuant to that earlier environmental document, including mitigation measures that are incorporated into the proposed project; and (3) the project does not involve new information of substantial importance; and (4) no new mitigation measures or alternatives which are considerably different from those adopted as part of the CLRDP or which were previously considered infeasible, are now feasible that would reduce a new or previously identified significant impact. An ADDENDUM and/or FINDINGS will be prepared.

Signature

Date

Printed Name

For

VIII. EVALUATION OF ENVIRONMENTAL IMPACTS

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

“**Additional Project-level Impact Analysis Required**” applies where the project may result in an environmental impact that was not considered in an earlier document, or not considered in sufficient detail, and/or substantial project changes, changed circumstances, or new information of substantial importance triggering CEQA Section 15162 has occurred since certification of the earlier document.

“**Project Impact Adequately Addressed in Earlier Environmental Document**” applies where the potential impacts of the proposed project were adequately addressed in an earlier environmental document and either no changes or no substantial changes to the project are proposed, and no new information of substantial importance has been identified.

Impact Questions and Responses

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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1. AESTHETICS – Would the project:

- | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Relevant Features of the Project

The proposed Phase 1A SRP Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The restoration work would consist of the planting of native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat; and removal of non-native invasive weeds throughout the terrace lands. Interpretive signage consistent with CLRDP design standards would be scattered in publicly-accessible areas to explain the restoration work and related research. Additional signage or low fencing also could be installed, as needed to protect new plantings.

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No CLRDP EIR mitigations or CLRDP implementation measures related to aesthetics were adopted as part of the Mitigation Monitoring Program for the CLRDP or are applicable to the proposed Phase 1A SRP Project.

Previous Analysis

a-d) The CLRDP EIR (Section 4.1) analyzes potential impacts of building development on scenic vistas, scenic resources, and the visual character and quality of the site and its surroundings. The CLRDP EIR does not identify any environmental impacts related to aesthetics that would result from Resource Management Plan restoration activities. No aesthetic impacts were identified.

Effect of Changes to the Project on the Previous Environmental Analysis

a-d) The proposed SRP would alter the composition of the vegetation on approximately 16 acres of the natural lands on the MSC but this would not alter the appearance of these lands in a manner that could affect scenic vistas, scenic resources, or the visual character and quality of the site and its surroundings. Although vegetal cover would be altered, the replacement of non- natives with a better-quality mosaic of native vegetation is consistent with the natural appearance of the site. The resulting subtle alterations in visual character would be aesthetically beneficial to the overall natural visual character of the site. Because any signage would be low and small in scale and would be consistent with approved CLRDP design standards for signage, signage would be visible only at close range and would not be visually intrusive. No adverse aesthetic impacts are anticipated.

As discussed above, the implementation of the RMP as proposed in SRP Phase 1A would not adversely affect the appearance or visibility of the natural lands on the Marine Science Campus and is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the California Coastal Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential aesthetic impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address aesthetic impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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1. AGRICULTURAL AND FOREST

RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the CA Dept. of Forestry and Fire

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
<p><u>Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.</u> Would the project:</p>		
<p>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 California Resources Agency, to non-agricultural use?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>c) <u>Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined in Public Resources Code 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?</u></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>d) <u>Result in the loss of forest land or conversion of forest land to non-forest use?</u></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>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?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The restoration work would consist of the planting of native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat; removal of non-native invasive weeds throughout the terrace lands, and planting of a screen of shrubs to define a spatial buffer and “living fence” between project site wetlands and adjacent agricultural land.

CLRDP EIR General Mitigation Measure 4.2-1 requires that a fence and screen of shrubs or trees be constructed along the boundary between the campus and the adjacent Younger Ranch agricultural fields in conjunction with the first development project on the campus, to ensure that

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campus development does not result in incursions by members of the public onto adjacent farm lands. This measure is not triggered by the proposed SRP Phase 1, which is not a development project. However, SRP Phase 1A includes planting of a vegetation screen along the Wetland W1 buffer adjacent to Younger Ranch, which is one element of this mitigation measure. This screen will augment the wetland buffer between the campus and potential agricultural activities at Younger Ranch.

Previous Analysis

Items related to forest land and forest conversion were added to the CEQA checklist subsequent to the publication of the CLRDP EIR. These new items and item revisions are addressed in the section that follows.

- a) Twenty-six acres of Elkhorn sandy loam #132 on the middle and upper terrace are considered prime soils if they are irrigated. Soils on the lower terrace are of lesser quality. Based on an analysis of the Marine Science Campus following the California Department of Conservation Land Evaluation and Site Assessment (LESA) Model, the CLRDP EIR determined that the agriculture on the Marine Science Campus would not be economically viable due to the high costs of providing water to the site for irrigation. Therefore, the CLRDP EIR concluded that development under the CLRDP, including the proposed SRP Phase 1, would not result in significant impacts on Farmland (CLRDP EIR: 4.2-12 and -13).
- b) The Marine Science Campus and the adjacent Younger Ranch are not under Williamson Act contract; therefore, the CLRDP EIR concluded that development under the CLRDP, including implementation of the RMP, would have no impacts on Williamson Act lands (p 4.2-13).
- c, d) The project site is not forest land and was not forest land historically. No impact would occur
- e) The CLRDP EIR analyzed the potential that development under the CLRDP, including implementation of the RMP, could constrain use of certain pesticides on adjacent agricultural lands and generate complaints of nuisance, vandalism/theft, pilferage, and trespass/liability at the Younger Ranch, and that these pressures could increase costs of agricultural operations, impair productivity, and diminish the feasibility of continued agricultural production, possibly resulting in the eventual removal of adjacent land from agricultural use. The potential for this impact to occur was considered less than significant (p 4.2-14 to -15). Implementation of the Resource Management Plan would not contribute to these potential impacts.

Effect of Changes to the Project on the Previous Environmental Analysis

a-c) The SRP Phase 1A project, which implements the RMP-required vegetation management measures, is not a development project. Nonetheless, the project includes construction of a shrub screen between the project site and Younger Ranch, which would partially implement CLRDP General Mitigation Measure 4.2-1.

None of the implementation or mitigation measures described above are relevant to the SRP Phase 1A. The finding that SRP Phase 1A would not impact agricultural resources is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission's December 2007 and April 2008 Findings, and would not introduce any new potential agricultural impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address agricultural impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
<p>2. 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:</p>		
<p>a) Conflict with or obstruct implementation of the applicable air quality plan?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>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)?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d) Expose sensitive receptors to substantial pollutant concentrations?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>e) Create objectionable odors affecting a substantial number of people?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The restoration work would consist of the planting of native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat; removal of non-native invasive weeds throughout the terrace lands; and installation of interpretive signage and possibly signage and low fencing to protect new plantings.

The use of motor vehicles to convey materials for restoration work would generate small amounts of air pollutant emissions. The project would not develop any new stationary sources of air pollutant emissions or toxic air contaminants.

None of the mitigation measures or implementation measures identified in the CLRDP EIR is applicable to the proposed SRP Phase 1A project.

Previous Analysis

a-d) The CLRDP EIR analyzed the following air quality issues: potential construction emissions of respirable particulate matter (PM₁₀), ozone precursors, and toxic air contaminants (TACs); operational emissions of criteria pollutants, carbon monoxide (CO), and TACs; objectionable odors; cumulative emissions of CO and TACs; and consistency with Air Quality Management Plan. Implementation of the RMP would make a minor contribution to the construction emissions of PM₁₀ and TACs associated with development under the CLRDP but would not contribute to the identified operational emissions of CLRDP development.

The Association for Monterey Bay Area Governments (AMBAG) found that the CLRDP was consistent with the 2000 Air Quality Management Plan for the Monterey Bay Area.¹ Therefore, emissions of VOCs, NOX, and SO₂ resulting from implementation of the CLRDP, including the RMP project, are considered to have a less-than-significant cumulative impact on regional air quality (CLRDP EIR 4.3-26).

Construction PM₁₀ Emissions. Based on the size of the area that would be graded for construction of each project under the CLRDP, the EIR concluded that PM₁₀ emissions from construction of multiple projects at the same time could exceed the significance threshold established by the Monterey Bay Unified Air Pollution Control District. Implementation of CLRDP EIR Mitigation Measure 4.3-1 (which is not applicable to the SRP because of the nature and scale of the project) would reduce temporary and localized air quality impacts from construction activities under the CLRDP to a less than significant level (CLRDP EIR p 4.3-16).

Construction TAC Emissions. The CLRDP EIR included a health risk assessment that analyzed the potential acute exposure and long-term carcinogenic risks from construction emissions of TACs in diesel particulates and in the form of soil contaminants carried in fugitive dust. The estimated maximum acute exposure levels of TACs from fugitive dust during construction activities under the CLRDP, including the RMP, are below the acceptable threshold levels for both acute exposure and carcinogenic risk. Therefore, implementation of the CLRDP, including the RMP would not cause or substantially contribute to significant (adverse) health impacts (carcinogenic and non-carcinogenic) from the emissions of TACs (CLRDP EIR p 4.3-18).

e) The CLRDP EIR determined that implementation of the CLRDP, including implementation of the RMP, would not result in objectionable odors (CLRDP EIR p 4.3-24).

Effect of Changes to the Project on the Previous Environmental Analysis

a-e) The SRP Phase 1A Project would not include grading, would not involve more than incidental use of motorized vehicles, and would not create any new sources of air pollutant emissions. The project would not contribute to the PM₁₀ or TAC emissions impacts identified in the CLRDP EIR.

The SRP Phase 1A would not result in a significant air quality impact as described in (a)-(e), is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission's December 2007 and April 2008 Findings, and would not introduce any new potential air quality impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address air quality impacts of the Project.

¹ AMBAG, 2003

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
3. 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any applicable policies protecting biological resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The restoration work would consist of the planting of native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat; removal of non-native invasive weeds throughout the terrace lands; and installation of interpretive signage and signage and low fencing as needed to protect new plantings.

The following adopted CLRDP EIR mitigations and CLRDP implementation measures included in the Mitigation Monitoring Program for the CLRDP are applicable to and included as part of the proposed Phase 1A SRP Project:

CLRDP Policy 3.2 - Protection and Restoration of Habitat Areas: The biological productivity and the quality of coastal waters, streams, and wetlands, appropriate to maintain the optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through among other means minimizing adverse effects of wastewater discharges, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural watercourses. Campus natural areas (i.e., areas outside of defined development zones) shall be protected, restored, enhanced, and managed as high-quality open space and natural habitat areas.

CLRDP EIR Project Specific Mitigation Measure 4.4-1 -- For all projects proposed in the upper terrace under the CLRDP, the University will implement the following:

A preconstruction survey for CRLF will be conducted of all areas proposed for grading and construction by a qualified biologist, approved by the USFWS. If CRLF are observed, grading activities shall be postponed and USFWS shall be consulted to determine appropriate actions to avoid impact. Consultation with the USFWS will result in either a determination of the need to obtain a permit or in the identification of measures to avoid take of the individual(s).

The biological monitor shall also conduct meetings with the contractor(s) and other key construction personnel to describe the importance of the species, the need to restrict work to designated areas, and to discuss procedures for avoiding harm or harassment of wildlife encountered during construction.

CLRDP EIR Project Specific Mitigation Measure 4.4-2: UCSC shall ensure that construction activities avoid disturbing nests of raptors (and other special-status birds). If ground-disturbing activities are scheduled to occur during the breeding season (February 1 through August 31), the following measures are required to avoid potential adverse effects on nesting special-status raptors and other birds:

A qualified wildlife biologist will conduct preconstruction surveys of all potential nesting habitat. For burrowing owls, such surveys will follow the most recent CDFG Burrowing Owl Survey Protocol and Mitigation Guidelines.²

If active raptor nests are found during preconstruction surveys, a no-disturbance buffer acceptable in size to CDFG will be created around active raptor nests and nests of any other special-status birds during the breeding season, and maintained until it is determined that all young have fledged. Raptor or other bird nests initiated during construction are presumed to be unaffected, and no buffer is necessary. However, the “take” of any individuals will be prohibited.

If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction/restoration period, no further mitigation is required. Trees and shrubs that have been determined to be unoccupied by special-status birds or that are located outside the no-disturbance buffer for active nests may be removed.

² California Department of Fish and Game, *Staff Report on Burrowing Owl Mitigation*, The Resources Agency, October 17, 1995.

Previous Analysis

a-c) The CLRDP EIR determined that no state or federal special-status plant species or other special-status plant species occur on the Marine Science Campus, and no such species are presumed to be present due to the lack of suitable habitat. Therefore, the implementation of the proposed CLRDP, including the proposed SRP Phase 1A, would not have the potential to result in significant adverse impacts on any special-status plant species under CEQA (CLRDP EIR p 4.4-60).

The EIR determined that development under the CLRDP, including the proposed habitat restoration activities, would have a less-than-significant impact on California red-legged frog (CRLF), which is a federally listed threatened species (CLRDP EIR p 4.4-62). Juveniles and sub-adults of this species have been observed immediately adjacent to the site in a ditch along the railroad tracks to the north of the Marine Science Campus but there presently is no suitable breeding habitat for the species on the campus. Although the wetland areas on the upper terrace do have the potential to provide temporary hydration and foraging areas for CRLF during winter movements, the CLRDP EIR determined that the potential for dispersing individuals to be present in this area was low because of the distance from breeding sites and because the aquatic habitat on the site is ephemeral. However, because of the potential that CRLF may occur on the campus, CLRDP EIR Mitigation 4.4-1 was adopted to further reduce the potential of CLRDP activity to adversely affect the species.

The CLRDP delineates sensitive habitats and wetlands and permanently protects them from development, and therefore would not cause significant adverse effects on these habitats (CLRDP EIR p 4.4-68).

d) The EIR evaluated the potential that development on, and restoration of, annual grassland and coastal scrub on the middle and upper terrace development zones, could disturb nesting raptors through the direct effects of ground disturbance and the indirect effects of increased human activity and noise. The EIR determined that the probability of this impact is low and the degree of impact is considered less than significant because raptor nesting records are limited for the site, and there is abundant alternate and protected habitat in the region (CLRDP EIR p 4.4-64). The EIR identified CLRDP EIR Project Specific Mitigation Measure 4.4-2, applicable to all projects in the middle and upper terrace areas, to further reduce the less-than-significant impact. This previously adopted mitigation is applicable to the restoration activities that would be carried out under the proposed SRP Phase 1A, and is included as part of the project.

The EIR determined that development under the CLRDP would not result in significant impacts to wildlife corridors because these habitats are outside the proposed development zones and are protected by buffers and the Stormwater Concept Plan (CLRDP EIR p 4.4-69). The restoration activities proposed under SRP Phase 1A, which implement the approved RMP, fall within the implementation of CLRDP Policy 3.2, and would also enhance and protect sensitive plant communities on the Terrace Lands.

e) The EIR determined that development under the CLRDP would not interfere with the Younger Lagoon Reserve Management Plan, which is the only plan for conservation of biological resources that applies to the Marine Science Campus. The CLRDP was developed in consultation with the YLR manager and is consistent with the goals of the YLR Management Plan. SRP Phase 1A would initiate implementation of the CLRDP Resource Management Plan.

Effect of Changes to the Project on the Previous Environmental Analysis

Since the CLRDP EIR was certified, the natural areas of the terrace lands of the Marine Science Campus have been incorporated into the YLR, by agreement between the UC Santa Cruz Campus administration and the UC Santa Cruz Natural Reserve System (UCNRS), as an integral part of the YLR. This agreement specifies that the UCNRS will undertake protection, restoration and management of these natural lands in accordance with the CLRDP RMP. The agreement does not alter the nature or scope of the restoration activities as described in the EIR or anticipated during SRP Phase 1A.

Although SRP Phase 1A would not involve construction or grading, planting would require some ground disturbance, and contractors would be involved in portions of the work. CRLF surveys of the upper terrace were carried out in spring and summer 2009 and frogs were found in one area of Wetland W2. No planting work or other activity is proposed for this area in SRP Phase 1A, and consultation with USFWS therefore does not appear to be warranted. However, consistent with the CLRDP, CLRDP EIR Project Specific Mitigation Measure 4.4-1, which requires that contractors and other key personnel be informed of procedures to ensure that any frogs that might be encountered are identified and avoided, is included in the project. The project also includes CLRDP EIR Project Specific Mitigation Measure 4.4-2, to ensure that the project would not result in incidental disturbance of nesting raptors.

Because the project incorporates all applicable CLRDP mitigation measures, SRP Phase 1A would not increase the extent to which RMP restoration activities could result in disturbance to sensitive habitat, sensitive natural communities or wildlife corridors, is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential biological resources impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address biological resource impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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4. CULTURAL RESOURCES -Would the project:

- | | | |
|----------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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feature?

- d) Disturb any human remains, including those interred outside of formal cemeteries?

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus, primarily the planting of native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat; removal of non-native invasive weeds throughout the terrace lands; and placement of interpretive signage, and of low fencing and signage to protect new plantings in the vicinity of public access trails. Plantings would involve hand excavation of a discrete hole for each small plant, and would not involve grading, soil disturbance at depth, or mechanical excavation.

The following CLRDP EIR mitigations and CLRDP implementation measures included in the Mitigation Monitoring Program for the CLRDP are applicable to and are part of the proposed SRP Phase 1A Project:

CLRDP EIR Mitigation 4.5-1: If human remains are discovered during the construction of a development project under the CLRDP, the University and/or its employees shall notify the Santa Cruz County Coroner’s Office immediately. Upon determination by the County Coroner that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and the County Coordinator of Indian Affairs and appropriate Native American consultation shall be conducted, as outlined by PRC 5097.98. Implementation Measure 3.9.1, Construction Monitoring, as identified in the CLRDP, shall also apply. UCSC will be responsible for implementing this mitigation measure.

Implementation Measure 3.9.1 -- Construction Monitoring. Should archaeological and/or paleontological resources be encountered during any construction on the Marine Science Campus, all activity that could damage or destroy these resources shall be temporarily suspended until qualified archaeologist/paleontologists and Native American representatives have examined the site and mitigation measures have been developed that address and proportionately offset the impacts of the project on archaeological and/or paleontological resources. Development shall incorporate measures to address issues and impacts identified through any archaeologist/paleontologist and/ or Native American consultation.

Previous Analysis

a-d) The CLRDP EIR determined that there are no known historic or archaeological resources on the Marine Sciences Campus and that the potential for encountering paleontological resources during construction is low. Notwithstanding, the CLRDP EIR Project Specific Mitigation Measure 4.5-1 and CLRDP Implementation Measure 3.9.1 were adopted as part of the CLRDP in connection with any ground-disturbing activities. These measures specify the steps to be taken in the event of unexpected discovery of archeological or paleontological resources or human remains. The CLRDP EIR concluded that the inclusion of these measures would reduce potentially significant impacts to undiscovered archaeological and paleontological resources and human remains to a less-than-significant level (CLRDP EIR p 4.5-8).

Effect of Changes to the Project on the Previous Environmental Analysis

a-d) The SRP Phase 1A could result in disturbance to previously undiscovered cultural resources. Although, due to the small scale of proposed planting excavation, the potential to encounter subsurface cultural resources is slight, the CLRDP EIR Project Specific Mitigation Measure 4.5-1 and CLRDP Implementation Measure 3.9.1 would be implemented in connection with any ground-disturbing activities associated with habitat restoration. These measures specify the steps to be taken in the event of unexpected discovery of archeological or paleontological resources or human remains. With implementation of these measures, which are included as part of the project, all cultural resources impacts of the proposed project would be less than significant.

Because the project incorporates all applicable CLRDP mitigation measures, described above, the SRP Phase 1A would not increase the extent to which the restoration activities could result in disturbance to cultural resources, is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential cultural resources impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address cultural resource impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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5. 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

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The restoration work would consist of the planting of native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat; removal of non-native invasive weeds throughout the terrace lands; and installation of interpretive signage and low fencing and signage to protect new plantings, as needed. No topographic or hydrologic modifications are proposed, and vegetation removal and planting would not involve grading.

Previous Analysis

a-e) The CLRDP EIR concluded that no significant impacts related to geology and soils would result from implementation of the CLRDP program, including the RMP. RMP implementation would not involve construction of any structures and thus has not potential for impacts related to seismic shaking and other geologic hazards. The CLRDP EIR determined that standard construction and engineering practices, which require winterizing construction sites and protecting exposed soil during heavy rainfall, would ensure that the implementation of the CLRDP, including the RMP, would not result in significant erosion impacts (CLRDP EIR p 4.6-23).

Effect of Changes to the Project on the Previous Environmental Analysis

a-e) The SRP Phase 1A Project includes the methods that would be used to remove weeds and to plant, in implementing the approved RMP. All weed removal and planting would be done by hand, and the use of motor vehicles would be limited to light trucks driven primarily on the existing perimeter trail and only when the soil is dry. These activities have minimal potential for ground disturbance that could result in erosion. Restoration work along the coastal bluff edge after the removal of ice plant (a Priority 1 weed that would be systematically removed) would include installation of biodegradable silt fencing. New plantings would be installed as soon as possible after ice plant removal and would be mulched to control erosion while vegetation is re-established. In flat areas of the terrace, materials such as wood-chip mulch or jute netting would be used as needed to prevent erosion of soils exposed by weeding or planting.

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The project does not have the potential to result in new significant effects related to geology or soils, is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential impacts with respect to geology or soils, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address geology and soils impacts of the Project.

<u>Issues</u>	<u>Additional Project-level Impact Analysis Required</u>	<u>Project Impact Adequately Addressed in Earlier Environmental Document</u>
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6. GREENHOUSE GAS EMISSIONS -- Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases?

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The restoration work will include removal of non-native invasive weeds throughout the terrace lands, and may include the selective use of pickup trucks or a gas-powered mule to transport materials to selected sites, and occasional use of hand-held gas-powered mechanical equipment (such as a chain saw). The proposed project does not include any development or population increase with a potential to result in future operational air emissions.

a, b) The CLRDP EIR was certified before the passage of Assembly Bill 32 (Global Warming Solutions Act of 2006) and therefore did not analyze greenhouse gas emissions or climate change.

It is generally the case that an individual project of any size is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. Thus, GHG impacts are recognized as exclusively cumulative impacts: there are no non-cumulative GHG emission impacts from a climate change perspective. Accordingly, discussion of the GHG emissions that would result from the proposed project and their impact on global climate are addressed in terms of the project’s contribution to a cumulative impact on global climate.

The greenhouse gas emissions of the proposed SRP Project would be limited to those resulting from the temporary, periodic use of vehicles by the staff carrying out the project to commute to and from the project site and to carry equipment to specific work sites. The small number of such trips that would be generated by the project were taken into account in the trip generation estimate for the CLRDP overall and are within the number of trips analyzed in the EIR in relation to

CLRDP implementation. The proposed project would not create any new permanent sources of greenhouse gases and therefore would not make a cumulatively considerable contribution to global climate change.

GHG emissions from the proposed activities would be minimal compared with those from any type of construction. The project would not add any new stationary sources of air emissions or other operation air emissions. The project site is served by public transportation and the Campus provides low-cost bus passes to employees. The project is consistent with the UC Policy on Sustainable Practices, and would not conflict with any applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases.

Conclusions

Because the project consists of replanting of existing vegetated areas, primarily by hand, as described above, it would not result in a significant greenhouse gas impact for the reasons given above. No Project revisions or additional mitigation measures are required.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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7. 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
the project area?		
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The restoration work will include removal of non-native invasive weeds throughout the terrace lands, and may include the selective use of herbicides. Pickup trucks or a gas-powered mule could be used to transport materials to selected sites, but would be restricted to existing roads and trails and used only when the soil is dry.

The following CLRDP implementation measures included in the Mitigation Monitoring Program for the CLRDP are applicable to and included in the proposed SRP Phase 1A Project:

Implementation Measure 3.10.1 – Use, Containment and Cleanup of Hazardous Materials.

The University, through the Office of Environmental Health and Safety, will manage the use, and in the event of spillage, the containment and cleanup of, hazardous materials and petroleum on the UCSC Marine Science Campus in compliance with federal and state regulations related to the storage, disposal, and transportation of hazardous substances.

Previous Analysis

a-c) The CLRDP EIR concluded that, with the implementation measures above included in the project, the increase in hazardous materials use by UC entities under the CLRDP would not result in significant risks because UC Santa Cruz would continue to comply with all federal and state laws regulating the use, storage and disposal of petroleum products and other hazardous materials, such as pesticides (CLRDP EIR p 4.7-17). The CLRDP also determined that the project site is not within ¼ mile of a public or private elementary, middle, or high school and therefore, that there would be no impacts associated with hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or wastes within ¼ mile of a school as a result of the project (CLRDP EIR p 4.7-19).

d) Because the Marine Science Campus is not listed as a contaminated site, with the inclusion of the implementation measures listed above, no significant hazard to the public or the environment

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would result from construction activities under the CLRDP, including the proposed project (CLRDP EIR p 4.7-19).

e-f) The Marine Science Campus is not located within 2 miles of public airport or private airstrip. No impact with respect to risk from or to air overflight would occur (CLRDP EIR p 4.7-19) .

g-h) The CLRDP EIR also determined that development under the CLRDP would not interfere with the City of Santa Cruz Emergency Response Plan or any federal or state emergency response plans, and that the risk of wildland fire at the Marine Science Campus is low because of the nature of the development on the site and its coastal location. The impact would be less than significant and no mitigation is required (CLRDP EIR p 4.7-20).

Effect of Changes to the Project on the Previous Environmental Analysis

a-g) The SRP Phase 1 Project describes the specific techniques that could be used to remove Priority 1 weeds under the previously-approved RMP. These techniques could include application of herbicides. All herbicide application would follow California Department of Pesticide Regulation (CaDPR) regulations and would be done by a CaDPR qualified applicator. Herbicides would be chosen based on the target weed and surrounding habitat (e.g. species-specific targeted applications). Only registered aquatic herbicides would be used in wetland areas. Any herbicide application would be done by hand. The project would also implement CLRDP Implementation Measures 3.10.1 in the event of an accidental release of any hazardous material, including herbicide. These measures would ensure that the use of herbicides in restoration activities related to SRP Phase 1A would not create a significant risk to the public or the environment.

The project includes applicable Implementation Measures, described above, is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential impacts with respect to hazards and hazardous materials, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address hazards associated with the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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8. HYDROLOGY AND WATER QUALITY -- Would the project:

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration including the planting of native plants; removal of non-native invasive weeds throughout the terrace lands, including on the ocean bluff edge, by hand and with local applications of herbicides. The proposed Phase 1A does not include any topographic or hydrological modifications, but would include minor excavation by hand and temporary exposure of previously vegetated soils.

The following CLRDP EIR mitigations and CLRDP implementation measures included in the Mitigation Monitoring Program for the CLRDP are applicable to and included in the proposed SRP Phase 1A Project:

CLRDP Policy 7.1 -- Productivity and Quality of Coastal Waters. The Marine Science Campus shall be developed and used in a manner that shall sustain and, where feasible, enhance and restore, the biological productivity and quality of coastal waters on and adjacent to the Campus through controlling, filtering, and treating runoff and other non-point sources of pollution, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging wastewater reclamation, and maintaining natural vegetation buffer areas that protect riparian habitats.

IM 7.1.8 – Irrigation and Use of Chemicals for Landscaping. Any water used for landscape irrigation on the Marine Science Campus shall not be applied in a manner that would cause significant erosion. Any use of chemicals for fertilizer and/or weed and pest control shall be minimized to the degree feasible, including as required by the Drainage Concept Plan, and any chemicals unavoidably used shall not enter habitat areas or the ocean in concentrations sufficient to harm wildlife and/or to degrade habitat.

Previous Analysis

a-j) The CLRDP EIR analyzed the potential impacts on hydrology and water quality that could result from development under the CLRDP, including changes to runoff quantities and patterns and new impervious surfaces such as rooftops and parking lots that accumulate sediments and other contaminants. The CLRDP EIR concluded that implementation of the CLRDP, including the RMP, would not result in adverse effects to water quality, due to the protections provided by the water quality policies and implementation measures included in the CLRDP (CLRDP EIR p 4.8-25). The project would not rely on groundwater supplies. The increase in impervious surfaces associated with implementation of the CLRDP would not substantially reduce groundwater recharge because, under CLRDP policies and implementation measures included in the project, the development of new impervious surfaces in any one area is limited and most runoff from development will be infiltrated in local catchments. The CLRDP therefore would not adversely affect groundwater at the site (CLRDP EIR p 4.8-27). The stormwater management and water quality measures provided in the CLRDP would reduce the potential for erosion, siltation and flooding to ensure that impacts related to additional stormwater flows are less than significant (CLRDP EIR p 4.8-30, -32). The stormwater concept plan included in the CLRDP requires calculation of the potential for increased peak flows during the 25-year storm event and of detention volume required to maintain discharge flows to existing rates and volumes, and mandates that stormwater facilities be designed to capture such flows. For these reasons, impacts associated with increased runoff would be less than significant (CLRDP EIR p 4.8-34). The project site is not in a 100-year flood zone. Development at the site would not place people or structures at risk for flooding. Due to the 40-foot elevation of the campus above ocean level, the risk of flooding by ocean tides or tsunami is negligible. The site is flat and would not be subject to mudflow (CLRDP EIR p 4.8-36, -37).

Effect of Changes to the Project on the Previous Environmental Analysis

a-j) The SRP Phase 1A Project would involve restoration activities the use of herbicides as one of the methods that may be used to remove weeds. The use of herbicides was not directly discussed in the CLRDP EIR. However, Implementation Measure 7.1.8, which is part of the project the project, requires that the use of chemicals for weed or pest control be minimized to the degree feasible and that any such chemicals be used in a manner that prevents the chemical from entering habitat areas or the ocean in concentrations sufficient to harm wildlife and/or to degrade habitat or water quality. Any herbicide application would follow California Department of Pesticide Regulation

(CaDPR) regulations and would be done by a CaDPR qualified applicator. Herbicides would be chosen based on the target weed and surrounding habitat (e.g. species-specific targeted applications). Only registered aquatic herbicides would be used in wetland areas. All applications would be done by hand. These measures would ensure that the use of herbicides does not result in significant adverse effects on habitat or wildlife.

Removal of non-native plants would be carried out primarily by hand and would not entail grading or mechanical scraping. Plantings also would be carried out by hand, thus minimizing soil disturbance. Where weeds are removed or soil is disturbed by plantings, the project includes erosion-control measures, including installation of silt fencing along the coastal bluff after ice plant removal, and the use of other soil covers as needed while new plantings are being established. These project elements would ensure that the project would not result in erosion or siltation that could have adverse effects upon water quality.

Therefore, the project does not have the potential to result in new significant impacts related to hydrology or water quality, is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential hydrology or water quality impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address aesthetic impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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9. LAND USE AND PLANNING -- Would the project:

- | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Create other land use impacts? | <input type="checkbox"/> | <input type="checkbox"/> |

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration entirely within the natural lands on the UC Santa Cruz Marine Science Campus, consistent with the requirements of the CLRDP. Some of the proposed work would be located near the border of the MSC with the adjacent

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Younger Ranch. The project would include planting of shrubs to create a “living fence” along the western margin of the campus in the area of the Wetland W1 buffer, which would serve both to further buffer the wetland from intrusion and would provide additional separation between the wetland and potential agricultural land uses on the adjacent Younger Ranch.

No relevant mitigation or implementation measures were identified in the CLRDP EIR or the CLRDP.

Previous Analysis

a-c) The University is exempt from local land use regulation; however, the CLRDP EIR includes a discussion of the consistency of the CLRDP with the City of Santa Cruz General Plan/Local Coastal Program (LCP). In addition, the CLRDP EIR analyzed potential conflicts with a Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP), compatibility with neighboring land uses, and consistency with the California Coastal Act.

The CLRDP EIR concludes that the CLRDP, including the RMP, would be consistent with the City of Santa Cruz General Plan/LCP and the California Coastal Act, and that there is no HCP or NCCP that applies to the Marine Science Campus or vicinity. The agricultural buffers and limits on the sizing and placement of utility lines in the CLRDP would ensure that development under the CLRDP would be compatible with neighboring agricultural uses and would be consistent with City and County General Plan/LCP policies. Therefore, the CLRDP EIR determined that development under the CLRDP would not result in any significant project or cumulative impacts with respect to land use (CLRDP EIR p 4.9-10 through -14).

Effect of Changes to the Project on the Previous Environmental Analysis

a-c) SRP Phase 1 identifies the locations of restoration activities to be carried out under the RMP, and the development of specific methods that would be used for weed removal and planting. The activities covered in the SRP Phase 1A implement the first phase of the CLRDP RMP, a required element of the CLRDP. Proposed work areas are consistent with the applicable CLRDP land use designations, and would not change or result in changes to any existing land use. SRP Phase 1A would include installation of a vegetation screen between Wetland W1 and adjacent farm land, and thus would enhance the effectiveness of the existing spatial buffer between wetland habitat and potential agricultural land uses.

Therefore the project does not have the potential to result in new significant land use impacts, is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential land use impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address land use impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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10. NOISE -- Would the project result in:

- a) Exposure of persons to or generation of noise levels in

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (including construction)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on natural lands on the UC Santa Cruz Marine Science Campus that would consist of the hand planting of native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat; and removal of non-native invasive weeds throughout the terrace lands, also primarily by hand.

Previous Analysis

a-f) The CLRDP EIR analyzed whether operation of the Marine Science Campus under the CLRDP has the potential to result in excessive noise or expose persons to excessive noise from trains, traffic, and operation of campus facilities; the potential that implementation of the CLRDP could generate or expose persons to substantial ground-borne vibration from construction activity and from train activity; whether construction activities associated with the development of new buildings and facilities on the Marine Science Campus under the CLRDP would generate noise that could expose nearby receptors to elevated noise levels; and whether implementation of the project would expose people to airport noise. The EIR determined that all of these impacts either would be less than significant, or would be reduced to less-than-significant levels with mitigation that is included in the project (CLRDP EIR 4.11-27).

Effect of Changes to the Project on the Previous Environmental Analysis

a-f) The SRP Phase 1A Project would not affect the potential for the restoration activities described in the CLRDP RMP and analyzed in the CLRDP EIR to result in significant noise impacts. The restoration activities under the SRP Phase 1A would be carried out by small crews using hand-operated equipment, and light trucks, wheelbarrows or gas-powered mules to move equipment to each work area. This work would be sporadic and of small scale. Therefore, the SRP Phase 1A Project would not contribute to the noise impacts analyzed in the EIR.

Therefore the project is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential noise impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address noise impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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11. POPULATION AND HOUSING -- Would the project:

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| 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)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on designated natural lands on the UC Santa Cruz Marine Science Campus. The restoration work would address only natural areas and would not entail removal or construction of any structures or infrastructure. One new half-time employee would be hired to oversee this work, but the work would be carried out primarily by UCSC students and current employees, augmented periodically by teams of up to 20 short-term laborers hired for periods of one to two weeks at a time.

Previous Analysis

The CLRDP EIR analyzed the potential that development under the CLRDP could directly or indirectly induce substantial population growth, result in a concentration of population, or displace housing or substantial numbers of people. The EIR concluded that the project would not result in any significant impacts with respect to population or housing, and no mitigation was required (C:RDP EIR 4.12-22, -24).

Effect of Changes to the Project on the Previous Environmental Analysis

The SRP Phase 1A Project consists of the identification of the locations where restoration activities required by the RMP would be carried out, and the specific methods that would be used for weed removal and planting. The work would be carried out by persons already taken into account in the CLRDP EIR population analysis. The proposed project would be carried out by existing UC employees and UCSC students and would not result directly or indirectly in any increase in campus population. It is assumed that temporary short term laborers likely would be available in the local work force. The sporadic and short term nature of the work would not be likely to draw permanent workers to the area who would contribute to the demand for housing. Therefore, the project would not displace any housing or people, contribute to demand for new housing, or result in any significant population increase.

Therefore, consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential population impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. The prior environmental analysis is sufficient and comprehensive to address the potential population and housing impacts of the Project. No Project revisions or additional mitigation measures are required.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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12. 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Police protection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Schools? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Parks? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Other public facilities? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Create other public service impacts? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on natural lands on the UC Santa Cruz Marine Science Campus. One new half-time employee would be hired to oversee this work, but the work would be carried out primarily by UCSC students and current employees, augmented periodically by teams of up to 20 short-term laborers hired for periods of one to two weeks at a time. The project would not result in any measurable population increase, and therefore would not contribute to demand for public facilities; nor would it include the installation of any facilities that would require police or fire protection.

Previous Analysis

a-f) The CLRDP EIR analyzed whether development under the CLRDP EIR would generate demand for fire protection or police service or schools that would require the construction of facilities whose construction could have significant adverse environmental effects. The EIR determined that, the project would not result in any significant project-level or cumulative impacts in these areas (CLRDP EIR 4.13-7 and -9).

Effect of Changes to the Project on the Previous Environmental Analysis

The SRP Phase 1A Project would not result an increase in population greater than that analyzed in the EIR or the construction of new structures requiring fire protection and police services. Therefore, the Project does not have the potential to result in new significant impacts related to public services, is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential public service impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address public services impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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13. RECREATION --

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| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on natural lands on the UC Santa Cruz Marine Science Campus and installation of interpretive signage and of signs and low fences to protect new plantings as needed. The project would increase campus staffing by up to one half-time employee. Most of the remainder of the work would be carried out by students

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already enrolled at UCSC and existing staff. This labor force would be augmented occasionally by work crews of up to 20 persons working occasionally for a week or two at a time.

Previous Analysis

a-b) The CLRDP EIR analyzed the potential for construction of recreational facilities on the Marine Science Campus to result in environmental impacts, and the potential that development under the CLRDP would increase the use of existing neighborhood and regional parks or other recreational resources such that substantial physical deterioration of those facilities would occur or be accelerated. The EIR determined that policies and implementation measures included in the CLRDP would ensure that all of these impacts would be less than significant. CLRDP Policy 6.1 states that the University will provide maximum public access to the coastal resources of the Marine Science Campus, to the extent consistent with public safety, fragile coastal resources, implementation of the education and research missions of the campus, and security of sensitive facilities and research activities on the site. Implementation Measure (IM) 6.1.1 addresses how coastal access visitors will be accommodated at the site; IM 6.1.3 provides for development of and improvements to coastal overlooks; and IM 6.1.4 and IM 6.1.5 provide for docent-led tours of the site for members of the public and school children. CLRDP also includes Policy 6.2 states that all public access to the site will be managed to ensure the security of research facilities on the site, protect wildlife populations and other natural resources and provide for public safety. IM 6.2.1 described how access to resource protection areas will be managed; IM 6.2.6 controls the use of bicycles on the site; IM 6.2.7 prohibits domestic pets on the site; and IM 6.2.8 provides for public access interpretive and safety signage.

Effect of Changes to the Project on the Previous Environmental Analysis

a-b) The SRP Phase 1 Project would not result an increase in population greater than that analyzed in the EIR, or in the associated demand for recreational facilities. Furthermore, the project includes interpretive signage that would enhance the experience of recreational users of campus trails. Low fencing and signage installed to protect restoration plantings would not prevent recreational use of any existing trails and would in any case be temporary. Therefore, the implementation of the RMP through SRP Phase 1 does not have the potential to result in new significant impacts related to recreation or contribute to any previously-identified impacts. Accordingly, the project is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential recreational impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address the impacts of the Project on recreation.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
--------	------------------------------------------------------------	--------------------------------------------------------------------------------

14. TRANSPORTATION/TRAFFIC -- Would the project:

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the

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circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycles 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)?

e) Result in inadequate emergency access?

f) Conflict with applicable policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of vegetation management for habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. One new half-time staff person would be added to the campus staff in support of this project. Most of the work would be performed by existing UCSC students and staff, augmented with contract work crews of up to 20 persons who would be hired periodically to assist with intensive planting or weeding efforts for periods of one to two weeks.

Previous Analysis

The CLRDP EIR analyzed the potential impacts of vehicle trips generated by development under the CLRDP on intersection operations and on the environment on nearby residential street segments, parking demand, traffic hazards, emergency access, and alternative transportation. The analysis concluded that cumulative development of the then-envisioned near term projects, as well as cumulative development of the CLRDP program over the long term, would contribute to significant cumulative impacts at several intersections in the City of Santa Cruz (CLRDP EIR p 4.15-33 , -44, -67 and -75), and would increase the potential for pedestrian conflicts with vehicles and bicycles along the north side of Delaware Avenue where there is no sidewalk, a less-than-significant impact, even prior to mitigation (CLRDP EIR p 4.15-37). Through Mitigation Measures 4.15-1, 4.15-3, 4.15-4, 4.15-5 and 4.15-6, the University committed to contribute its fair share of

the cost of intersection improvements, which would reduce traffic delays and improve intersection levels of service. Under Mitigation Measures 4.15-2, UCSC committed to pay a fair share of the cost of construction of a pedestrian path along a section of Delaware Avenue near the campus entrance. Even with the implementation of mitigation measures, however, it was concluded that intersection impacts would remain significant and unavoidable because additional approval outside of the jurisdiction of the University would be needed for the improvements, and some identified improvements might not be feasible.

Effect of Changes to the Project on the Previous Environmental Analysis

The SRP Phase 1 Project would not result an increase in population or related traffic greater than that analyzed in the EIR. The small number of daily trips generated by the single new half-time staff person would be well within the range of current daily variability, and would not result in a detectable change in levels-of-service at any intersection, conflict with any other established measures of effectiveness for circulation system performance, or make a cumulatively considerable contribution to any of the traffic impacts previously identified, nor would they conflict with any established congestion management plan. Traffic associated with existing students and staff is fully taken into account in the prior analysis. Traffic generated periodically by contract work crews of up to 20 persons hired to carry out elements of the project would result in sporadic increases in average daily trips to campus, but these increases would be temporary and would last for only short periods of time, and therefore would not result in a significant impact. Furthermore, because development at the campus has proceeded at a slower rate than anticipated, growth in traffic anticipated by 2010 in the CLRDP EIR has not occurred; thus the near-term traffic impacts identified in the CLRDP EIR have not occurred as of 2010 and likely will be delayed for several years at least. The SRP project in can case would make only a small and temporary contribution to cumulative traffic conditions. In response to the amendments to the CEQA Guidelines adopted the Natural Resources Agency in December 2009, the University no longer includes the question of adequate parking capacity in its CEQA checklist.

Therefore, the SRP Phase 1 Project does not have the potential to result in new significant impacts related to transportation, nor would it make a cumulatively considerable contribution to any significant cumulative impact. The project is therefore consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential traffic impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address traffic impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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15. UTILITIES AND SERVICE SYSTEMS –

Would the project:

- | | | |
|-----------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
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?	☐	☒
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?	☐	☒
h) Create other utility and service system impacts?	☐	☒

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of weed removal and new plantings for habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus. The proposed project may utilize water for temporary irrigation, if necessary to establish plantings in the restored areas. Project operations would not utilize electricity or natural gas or generate any wastewater or significant volumes of solid waste.

Previous Analysis

The CLRDP EIR estimated that water demand for the CLRDP would represent 0.45 percent of system demand for the SCWD service area at the time the EIR was prepared. This new demand would not require new or expanded water entitlements or construction of new or expanded water supply facilities. However, full development of the CLRDP in conjunction with other development within the service area would result in increased cumulative demand for water in a system that does not have adequate supplies. The City has inadequate supply of water during low rainfall years, and the studies conducted by the City indicate that existing water supply would fall short of

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existing and projected demands during critical and/or long-term drought conditions. At the time the CLRDP EIR was prepared the City was considering the development of a desalination facility and/or wastewater reclamation system to address the deficit but had not prepared an EIR to assess the environmental impacts of the construction and operation of a new water supply facility. The CLRDP EIR concluded that the development of a new source of water could potentially result in one or more significant environmental impacts. Therefore the cumulative impact associated with water supply would be significant and the CLRDP would make a cumulatively considerable contribution to this cumulative impact. Mitigation Measure 4.16-1a through -1d, adopted for the project, require the use of low-flow water fixtures; provide for water use curtailment in the event of drought restrictions; require that non-UC entities operating on campus minimize water usage; and identify that the City of Santa Cruz can and should identify and develop new water supplies to serve anticipated cumulative growth. These measures would reduce the cumulative impact and UCSC's contribution to it. However, because it is not known whether the entire water supply deficit will be adequately addressed, and whether all environmental impacts associated with the City's water supply projects could be reduced to a less than significant level, the CLRDP EIR concludes that the impact would be significant and unavoidable (CLRDP EIR p 4.16-18).

Effect of Changes to the Project on the Previous Environmental Analysis

The SRP Phase 1 Project would not result an increase in water demand associated with population growth that would exceed that analyzed in the EIR. The use of water for temporary irrigation of restoration plantings was not taken into account in the CLRDP water demand analyzed in the EIR. This temporary use, however, is offset by the fact that development at the site has not occurred at the rate anticipated; further, any new development will include water use efficiencies that would offset the anticipated irrigation use. The Project would use irrigation, only if necessary. Such irrigation would likely be limited to the summer and fall in the first year after planting, and any irrigation lines would be removed once the vegetation is established.

Since the EIR was certified, the City of Santa Cruz has determined that its existing water supplies are adequate to meet projected demand in normal water years at least through the year 2025³ However, under drought conditions these existing supplies are inadequate to meet existing demand. A settlement agreement reached in August 2008 between the University and the City of Santa Cruz, the County of Santa Cruz, two community associations, and 11 individuals to resolve litigation with respect to The Regents' approval of the 2005 LRDP established a process by which the University and the City would agree on the University's water allocations in the event of a system-wide water use drought curtailment. Following this process, representatives of the University and the City met to agree upon the method for the University's water allocations under the City's Water Shortage Contingency Plan, which the City adopted in March 2009. To implement the University's commitment under this agreement, the Campus could temporarily reduce or suspend any irrigation of restoration plantings that otherwise would have been undertaken as part of the implementation of SRP Phase 1A. Failure to irrigate or suspension of irrigation could result in the loss of some new plantings but these would be replaced as described in the proposed SRP. The project's minimal use of water for irrigation would not have the potential to result in a significant effect related to water supply.

³ Erler and Kalinowski, Inc., 2009. City of Santa Cruz Water Supply Assessment, Sphere of Influence Amendment. September 15.

The project would not utilize any other utilities or result in the extension of any existing utility lines, with the potential exception of temporary irrigation lines that might be extended from the existing water system as needed and removed once vegetation was established.

The Project does not have the potential to result in new significant impacts related to utilities, and is consistent with the certified CLRDP, the CLRDP EIR, Addendum #1 and the Commission’s December 2007 and April 2008 Findings, and would not introduce any new potential utility impacts, and no changed circumstance or new information is present that would alter the conclusions contained therein. No Project revisions or additional mitigation measures are required and the prior environmental analysis is sufficient and comprehensive to address utility impacts of the Project.

Issues	Additional Project-level Impact Analysis Required	Project Impact Adequately Addressed in Earlier Environmental Document
16. MANDATORY FINDINGS OF SIGNIFICANCE		
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) 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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Relevant Features of the Project

The proposed SRP Phase 1A Project consists of habitat restoration on approximately 16 acres of natural lands on the UC Santa Cruz Marine Science Campus that would consist of the planting of

native plants in coyote-brush scrub-grassland, grassland, coastal bluff scrub, central wetland, and wetland buffer habitat, and removal of non-native invasive weeds throughout the terrace lands. The work would be carried out by hand and would not require the use of any utilities, but could result in water consumption for temporary irrigation for new native plantings. No hydrological or topographic modifications are proposed. Work would be carried but primarily by current campus employees and by students, but would entail hiring of one new half-time employee, and occasional employment of contract work crews of up to 20 persons for one to two week periods.

Previous Analysis

a) As discussed in the sections on *Biological Resources* and *Cultural Resources*, above, the CLRDP EIR determined that implementation of the CLRDP, including the restoration activities under the RMP, would not result in any significant adverse effects on sensitive plant or wildlife species, sensitive habitat, or prehistoric resources (CLRDP EIR Section 4.4 and 4.5).

b-d) The CLRDP EIR identified the following significant and unavoidable impacts of the CLRDP (CLRDP EIR Section 4.15 and 4.16):

Number	Impact
4.15-1	Impact associated with increased short-term traffic at Mission and Bay.
4.15-3	Impact associated with increased short and long-term traffic at Mission and Bay.
4.15-4	Impact associated with increased short and long-term traffic at Mission and Chestnut.
4.15-5	Impact associated with increase in total traffic at Mission and Bay.
4.15-6	Cumulative impact associated with decreased levels of service at six study intersections.
4.16-1	Cumulative impact associated with demand for a new water supply source.

The CLRDP EIR determined that all other environmental impacts of the CLRDP would be less than significant with mitigation (CLRDP EIR, Table 2-1).

Effect of Changes to the Project on the Previous Environmental Analysis

The SRP Phase 1A Project identifies locations where RMP restoration activities would be carried out, and the specific methods that would be used for weed removal and restoration planting.

a) As discussed in the sections on *Biological Resources* and *Cultural Resources*, above, the project refinements would not result in new significant impacts on special-status plants or wildlife, sensitive habitat, or prehistoric resources, or a substantial increase in the severity of previously identified significant effects on these resources (CLRDP EIR Sections 4.4 and 4.5).

b-d) The implementation of the RMP through SRP Phase 1 project would not result in an increase in vehicle trips or water demand greater than that analyzed in the CLRDP EIR. Furthermore, the Campus anticipates that only one of the five near-term projects analyzed at the project level in the CLRDP EIR (the Center for Ocean Health Phase II, now renamed the Center for Ocean Health Expansion) will be constructed or under construction by 2010 as anticipated in the EIR. As a result, the near-term contribution of CLRDP development to the significant impact of cumulative near-term CLRDP development (by 2010) upon traffic congestion and intersection LOS identified in the EIR would not be significant.

In addition, as described in *Utilities* (Section 14, above), the City of Santa Cruz currently projects that, in normal water years, the existing water supply will be adequate to serve existing and

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projected demand through at least 2025.⁴ The City's water supplies are not adequate to serve existing demand in drought years. The University has committed that, in the event that the City declares a water shortage, the Campus will reduce its water demand in accordance with the City's Water Shortage Contingency Plan. The project would comply with any demand reduction program implemented by the University to satisfy this commitment by reducing or suspending irrigation of new plantings. Therefore, the SRP project would not contribute to the project or cumulative water supply impacts of the CLRDP.

⁴ Erler and Kalinowski, Inc., 2009. *City of Santa Cruz Water Supply Assessment, Sphere of Influence Amendment*. September 15.

VIX. SUPPORTING INFORMATION SOURCES

California Coastal Commission Findings on UCSC's CLRDP. December 2007

California Coastal Commission Findings on UCSC's CLRDP. April 2008.

California Coastal Commission Staff Report on UCSC's CLRDP. November 2007.

California Coastal Commission Staff Report on UCSC's CLRDP. March 2008.

Specific Resource Plan, Enhancement and Protection of Terrace Lands at Younger Lagoon Reserve. UCSC Staff and the Younger Lagoon Reserve Scientific Advisory Committee. June 1, 2010.

University of California Santa Cruz (UCSC) Final Coastal Long Range Development Plan (CLRDP), December 2008

UCSC Marine Science Campus CLRDP Draft Environmental Impact Report, January 2004

UCSC Marine Science Campus CLRDP Environmental Impact Report Addendum #1: Proposed Revisions to the CLRDP. November 2006

X. INITIAL STUDY PREPARERS

Alisa Klaus, UCSC Environmental Planning

Sally Morgan, UCSC Environmental Planning

XI. Mitigation and Monitoring Program				
Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
CLRDP Policy 3.2	Protection and Restoration of Habitat Areas: The biological productivity and the quality of coastal waters, streams, and wetlands, appropriate to maintain the optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through among other means minimizing adverse effects of wastewater discharges, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural watercourses. Campus natural areas (i.e., areas outside of defined development zones) shall be protected, restored, enhanced, and managed as high-quality open space and natural habitat areas.	Implemented through development of this SRP and, for SRP, through implementation of MM 4.4-1, 4.4-2 and 4.5-1, below; reporting as described in specific mitigation measures, below.	PP&C	Prior to and during construction
CLRDP MM 4.4-1	CA Red-legged Frog: For all projects proposed in the upper terrace under the CLRDP, the University will implement the following: A preconstruction survey for CRLF will be conducted of all areas proposed for grading and construction by a qualified biologist, approved by the USFWS. If CRLF are observed, grading activities shall be postponed and USFWS shall be consulted to determine appropriate actions to avoid impact. Consultation with the USFWS will result in either a determination of the need to obtain a permit or in the identification of measures to avoid take of the individual(s). The biological monitor shall also conduct meetings with the contractor(s) and other key construction personnel to describe the importance of the species, the need to restrict work to designated areas, and to discuss procedures for avoiding harm or harassment of wildlife encountered during construction.	Conduct survey. Document results. If CRLF are observed, consult with USFWS. Conduct meetings with contractor(s) and construction personnel. Include mitigation specifications in construction contract.	Prior to construction, of projects in upper terrace Prior to construction, if CRLF are observed Before beginning construction	PP&C
CLRDP MM 4.4-2	Nesting Birds: UCSC shall ensure that construction activities avoid disturbing nests of raptors (and other special-status birds). If ground-disturbing activities are scheduled to occur during the breeding season (February 1 through August 31), the following measures are required to avoid potential adverse effects on nesting special-status raptors and other birds:	Conduct survey. Document results. Create no-disturbance buffer in consultation with qualified biologist.	Before beginning construction on each project Before beginning construction, if	PP&C

⁵ California Department of Fish and Game, *Staff Report on Burrowing Owl Mitigation*, The Resources Agency, October 17, 1995.

XI. Mitigation and Monitoring Program				
Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
	<p>A qualified wildlife biologist will conduct preconstruction surveys of all potential nesting habitat. For burrowing owls, such surveys will follow the most recent CDFG Burrowing Owl Survey Protocol and Mitigation Guidelines.5</p> <p>If active raptor nests are found during preconstruction surveys, a no-disturbance buffer acceptable in size to CDFG will be created around active raptor nests and nests of any other special-status birds during the breeding season, and maintained until it is determined that all young have fledged. Raptor or other bird nests initiated during construction are presumed to be unaffected, and no buffer is necessary. However, the “take” of any individuals will be prohibited.</p> <p>If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction/restoration period, no further mitigation is required. Trees and shrubs that have been determined to be unoccupied by special-status birds or that are located outside the no-disturbance buffer for active nests may be removed.</p>	<p>Include mitigation specifications in construction contract.</p>	<p>active raptor nests are found</p>	
CLRDP MM 4.5-1	<p>Human Remains: If human remains are discovered during the construction of a development project under the CLRDP, the University and/or its employees shall notify the Santa Cruz County Coroner’s Office immediately. Upon determination by the County Coroner that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and the County Coordinator of Indian Affairs and appropriate Native American consultation shall be conducted, as outlined by PRC 5097.98. Implementation Measure 3.9.1, Construction Monitoring, as identified in the CLRDP, shall also apply. UCSC will be responsible for implementing this mitigation measure.</p>	<p>Include in construction contract the requirement that the University be notified if suspected human bone is discovered.</p> <p>Contact archaeologist and County Coroner in the event of discovery of suspected human bone. Contact California Native American Heritage Commission and conduct Native American consultation if Coroner determines the remains are Native American.</p>	<p>Before beginning construction</p> <p>During construction</p>	<p>PP&C</p>

XI. Mitigation and Monitoring Program				
Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
CLRDP IM 3.9.1	Cultural Resources Construction Monitoring: Should archaeological and/or paleontological resources be encountered during any construction on the Marine Science Campus, all activity that could damage or destroy these resources shall be temporarily suspended until qualified archaeologist/paleontologists and Native American representatives have examined the site and mitigation measures have been developed that address and proportionately offset the impacts of the project on archaeological and/or paleontological resources. Development shall incorporate measures to address issues and impacts identified through any archaeologist/ paleontologist and/ or Native American consultation.	<p>Include in construction contract the requirement that work be suspended if archaeological resources are disclosed.</p> <p>Contract with qualified archaeologist to develop appropriate mitigation measures.</p>	<p>Before beginning construction</p> <p>If archaeological resources are disclosed</p>	PP&C
CLRDP IM 3.10.1	Use, Containment and Cleanup of Hazardous Materials. The University, through the Office of Environmental Health and Safety, will manage the use, and in the event of spillage, the containment and cleanup of, hazardous materials and petroleum on the UCSC Marine Science Campus in compliance with federal and state regulations related to the storage, disposal, and transportation of hazardous substances.	For UC entities, continue to implement UCSC Environmental Health and Safety programs involving oversight of individual units' compliance efforts and advising on improvements in procedures related to storage, disposal, and transportation of hazardous substances.; document activity of relevant EH&S programs	Ongoing, frequency varies with the type and quantity of hazardous materials; document annually	UCSC EH&S
CLRDP Policy 7.1	Productivity and Quality of Coastal Waters. The Marine Science Campus shall be developed and used in a manner that shall sustain and, where feasible, enhance and restore, the biological productivity and quality of coastal waters on and adjacent to the Campus through controlling, filtering, and treating runoff and other non-point sources of pollution, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging wastewater reclamation, and maintaining natural vegetation buffer areas that protect riparian habitats.	<p>Implement Resource Management Plan as described in this SRP</p> <p>Construction practices consistent with Stormwater Concept Plan</p>	Throughout construction	PP&C
CLRDP IM 7.1.8	Irrigation and Use of Chemicals for Landscaping. Any water used for landscape irrigation on the Marine Science Campus shall not be applied in a manner that would cause significant erosion. Any use of chemicals for fertilizer and/or weed and pest control shall be minimized to the degree feasible, including as required by the	Establish polices for irrigation and use of chemicals in landscaping to minimize erosion potential and runoff into habitat areas or the ocean.	Before occupancy of first project developed under the CLRDP	Physical PLant

XI. Mitigation and Monitoring Program				
Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
	Drainage Concept Plan, and any chemicals unavoidably used shall not enter habitat areas or the ocean in concentrations sufficient to harm wildlife and/or to degrade habitat.			

Specific Resource Plan

Phase 1

Enhancement and Protection of Terrace Lands at Younger Lagoon Reserve

June 1, 2010

This document was a collaborative effort among UCSC Staff and the Younger Lagoon Reserve Scientific Advisory Committee.

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Karen Holl, Ph.D (Committee Chair)

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INTRODUCTION

On January 7, 2009 the California Coastal Commission (CCC) certified UCSC's Coastal Long Range Development Plan (CLRDP) for its Marine Sciences Campus (MSC). The CLRDP is a comprehensive physical development and land use plan that governs development, land use and resource protection at the MSC, including Younger Lagoon Reserve (YLR).

The CLRDP states that all "natural areas" outside of the Campus Development Zone on the MSC are to be incorporated into Younger Lagoon Reserve, restored, and preserved in perpetuity (CLRDP 2009). On July 24, 2008 the University of California Natural Reserve System (UCNRS) and UCSC Campus Administration signed an agreement incorporating the approximately 42 ac (17 ha) of natural areas (CLRDP 2009) into the University of California Natural Reserve System (UCNRS) as part of UCSC's Younger Lagoon Reserve (YLR now encompasses approximately 67 ac [27 ha]). In this document, these additional Natural Areas will be collectively referred to as the Terrace Lands. The agreement outlines the commitment by the NRS and campus to comply with restoration, management, and research on all YLR lands.

The Resource Management Plan (RMP) within the CLRDP provides a broad outline with general recommendations and specific guidelines for resource protection, enhancement, and management of all areas outside of the mixed-use research and education zones on the MSC site (areas that will remain undeveloped). A critical component of the CLRDP is the creation of a Specific Resource Plan (SRP) for each phase of restoration guided by a Scientific Advisory Committee (SAC). Thus, the intent of the RMP is for the SAC to use it as an initial framework for development of more detailed SRP for implementation. The subsequent SRP's may be adapted to address the current physical and ecological conditions, current understanding of biological and ecological processes, and current approaches to habitat re-vegetation, restoration, and enhancement. Although the SRP's are meant to be consistent with the performance standards set forth in the RMP, they may be adapted periodically based on findings from ongoing restoration work or input from the SAC. As such, the RMP goals and performance standards are not static requirements per se so much as initial guidelines that may be refined during the SAC process so long

as such refinement is consistent with current professional restoration, enhancement, and management goals and standards, and with achieving high quality open space and natural habitat in perpetuity and consistent with the CLRDP.

Although the SRP's provide specific methodology and criteria for restoration and enhancement of the Terrace Lands within YLR it is important to note that other education and research endeavors will occur throughout YLR. These education, research, and outreach projects are concurrent with UCNRS's mission to "*contribute to the understanding and wise management of the Earth and its natural systems by supporting university-level teaching, research, and public service at protected natural areas throughout California.*" Interpretive signs will be placed throughout the Terrace Lands and student and faculty users will conduct a wide range of projects ranging from observational studies of vertebrates to manipulative experiments focused on evaluating various restoration strategies and techniques to studies of wetland hydrology on coastal wetland species. These educational and research endeavors will help train students, inform the public, provide insight into the natural world, and help guide future restoration and management efforts at YLR and other similar habitats. In fact, undergraduate student investigators contributed greatly to this SPR both through background research and initial vegetation mapping efforts. Thus, restoration efforts outlined below in the SRP, combined with future uses consistent with the UCNRS mission, will provide a unique opportunity for researchers, students, and the public to participate in, and observe, restoration and to use the reserve as an outdoor classroom and living laboratory.

The following document provides the SRP for the Phase 1 of the restoration of the Terrace Lands within YLR. There are approximately 42 ac (17 ha) outside of the development zone that will be restored over the next 20 years; thus, approximately 14 ac (5.5 ha) will be restored during each of the three phases. At the conclusion of Year 7 another SRP will be written for Phase II (years 7-14), and after year 14 the final SRP will be written for Phase III (years 14-21).

Complete SRP guidelines are included as Appendix 1. Mitigation and monitoring program requirements under the California Environmental Quality Act (CEQA) are included as Appendix 2.

BASELINE ASSESSMENT (SRP 1)

This SRP applies to Phase 1 restoration of the Younger Lagoon Reserve Terrace Lands, located on UCSC's Marine Science Campus. The MSC is located on the coast at the western edge of the City of Santa Cruz. It encompasses, among other things, the laboratory complex known as Joseph M. Long Marine Laboratory (LML), a flat, gently southward-sloping coastal terrace that ends at a bluff approximately 35 ft (10.5 m) above the waters of the Monterey Bay National Marine Sanctuary, and the University of California's Younger Lagoon Reserve. The site is located within the coastal zone of the City of Santa Cruz.

The MSC is bordered by a variety of land uses. Agricultural land lies to the west of the site along the western boundary of YLR. The northern boundary of the campus is formed by the Union Pacific Railroad tracks beyond which is an industrial area. Shaffer Road runs along the eastern boundary of the site north of Delaware Avenue. East of Shaffer Road is undeveloped land that is currently vacant except for a community garden. Antonelli Pond lies to the east of this area. South of Delaware Avenue the MSC is bounded on the east by the De Anza Mobile Home Park. The Pacific Ocean forms the site's southern boundary.

The approximate 96-acre (39 hectare) Marine Science Campus site brings together the Campus Development Zones (approximately 29 ac [12 ha]), including the original 15.70 acre (6.3 hectare) LML site, the original YLR (approximately 25 ac [10 ha]), and YLR Terrace Lands (approximately 42 ac [17 ha]). The upland terrace, which encompasses both the Campus Development Zone and the YLR Terrace Lands, stretches from the coastal bluff area northward to the Union Pacific Railroad tracks at the site's northern boundary. The majority of the site was used for agriculture and produced Brussels sprouts until 1987. Since 1987 the area has remained fallow. As described more fully below, the coastal bluff and terrace support a mix of native and non-native vegetation, most of which is characterized as non-native grassland and coyote brush scrub-grassland.

Seasonal freshwater wetlands are also present on the terrace. A narrow intertidal rock shelf exists at the base of the bluff.

YLR is part of the University of California Natural Reserve System managed for research and other educational activities. Younger Lagoon lies along the western edge of the site. The reserve includes the lagoon itself as well as portions of tributary drainages and adjacent upland habitats. YLR contains known and potential habitat for several special-status wildlife species. No special-status plant species are known to occur on the reserve.

Several areas in YLR meet the definition of environmentally sensitive habitat area (ESHA) under the California Coastal Act. An ESHA is defined 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. At the time of CLRDP certification portions of the original YLR qualified as ESHA, as did seasonal wetlands on the Terrace and the rocky intertidal zone.

The terrace and bluff are part of the lowest and southernmost of a series of marine terraces along the Santa Cruz coastline. The terrace is essentially flat, with a 1-2% slope to the south. Its elevation ranges from 51 ft (15.5 m) above sea level at the northern edge to 37 ft (11 m) above sea level at the bluff top; its southern boundary. The southwestern edge of the terrace, between the original LML and Younger Lagoon, is partially edged by an artificial berm approximately 10 to 12 ft (3 to 3.5 m) high and 40 to 50 ft (12 to 15 m) wide.

The site is subject to a Mediterranean climate with wet cool winters and dry warm summers with little rainfall. This pattern helps to account for the mostly seasonal nature of the site's wetlands. Summer fog is present on 30% to 40% of the days. Prevailing winds are from the northwest in the summer and winter storm winds are generally from the south. Total rainfall averages approximately 30 inches (76 cm) per year. The site is exposed and subject to relatively high wind velocities, coastal fog, and salt spray compared to more protected areas to the east.

Soils on the terrace exhibit generally poor drainage, with portions of the site experiencing saturated soil conditions and temporary shallow inundation during the wet season (November through March). Soils fall into three soil series, Elkhorn Sandy Loam, 0-2% slope; Elkhorn Sandy Loam, 2-9% slope; and Watsonville Loam, thick surface, 0-2% slope (Soil Conservation Service 1980). These soils were formed from alluvial fans and marine deposits and tend to be deep with loamy textures and slow runoff. The 0-2% slope soils are categorized by the Natural Resource Conservation Service as hydric soils for Santa Cruz County (Natural Resource Conservation Service 1992). The soils are underlain by Santa Cruz Mudstone, with the water table generally 2 to 10 ft (0.6 to 3 m) below the surface depending on time of year (Philip Williams and Associates 1995).

Surface water primarily enters the property from a culvert at the railroad tracks near the northwest corner of the site, through on-site precipitation and by site runoff (Huffman-Broadway Group, Inc. 2004). The watershed above the Terrace Lands is significantly restricted by HWY 1 which diverts potential (and likely historical) runoff that would have ended up in Younger Lagoon over to Wilder Ranch State Park (West) or Antonelli Pond (East). Thus, the approximate size of the watershed that flows into the upper Terrace area is only approximately 50 ac (20 ha). Water leaves the site through evaporation and evapotranspiration, as well as drainage to Younger Lagoon, De Anza Mobile Home Park, and the ocean. Natural drainage patterns have been altered by LML and related Campus development as well as ditches and surface reconveyance from past farming activities. Subsurface seeps on the coastal bluff and YLR slopes also indicate that near surface perched groundwater exits on the site at these locations. Extensive burrowing activity by rodents is evident throughout the Terrace and may have loosened the upper portions of the soil profile and aerated the soils. This may be improving soil drainage characteristics and increasing vertical and horizontal water movement through the site (Huffman-Broadway Group, Inc. 2004).

Development zones

The built environment is organized into four primary zones of development, one each in the lower (approximately 7 ac [3 ha]), middle (approximately 20 ac [8 ha]), and upper portions of the site (approximately 1.4 ac [0.6 ha]), and one at the Campus entrance (approximately 0.5 ac [0.2 ha]), referred to in the CLRDP as Lower Terrace, Middle Terrace, Upper Terrace, and Campus Entrance development zones (Figure 1). Each development zone is intended to include a mix of marine research and education uses, except for the Campus Entrance zone, which is intended for more general support facilities such as parking and an entrance kiosk (University of California Santa Cruz 2008).

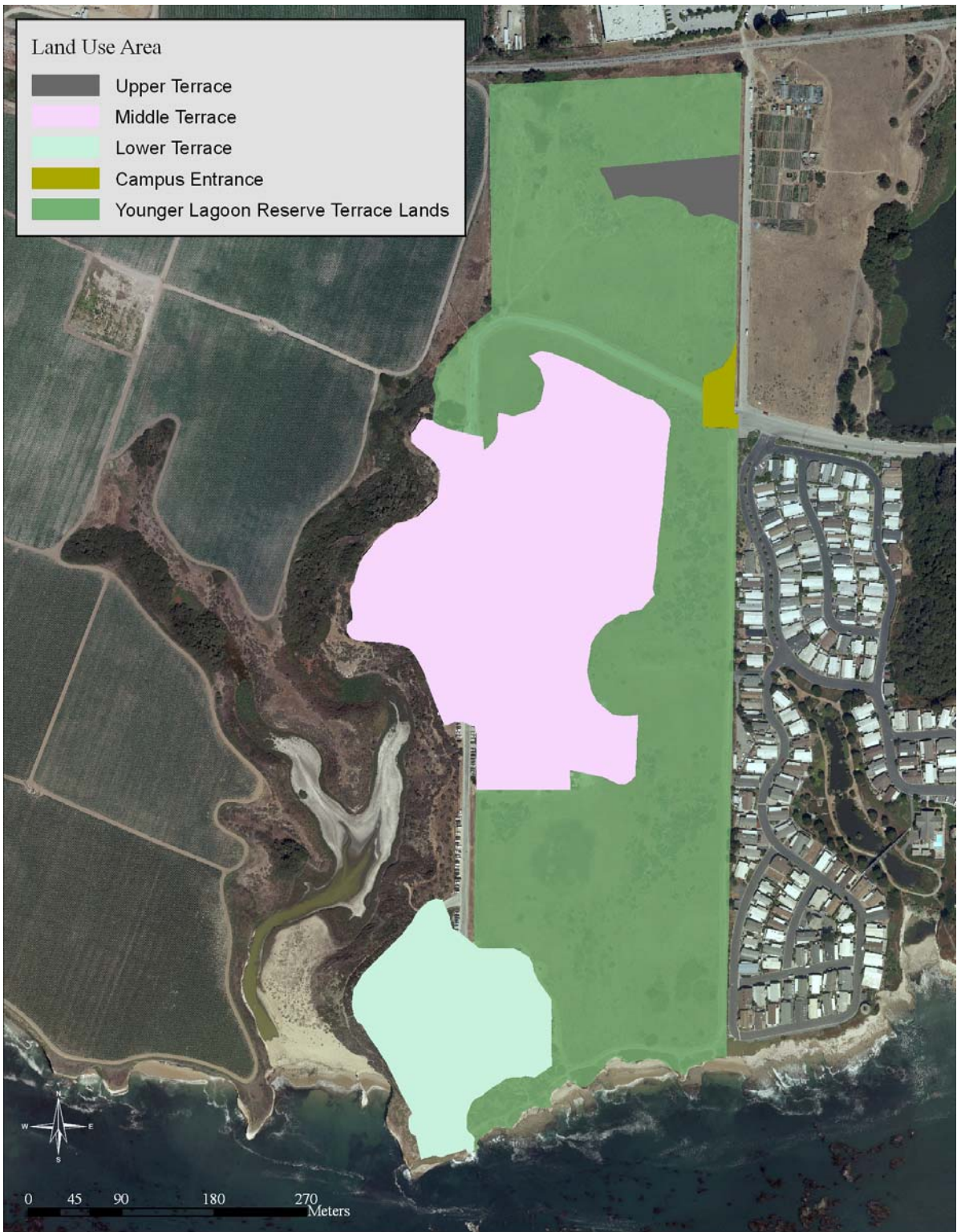


Figure 1. Campus Development Zones and YLR Terrace Lands.

Natural areas outside of the MSC Development Zones (YLR Terrace Lands)

Below, the baseline conditions of YLR Terrace Lands is described.

Non-native grassland

Non-native grassland is one of two dominant vegetation types, along with coyote brush scrub, (*Baccharis pilularis*) on the terrace and currently covers approximately 31 ac (12.5 ha) of the Terrace Lands. It became firmly established after farming ceased in 1987 and is now composed almost entirely of weedy non-native and mostly annual species. The dominant species include ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), six-weeks fescue (*Vulpia bromoides*), slender wild oat (*Avena barbata*), hare barley (*Hordeum murinum* ssp. *leporinum*), and Italian ryegrass (*Lolium multiflorum*). Herbs include wild radish (*Raphanus sativus*), cut-leaved geranium (*Geranium dissectum*), bristly ox-tongue (*Picris echioides*), and Bermuda-buttercup (*Oxalis pes-caprae*). The abundance of Bermuda-buttercup, which reproduces by vegetative bulblets, likely results from past cultivation and tilling activities.

Coyote-brush scrub

Coyote-brush scrub is currently the second dominant vegetation community on the terrace and is sparsely distributed over approximately 7 ac (3 ha) on the Terrace Lands (Figure 2). It is characterized by patches of coyote brush of various sizes interspersed with open grassland areas. It is similar in composition to the non-native grassland and also includes scattered patches of Douglas' baccharis (*Baccharis douglasii*). Many coyote brush individuals are very tall, reaching 10 ft (3 m) or more. Bermuda-buttercup is generally abundant under the coyote brush.

Ruderal

Areas identified as ‘ruderal’ in the CLRDP are included in this SRP as either part of the non-native grassland or coyote-brush scrub categories. Restoration activities in “ruderal” areas will be the same as in the adjacent non-native grassland and coyote-brush scrub areas. The ruderal designation included an area that supports a linear (north-south) underground utility corridor (University of California Santa Cruz 2008). All vegetation was removed during construction and the area is now colonized by a dense cover of the weedy, non-native herb bur-clover (*Medicago polymorpha*). Other species include non-native weeds such as white-stemmed filaree (*Erodium moschatum*), Cretan lavatera (*Lavatera cretica*), Jubata grass (*Cortaderia jubata*), poison hemlock (*Conium maculatum*), and non-native annual grasses.

Coastal bluffs

Current coastal bluff vegetation can be classified into two groups: mixed and ice plant (*Carpobrotus edulis*). The coastal bluff area is exposed to salt spray and ocean winds and is represented as a narrow zone along the top of bluff at the Terrace’s southern end just south of LML (Figure 3). The perennial grass creeping wild rye (*Leymus triticoides*) is the most abundant native species; other natives include the herbaceous perennials lizard tail (*Eriophyllum staechadifolium*), coast buckwheat (*Eriogonum latifolium*), seaside daisy (*Erigeron glaucus*), yarrow (*Achillea millefolium*) and sea lettuce (*Dudleya caespitosa*). The history of these species on the Terrace is unclear; they may be indigenous to the site or may have established from native plant garden seed dispersal. The non-native wild radish, Bermuda-buttercup, Cretan lavatera, and ripgut brome are also abundant. Ice plant extends along much of the eastern boundary of site by the De Anza Mobile Home Park. Overall, this area dominated by ice plant and non-native grasses and is highly degraded.



Figure 2. Map of creeping wild rye, coyote brush, and arroyo willow on the Terrace Lands. Plants were digitized using a 2007 ortho-image as a background (small patches of *L. triticoides* in coastal bluff area not mapped).

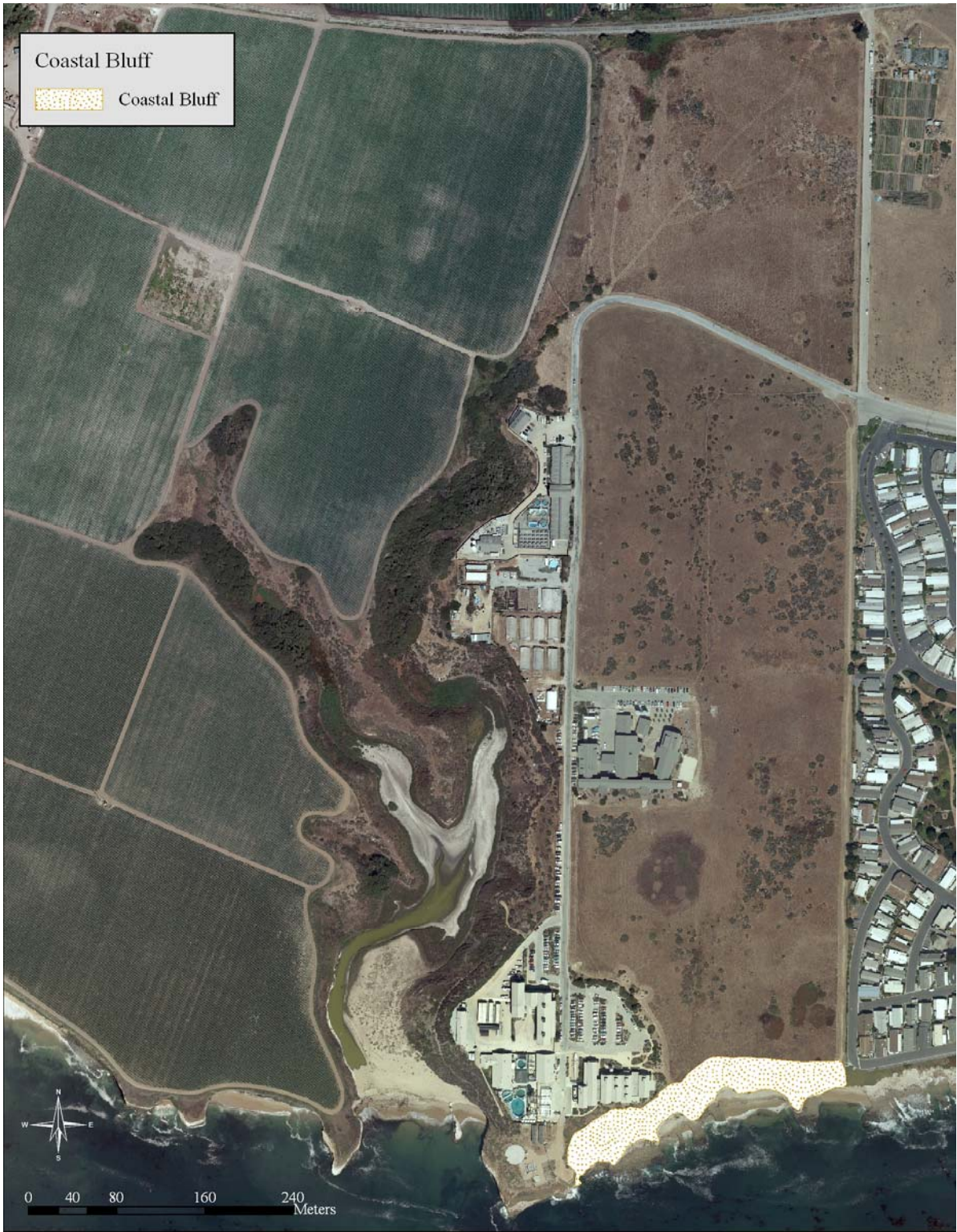


Figure 3. Coastal bluff area.

Wetlands

The CLRDP cites 12 wetlands (W) on the Terrace Lands (Figure 4; Huffman-Broadway Group, Inc. 2004). These wetlands support six vegetation types: seasonal ponds, freshwater marsh-coastal terrace, willow herb-Douglas' baccharis, moist meadow, willow riparian forest, and annual grassland (University of California Santa Cruz 2008, EcoSystems West 2002). In addition, some wetland indicator species (e.g. Italian ryegrass and Douglas' baccharis) are patchily distributed outside of the 12 delineated wetlands (Huffman-Broadway Group, Inc. 2004).

W1 is the drainage channel along the northwestern boundary of the property (approximately 0.14 ac [0.05 ha]). W2 is a flatter wetland swale in the northwestern portion of the property (it connects with W1 at its northern and southern ends). W3 is a large ponded area adjacent to the intersection of Delaware Avenue and Shaffer Road. W2 and W3 combined are approximately 4.57 ac (1.85 ha). W4 is a seasonal wetland swale in the eastern portion of the site (approximately 0.42 ac [0.17 ha]). W5 is a seasonal pond in the depression area immediately south of the NOAA building (approximately 2.21 ac [0.89 ha]). W6 is an isolated wetland complex just north of the California Department of Fish and Game (CDFG) building (approximately 0.09 ac [0.036 ha]). W8 is an isolated wetland immediately south of Delaware Avenue Extension (approximately 0.01 ac [0.004 ha]). W9 is an isolated wetland approximately 200 ft² (61 m²) south southeast of the road bend where Delaware Avenue Extension turns south to become McAllister Way (87 ft², 8 m²). W10 is an isolated wetland south of the DeAnza drainage adjacent to the eastern property boundary (four ft², 0.37 m²). W11 is a drainage channel that extends westward from McAllister Way (115 ft², 10.6 m²). W12 is a complex of wetlands south and east of the W5 (approximately 0.21 ac [0.085 ha]). Other than wetland W7, all wetlands qualify as ESHAs and together total approximately 7.65 ac. Each of these is described in more detail below.



Figure 4. Wetlands.

In addition to finding wetlands that qualified as ESHA on the Marine Science Campus, the Huffman-Broadway Group (2004) found one area that qualified as wetland but that did not qualify as ESHA. This is designated as Wetland W7. Wetland W7 was determined to have no plant or animal life or habitat that was either rare or especially valuable because of its role in the ecosystem. Wetland W7 is approximately 43 ft² (4 m²) and is located in the northeast corner of the site approximately 150 ft (46 m) south of the northern property line.

Wetland Vegetation Types

EcoSystems West (2002) described five wetland vegetation types on the Terrace Lands based on vegetation characteristics. These include seasonal pond, freshwater marsh-coastal terrace, herb community dominated by willow-herb and Douglas' baccharis, moist meadow, and central coast arroyo willow riparian forest. EcoSystems West (2002) characterized Italian ryegrass (*Lolium multiflorum*) as an upland vegetation type. However, at the time that the U.S. Fish and Wildlife Service (USFWS) issued its 1988 list of species that grow in wetlands, Italian ryegrass was considered synonymous with perennial ryegrass (*L. perenne*), a hydrophyte with a wetland designation of "FAC" (equally likely to occur in uplands or wetlands). Although the 1996 USFWS list does not include Italian ryegrass (the perennial ryegrass is now considered by many to be a separate species), in California it occurs in the same habitat conditions as its congener. On the Terrace Lands Italian ryegrass grows in locations that are continuously inundated for months as well as in areas with upland hydrology. As such, the species is considered a FAC species and a sixth wetland vegetation type (Grassland dominated by Italian ryegrass) is suggested to be included on the Terrace Lands (Huffman-Broadway Group, Inc. 2004). The following six wetland vegetation types exist on the Terrace Lands:

1. Seasonal ponds—Located within the grasslands south of the NOAA building in the southwestern portion of the terrace (Wetland W5). Patches of prairie bulrush (*Scirpus maritimus*) dominate the central pond, along with smaller dense patches of pale spike-rush (*Eleocharis macrostachya*). Scattered on the pond bed are

patches of the coastal salt marsh species such as pickleweed (*Salicornia virginica*) and non-native brass buttons (*Cotula coronopifolia*), swamp grass (*Crypsis schoenoides*), and biennial sagewort (*Artemisia biennis*). An annual native herb, water starwort (*Callitriche marginata*), is abundant along the pond margins where the vegetation is not otherwise sharply distinct from that of the adjacent non-native grassland. Douglas' baccharis and Italian ryegrass also grow in the transitional areas.

2. Freshwater marsh—Found in three areas throughout the Terrace. The first area is near the western boundary of the site just north of the sharp curve where Delaware Avenue Extension curves to the south near the southwest corner of Wetland W2. The marsh is in a small topographic depression, dominated by a dense patch of California tule (*Scirpus californicus*). Water smartweed (*Polygonum punctatum*) and willow-herb (*Epilobium* spp.) occur around the edges along with a small arroyo willow (*Salix lasiolepis*).

The second area of freshwater marsh-coastal terrace is just south of the railroad tracks in the northwestern corner of the property at the northwest end of Wetland W2 at its intersection with W1. Dominated by a large arroyo willow in the center, the marsh also supports a dense colony of broad-leaved cattail, (*Typha latifolia*), floating marsh-pennywort (*Hydrocotyle ranunculoides*), water smartweed, willow-herb, and prairie bulrush. Saltgrass (*Distichlis spicata*) occurs in dense patches along the marsh margins.

The third location of freshwater marsh-coastal terrace is in the small wetland complex in the northwestern area of the terrace north of the CDFG building. This marsh drains into the eastern arm of Younger Lagoon. Prairie bulrush and willow-herb grow along the margins of the marsh, which can have open water as late as May. Willow-herb, prairie bulrush, and tall cyperus (*Cyperus eragrostis*) are the dominant species in the drainage way.

3. Herb community—This type is dominated by willow-herb and Douglas' baccharis as well as non-native cut-leaved geranium and bristly ox-tongue. Although these

species occur elsewhere on the property, only a small area in the east-portion of W4 supports this specialized vegetation type.

4. Moist meadow habitat—Occurs at the northern end of the W6 wetland complex and to the north of the freshwater marsh-coastal terrace from which it is separated by an area of non-native grassland. The moist meadow intergrades with the non-grassland habitat, but is floristically distinct and its soil retains moisture until relatively late in the season. It is dominated by the non-native velvet grass (*Holcus lanatus*) which is a perennial that indicates at least seasonally moist conditions. The native Pacific silverweed (*Potentilla anserina* ssp. *pacifica*) is an abundant associate. Other species include willow-herb, cut-leaved geranium, wild radish (*Raphanus sativa*), prickly sow-thistle (*Sonchus asper*), and bristly ox-tongue.
5. Central coast arroyo willow riparian forest—Although abundant in Younger Lagoon, this habitat is found in only one location on the Terrace. Beyond the freshwater marsh-coastal terrace and moist meadow habitats, arroyo willow riparian forest also occurs near W6 and in one small patch at the southeast end of the freshwater marsh-coastal terrace. It is dominated by arroyo willow with no other arborescent species present and little understory.
6. Grassland dominated by Italian ryegrass—This habitat is a significant part of the vegetation in wetlands W2, W3, W4, W5, W8, W9, W10, and W12.

Description of wetlands

Below are more detailed descriptions of specific characteristics of each wetland that occurs on the Terrace Lands.

Wetland W1

W1 and W2 both receive water from the culvert beneath the berm at the railroad tracks near the northwestern corner of the Terrace Lands. A small bermed area separates the wetland from adjacent agricultural lands to the west. Water flows in a north to south direction along the northwestern property boundary, then veers to the southwest before discharging to the eastern arm of Younger Lagoon. W1 was originally a drainage channel constructed to prevent inundation and allow agricultural cultivation in the northern portion of property. At present, it provides a major source of freshwater to Younger Lagoon. Sediment accumulation along portions of the channel has caused small ponds to form in some areas.

W1 is dominated by arroyo willow (*Salix lasiolepis*), willow-herb (*Epilobium ciliatum* ssp. *watsonii*), and the non-native curly dock (*Rumex crispus*). A non-native weeping willow (*Salix babylonica*) and the weedy invasive Jubata grass (*Cortaderia jubata*) also grow in W1. Poison hemlock (*Conium maculatum*) grows along its upper banks.

Wetland W1 and adjacent upland habitat provide an opportunity for wildlife to travel between Younger Lagoon and Antonelli Pond/Moore Creek (and along the railroad tracks to the west more generally).

Wetland W2

W2 shares a water source with W1 and also receives sheet flow from upland areas to the east. Historical aerial photographs show that W2 previously included a man-made drainage ditch feature but active management of the ditch apparently stopped in the early 1980s. The channel gradually filled in with sediment and W2 no longer contains a clearly defined bed and bank, making it difficult to define its lateral boundaries. As delineated in 2001, it diverges from its origin near the culvert into two narrow bands, one extending south to just north of Delaware Avenue Extension and the other extending west and east along the northern Campus boundary. The Delaware Avenue Extension road grade promotes flooding, ponding, and surface soil saturation during the wet season and through early spring. This results in some recharge of the shallow water table as well as settling of suspended solids and associated pollutants.

Wetland W2 supports both Italian ryegrass and two locations of freshwater marsh-coastal Terrace habitat (one in the southwest corner and the other in the northwest corner). This habitat contains California tule, water smartweed, willow-herb, and arroyo willow. The non-native grassland in W2 is not sharply distinct in species composition from the adjacent upland. The lowest portion of the area is overwhelmingly dominated by Italian ryegrass. Several large patches of the non-native herb green dock (*Rumex conglomeratus*) occur in the northern portion of the site, along with two patches of Douglas' baccharis at the margin of the wetland.

Wildlife habitat in W2 includes seasonal aquatic habitat in areas of ponded water and California Red-legged Frogs have been sighted in a small pond in the northwest corner of W2 in 1997 (Mori 1997, EcoSystems West 2002). Pacific tree frogs also use the seasonal wetland habitat for breeding as do many aquatic invertebrates which serve as prey for amphibians, reptiles, birds, and small mammals.

Wetland W3

W3 is located just north of Delaware Avenue Extension and east of the southern boundary of W2. It is slightly lower in elevation than its surroundings and as a result water ponds after significant rainfall events. W3 receives overland flow from adjacent areas to the north and west; historical aerial photos indicate it was once part of a larger drainage that flowed from west to east and eventually discharged into Antonelli Pond. This drainage pattern was altered by agricultural activities and installation of the Campus access road that extends from the end of Delaware Ave Extension.

Mapped as non-native grassland, W3 is not sharply distinct in species composition from the surrounding areas except that it contains algal mats, reflecting the seasonally flooded condition. Two large patches of the native creeping wild rye occur at the south-east corner of W3. The vegetation is otherwise overwhelmingly dominated by Italian ryegrass with scattered patches of curly dock.

Wetland W4

W4 is a seasonal drainage swale that originates in the central part of the Terrace Lands (approximately 300 ft [91.5 m] northeast of the NOAA parking lot). During rainfall events water accumulates in the upper portion of the swale and then flows eastward to a corrugated metal pipe culvert near the eastern Campus boundary. Historical aerial photos indicate this was once part of a continuous drainage that flowed to Natural Bridges Lagoon until an underground culvert was installed to accommodate construction of De Anza Mobile Home Park. The upper portion of the remnant swale has been disturbed by agricultural plowing, leaving no clearly defined channel, but a clearly defined drainage way does exist in the lower portion of the swale. The wetland likely functions to improve water quality through settling of suspended solids and associated pollutants while ponded.

The upper portion of the swale is dominated by hydrophytic species, such as willow-herb, Douglas' baccharis, non-native annual rabbit's foot grass (*Polypogon monspeliensis*) and curly dock. The central portion is not sharply distinct in species composition from the adjacent upland non-native grassland. The lower portion of the drainage is dominated by Italian ryegrass with scattered curly dock and wild radish. Patches of brown-headed rush (*Juncus phaeocephalus*) and Douglas' baccharis also occur in the lower portion.

Wetland W5

This wetland is a seasonal pond that forms in a small topographic depression in the southern portion of the Terrace immediately south of the NOAA building and is the wettest portion of the Terrace Lands. Historical aerial photos show this wetland has been a persistent feature on the terrace since at least the 1950s. The hydroperiod and depth of ponding depends on rainfall and ranges from two to five months and up to approximately 16 inches (40.5 cm) deep. In the early 1900s, a small channel was excavated to drain water from the pond to the ocean bluffs; however, after this ditch ceased to be maintained it rapidly filled in with sediment, limiting drainage to the ocean from the ponded area. The channel exhibited wetland characteristics in 1993 but by 2002 the channel had disappeared except for a linear wetland corridor extending south approximately 200 ft (61 m). A storm drain outlet was constructed from the NOAA site near the pond's northern

end to allow water to flow into the pond when the NOAA underground detention/percolation system reaches capacity. A pre-existing outlet near McAllister Way functions as a hydrologic control and limits lateral expansion of surface water within the pond.

W5 is characterized by the seasonal pond vegetation type. Sedges, broad-leaved cattail, pale spikerush, and pickleweed occur in the wetter areas with Douglas' baccharis and Italian ryegrass dominating the transitional areas that merge with the surrounding non-native grassland habitat.

The pond supports many aquatic and benthic invertebrate species which provide a food source for amphibians, reptiles, and birds. Pacific tree frogs have been observed at W5 and likely breed at this site. The open water area provides habitat for migratory waterfowl and shorebirds to rest and forage. The pond is used recreationally by bird watchers.

Wetland W6

W6 is a small isolated wetland complex, occupying a low-lying area in the northwestern portion of the site north of the CDFG building along the western edge of McAllister Way. This area may have been used to retain irrigation water when the area was farmed. A partial berm that prevents the area from draining into the adjacent stream habitat of Younger Lagoon is still visible. Although the area mapped as W6 includes only moist meadow habitat, other wetland vegetation types (e.g. freshwater marsh-coastal terrace and central coast arroyo willow riparian forest) occur nearby separated by non-native grassland. These areas are treated together in this SRP. The marsh can contain open water through mid-May or later, and the moist meadow retains moisture much later in the season than the non-native grassland habitat.

Wildlife habitat in W6 includes seasonal aquatic habitat in areas of ponded water and California Red-legged Frogs and Western Pond Turtle have been sighted in a small pond under the W6 willow thicket in 2010 (Glinka, 2010).

W6 and the adjacent upland habitat likely facilitate wildlife movement between YLR and Antonelli Pond/Moore Creek (as well as up the coast along the railroad track corridor) and the relatively dense arroyo willow stand offers screening and escape cover.

Wetland W7

W7 is a small isolated wetland located in the northeast corner of the Campus approximately 150 ft (45.72 m) south of the northern Campus property line at the railroad right-of-way.

Wetland W8

This seasonal wetland just south of Delaware Avenue Extension occupies a low-lying area immediately adjacent to the roadbed. Vegetation primarily consists of non-native grassland, and is subject to (and probably formed by) periodic disturbance by passing vehicles whose tires leave the paved roadbed. The depressional area supports wetland hydrologic conditions during the rainy season (particularly within the tire ruts) but is hydrologically isolated from other wetlands on the site due to the presence of Delaware Avenue Extension. This wetland is not subject to Section 404 of the Clean Water Act because of its hydrologic isolation, but is subject to California Coastal Act protection policies because hydrology and soil criteria are met.

Wetland W9

W9 is a small isolated wetland located northeast of the CDFG facility approximately 200 ft (61 m) south southeast of the road bend where Delaware Avenue Extension turns south to become McAllister Way.

Wetland W10

W10 is a small isolated wetland located south of the DeAnza drainage adjacent to the Campus's eastern boundary.

Wetland W11

W11 is a small drainage extending west from McAllister Way into YLR.

Wetland W12

W12 is a complex of wetlands immediately south and east of W5 and is similar in characteristics to the southern reaches of W5 which formed around the small channel that was dug long ago to drain water from W5.

Wetland buffers

Wetland Buffers do not constitute a specific habitat type in themselves and at the time of CLRDP certification they included mostly non-native grassland, coyote brush scrub-grassland, and ruderal vegetation types (Figure 5). Their principal function will be to buffer fauna that use wetland habitat from potential anthropogenic disturbances.



Figure 5. Wetland buffer areas.

Non-Native weeds

Non-native weeds on the Terrace Lands are categorized into four categories for removal according to life-history characteristics, current distribution on the Terrace Lands, feasibility of control, and potential for spread (Table 1). The highest removal rating (Priority one) is given to large stature, slow moving exotic plants that are capable of invading and out-competing native plants in established plant communities. These plants are typically perennial or biennial and are generally straightforward to eliminate from an area. The distribution of three species of Priority one weeds on the YLR Terrace Lands is shown in Figure 6. Equal (if not greater) importance is given to the prevention of the introduction of new weeds that are known or suspected to be invasive but do not currently exist on the Terrace Lands (Watch List weeds). These classifications reflect current research on exotic invasives and concur with the California Native Plants Society’s definition of an exotic invasive plant: "*a plant which is able to proliferate and aggressively alter or displace indigenous biological communities*" (California Native Plant Society 1996).

Table 1. Known non-native weeds on YLR Terrace and adjacent lands.

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Blackwood acacia	<i>Acacia melanoxylon</i>	W
Everblooming acacia	<i>Acacia retinodes</i>	W
Crofton weed	<i>Ageratina adenophora</i>	W
European beachgrass	<i>Ammophila arenaria</i>	W
Giant reed	<i>Arundo donax</i>	W
Mediterranean Linseed	<i>Bellardia trixago</i>	W
Red valerian	<i>Centranthus ruber</i>	W
Portuguese Broom	<i>Cytisus multiflorus</i>	W
Scotch broom	<i>Cytisus scoparius</i>	W
Purple awned wallaby grass	<i>Danthonia pilosa</i>	W
Pepperweed	<i>Lepidium latifolium</i>	W
Yellow parentucellia	<i>Parentucellia viscosa</i>	W
Fountain grass	<i>Pennisetum setaceum</i>	W

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Spanish broom	<i>Spartium junceum</i>	W
Ice plant	<i>Carpobrotus edulis</i>	1
Jubata grass	<i>Cortaderia jubata</i>	1
Monterey cypress	<i>Cupressus macrocarpa</i>	1
Cape ivy	<i>Delairea odorata</i>	1
Panic veldgrass	<i>Ehrharta erecta</i>	1
Fennel	<i>Foeniculum vulgare</i>	1
French broom	<i>Genista monspessulana</i>	1
Harding grass	<i>Phalaris aquatica</i>	1
Monterey pine	<i>Pinus radiata</i>	1
Himalayan blackberry	<i>Rubus discolor</i>	1
Wild oat	<i>Avena barbata</i>	2
Oat	<i>Avena fatua</i>	2
Common mustard	<i>Brassica rapa</i>	2
Rescue grass	<i>Bromus catharticus</i>	2
Ripgut brome	<i>Bromus diandrus</i>	2
Soft chess	<i>Bromus hordeaceus</i>	2
Italian thistle	<i>Carduus pycnocephalus</i>	2
Bull thistle	<i>Cirsium vulgare</i>	2
Bermuda grass	<i>Cynodon dactylon</i>	2
Poison hemlock	<i>Conium maculatum</i>	2
Black mustard	<i>Hirschfeldia incana</i>	2
Velvet grass	<i>Holcus lanatus</i>	2
Farmer's foxtail	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	2
Prickly lettuce	<i>Lactuca serriola</i>	2
Wild lettuce	<i>Lactuca virosa</i>	2
Italian ryegrass	<i>Lolium multiflorum</i>	2
Perennial ryegrass	<i>Lolium perenne</i>	2
Mallow	<i>Malva parviflora</i>	2
Sourgrass	<i>Oxalis pes-caprae</i>	2
Bristly ox-tongue	<i>Picris echioides</i>	2
Rabbitsfoot grass	<i>Polypogon monspeliensis</i>	2
Wild radish	<i>Raphanus sativus</i>	2
Curly dock	<i>Rumex crispus</i>	2

<i>Common Name</i>	<i>Scientific Name</i>	<i>Priority Rating* for Removal</i>
Prickly sow thistle	<i>Sonchus asper</i>	2
Sow thistle	<i>Sonchus oleraceus</i>	2
Scarlet pimpernel	<i>Anagallis arvensis</i>	3
Pineapple weed	<i>Chamomilla suaveolens</i>	3
Lambs quarters	<i>Chenopodium album</i>	3
Nettle-leaved goosefoot	<i>Chenopodium murale</i>	3
Brass buttons	<i>Cotula coronopifolia</i>	3
Filaree	<i>Erodium moschatum</i>	3
Cut-leaved geranium	<i>Geranium dissectum</i>	3
Rough cat's ear	<i>Hypochaeris radicata</i>	3
Loosestrife	<i>Lythrum hyssopifolium</i>	3
Bur clover	<i>Medicago polymorpha</i>	3
Cut-leaved plantain	<i>Plantago coronopus</i>	3
English plantain	<i>Plantago lanceolata</i>	3
Annual bluegrass	<i>Poa annua</i>	3
Common knotweed	<i>Polygonum arenastrum</i>	3
Sheep sorrel	<i>Rumex acetosella</i>	3
Common groundsel	<i>Senecio vulgaris</i>	3
Chickweed	<i>Stellaria media</i>	3
Rattail fescue	<i>Vulpia myuros</i>	3

Notes: *Priority rating:

W. Watch List. These weeds are currently undetected at YLR Terrace Lands but are known to exist on nearby lands. Reserve staff will actively patrol for these weeds and eliminate them as soon as they are detected as part of YLR's Early Detection Rapid Response (EDRR) program (outlined in SRP 3).

1. High priority. These weeds are capable of invading and out-competing native plants in established plant communities. They are typically large stature, slow spreading perennial or biennials. Effective removal techniques for these weeds are generally well documented, and reserve staff will actively work to eliminate these weeds from YLR Terrace Lands. Once eliminated, on-going monitoring for reemergence of these weeds will take place in conjunction with patrols for Watch List weeds.
2. Medium priority. These weeds are mostly biennial or annual and are ubiquitous on YLR Terrace Lands. They are typically smaller in stature than Priority 1 weeds and more difficult to control. Weed control efforts for Priority 2 weeds will take place in conjunction with active restoration projects (e.g. planting), but P2 weeds are not expected to be eliminated from YLR Terrace Lands.
3. Low priority. These weeds are mostly annuals and are ubiquitous on YLR Terrace Lands. They are typically smaller in stature than Priority 1 weeds and more difficult to control. While many can effectively compete with natives once they are established, they typically do not aggressively push out native s. Most are commonly associated with native and non-native grasses and forbs in grasslands. Incidental weed control efforts for Priority 3 weeds may take place in conjunction with active restoration projects (e.g. planting), but P3 weeds are not expected to be eliminated from YLR Terrace..

Source: Modified from John Gilcrest and Associates and Environmental Hydrology 1998.

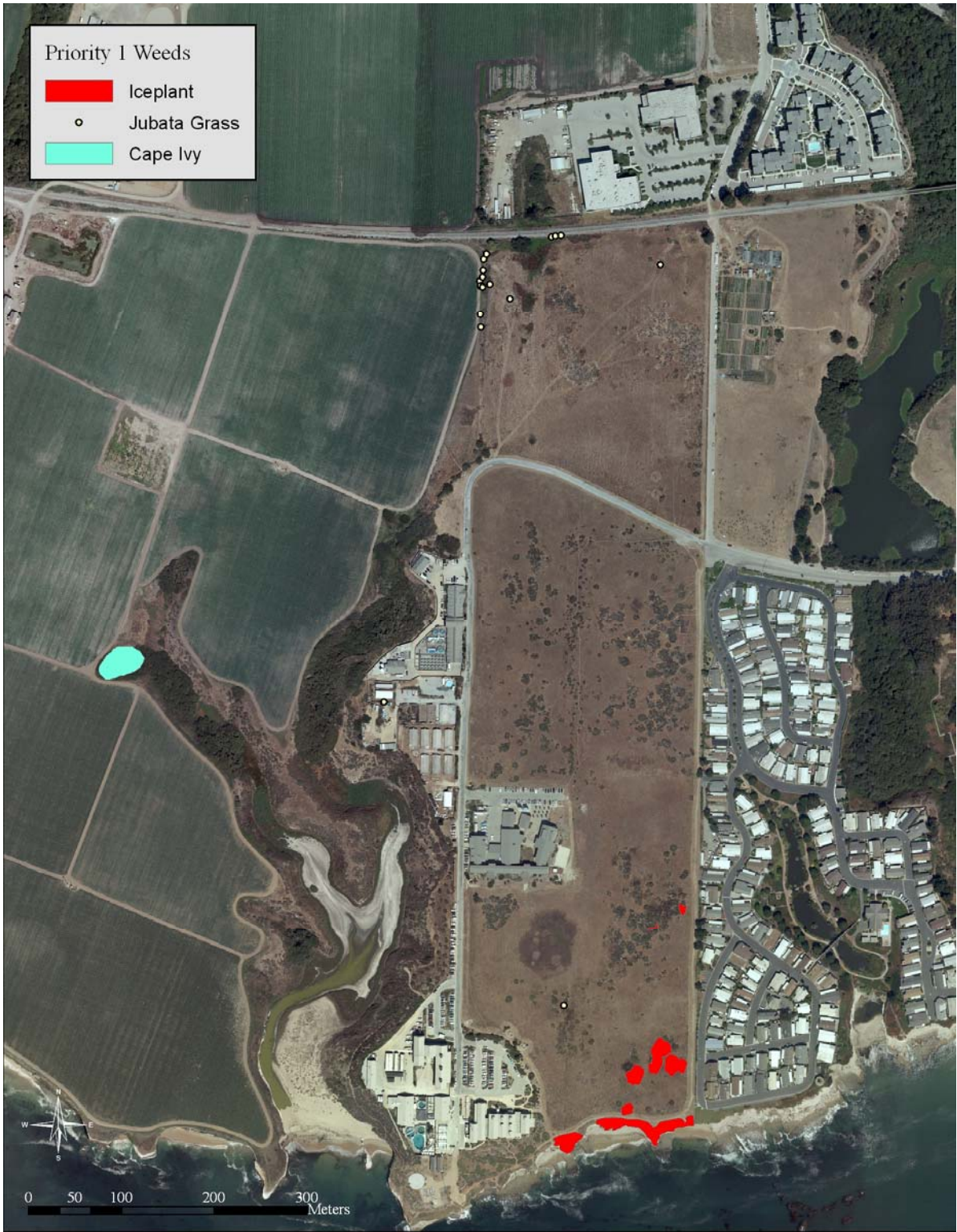


Figure 6. Distribution of three species of priority one weeds.

Native vegetation—Other

Beyond the scattered patches of coyote brush there are smaller patches of two native species - Creeping wildrye and Douglas' baccharis - throughout the Terrace Lands.

Creeping wildrye is largely restricted to the south-east corner of upper terrace (Figure 2); however, there are scattered individuals throughout the site with some relatively dense patches along the coastal bluff.

The U.S. Fish and Wildlife Service considers creeping wildrye in California to be a Facultative species, meaning that it is equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%) (U.S. Fish and Wildlife Service 1988).

Dense patches of Douglas' baccharis are found throughout the Terrace Lands both within and outside of delineated wetlands (Figure 2).

The U.S. Fish and Wildlife Service considers Douglas' baccharis in California to be an Obligate Wetland species meaning that under natural conditions it occurs almost always (estimated probability 99%) in wetlands (U.S. Fish and Wildlife Service 1988).

Phase one restoration areas

The CLRDP states that 1/3 of the Terrace Lands (~14 ac [5.67 ha]) need to meet the criteria outlined in section SRP 7 (Tables 3-6) after 7 years (Phase I). Conceptual goals for habitat restoration for the entire project area over the 20 year restoration period are discussed in detail below in SRP 2. Spatial localities for the various target vegetation communities may change based on site conditions, hydrology, etc. overtime if adaptations are deemed necessary/appropriate by the SAC. Phase I of the enhancement effort (this SRP) will focus on six areas: coyote-brush scrub-grassland, grassland, coastal bluff scrub expansion, and central wetland habitat in wetlands 1, 2, 3, 4, 5, and 6 (Figure 7) as well as priority one weed patches. These restoration areas total approximately 16 ac (6.5 ha). Wetlands 1 and 2 will be hydrologically connected. Although efforts will primarily focus on these areas during Phase I, enhancement and protection of other areas will also take place. Existing vegetation is dominated primarily by non-native

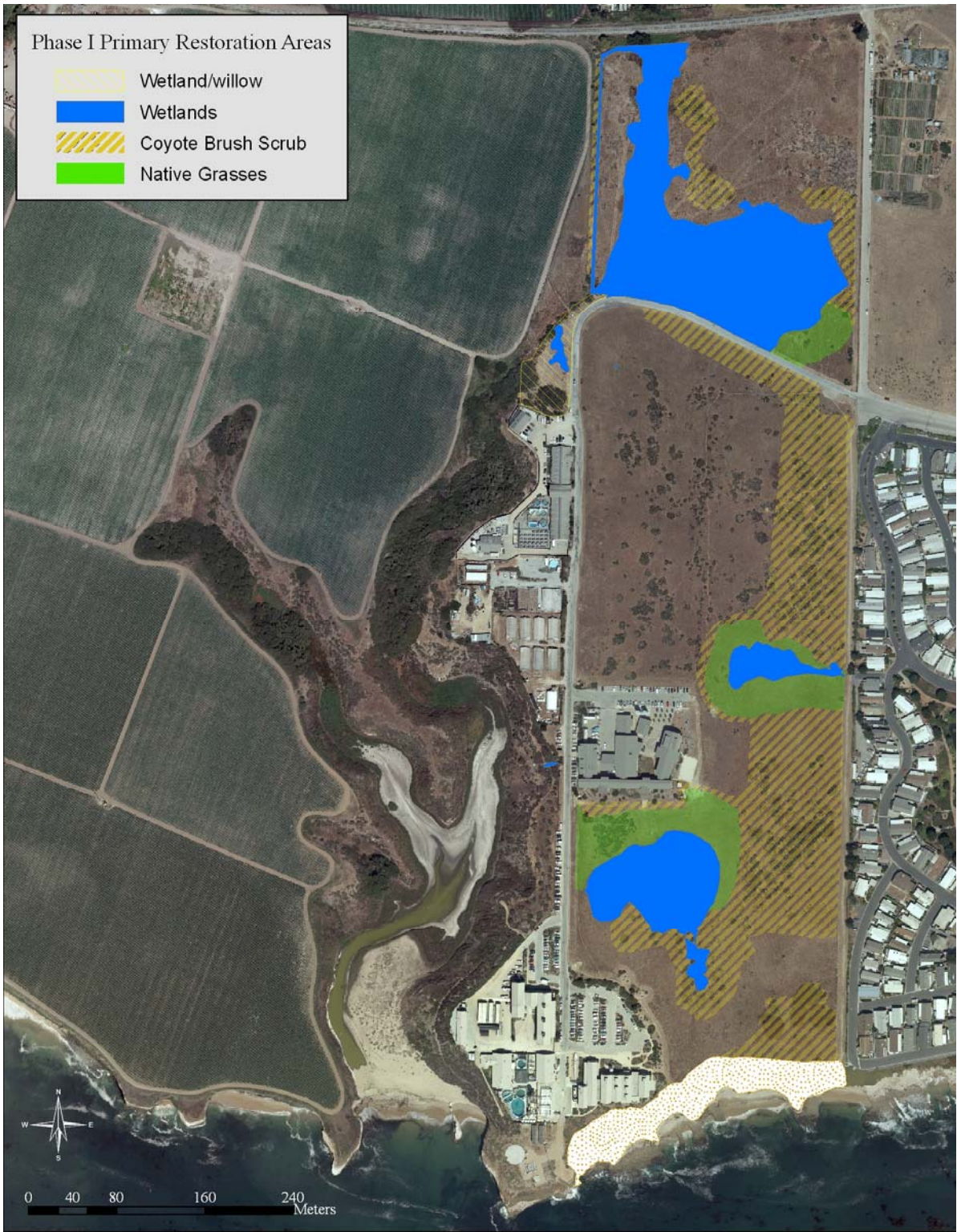


Figure 7. Primary restoration areas for Phase I.

grasses and coyote brush. This section briefly describes the locations and baseline conditions of the enhancement areas for Phase I.

Coyote Brush Scrub-Grassland

During Phase I enhancement and protection of coyote brush scrub-grassland areas will primarily take place across approximately 11 ac (4.5 ha) in areas where coyote brush is already patchily distributed (Figure 7); thus, the enhancement efforts will focus on filling in grassy interstitial spaces between existing coyote brush plants and patches in the middle and lower terrace. Although shrub species besides coyote brush will be the primary type of vegetation planted, native grasses will also be planted to create patches of native grassland within the Coyote Brush Scrub-Grassland areas. Vegetation in these areas is currently dominated by non-native grasses and coyote brush.

Grasslands

Native grasses will be planted in relatively dense patches throughout approximately 2 ac (0.8 ha) of wetland buffer regions for W4 and W5. Although wetland buffers 4 and 5 will comprise the most intensive grassland restoration for Phase I, native grasses will also be planted throughout the Terrace Lands.

Coastal Bluff Expansion

The coastal bluff scrub area covers approximately 1.5 ac (0.61 ha) and will ultimately extend to 100 ft (30.5 m) from bluff edge and merge with the restored area south of the SMDC. This area will blend into the adjacent coyote brush scrub-grassland area to the north. The CLRDP includes the maintenance of an existing coastal bluff trail as well as the enhancement of a viewpoint. Construction of the enhanced viewpoint will occur during Phase I of the restoration effort. Vegetation within the coastal bluff area is currently dominated by ice plant and non-native grasses.

Wetland Willow

The wetland willow restoration area is an approximately 1 acre (0.4 hectare) area at the top of the eastern arm of Younger Lagoon (Figure 7) that encompasses W6 and its buffer. This area is currently dominated by non-native grasses and willow. This area will be planted with native willow, grasses, and shrubs.

Wetland Buffers (Figure 5)

Wetland buffers represent prescribed distances from wetland edges (100 ft [30.5 m] for all wetlands with the exception of W5 which has a 150 ft [45.7 m] buffer). During Phase I, primary restoration efforts in wetland buffers will focus on approximately 1 acre (0.4 ha) of buffer area in buffers 4 and 5; however, other buffer areas will also be planted. Soil conditions within and among wetland buffer areas differ greatly and thus significantly influence the potential plant species that can inhabit a particular location. As such, wetland buffer areas are currently composed primarily of non-native grasses, coyote brush, Douglas' baccharis, and willow.

Wetlands 1 and 2

Current vegetation in Wetlands 1 and 2 is comprised primarily of non-native grasses, *Rumex* spp., Douglas' baccharis, small patches of creeping wild rye, and coyote brush. In addition to Priority 1 weed control, active vegetative enhancement in these areas may consist of weed whipping, herbicide application, and/or grazing, as well as enhancement of existing native vegetation with small-scale plantings and collection of seeds and cuttings for propagation. The primary focus during Phase I will be to hydrologically connect Wetlands 1 and 2 in order to reconnect the two wetlands as per the requirements of the CLRDP. Details are provided in below in section SRP 7.

Central Areas of Wetlands 4 and 5

Wetland 4 (Figure 4)

The central area of W4 is approximately 0.5 ac (0.2 ha). Phase 1A restoration activities in W4 will include weed control, enhancement of existing native vegetation with small-scale plantings and collection of seeds and cuttings for propagation.

Wetland 5 (Figure 4)

The central area of W5 is approximately 2.5 ac (1 ha). Phase 1 restoration activities in W5 will include weed control, enhancement of existing native vegetation with small-scale plantings and collection of seeds and cuttings for propagation.

Priority One Weed Patches

Discrete patches of priority one weeds are located throughout YLR Terrace Lands and MSC (Figure 6). The patch boundary for jubata grass extends beyond the MSC property line. Effective removal/control of these species will require cooperation among reserve staff, UC grounds keepers, and adjacent property owners. Phase I restoration activities will include removal of these species.

DESCRIPTION OF PLAN GOALS (SRP 2)

The goal of the restoration project is to create and protect a mosaic of rare habitats that provide substantial ecosystem services including the preservation of biodiversity, habitat for special status species, and buffering of stormwater runoff. These habitats include coastal bluff, coastal prairie, seasonal wetlands, forested wetlands and grasslands. Additionally, because the site is a UC Natural Reserve, research focused on restoration and native flora and fauna will provide opportunities to guide future restoration in similar habitats and provide educational and outreach material for Reserve users. This section of the SRP defines restoration goals for Phase I of the restoration effort; conceptual goals for the entire 20 year restoration plan (Figure 8).

Phase I activities will primarily focus on the six distinct restoration projects discussed above: Coyote-brush scrub infill, coastal bluff restoration, native grassland establishment,

central wetland habitat in wetlands 1, 2, 4 and 5, control of priority one weeds, and hydrological modification of Wetlands 1 and 2.

Phase 1 will be divided into two sub-phases. SRP Phase 1A would focus on enhancement of six habitat areas within the Terrace Lands: coyote-brush scrub-grassland, grassland, coastal bluff scrub expansion, and central wetland habitat in wetlands 1, 2, 4 and 5 (Figure 7) as well as priority one weed patches. Phase 1A would include hand planting in central wetland habitat in wetlands W1, W2, W4 and W5, consistent and implementing the goals set forth in the previously-approved RMP. Phase 1A also addresses control and removal of Priority 1 weeds throughout the Terrace Lands. About 14 acres of the Terrace Lands would be subject to restoration during Phase 1; enhancement and protection of vegetation in other natural areas of the Terrace Lands will also take place as opportunities arise. Phase 1B would propose minor hydrologic modifications to improve wetland functioning and enhance plant and wildlife habitat in wetlands W1 and W2. The campus has completed CEQA analysis for Phase 1A, and 1A work is proposed for immediate implementation. Phase 1B would focus primarily on wetland work and potentially will be subject to Clean Water Act and other permitting, and related agency consultation regarding potential effects to California red-legged frogs. The extent of wetland work and exactly how it would be carried out cannot be determined prior to this consultation. For this reason, SRP Phase 1B work is not proposed for immediate implementation. Further plans for Phase 1B work will be prepared during the course of, and with input from, agency consultation and SAC members. A separate NOID will be filed for Phase 1B when project plans for this phase of work are finalized through regulatory agency consultation and following the preparation of additional CEQA documentation.

The overarching goal for Phase I is to meet success criteria for 1/3 of the Terrace Lands natural habitats. Success criteria for Phase I restoration activities are described in detail below in SRP 2. Specific success criteria were established based on setting goals that are achievable within the context of the site and are realistic objectives that will enhance ecological functions of the area. Although restoration efforts during Phase I will be primarily focused on areas identified in Figure 7, planting and weed control will be

conducted throughout the entire site (following specific guidelines outlined below), including testing methodologies to be used in Phase II and III. Below, the restoration goals for each habitat type are outlined in greater detail.

Trails and signs

As the Marine Science Campus develops, some of the University's future NOIDs will include Reserve related items (e.g. sign packages, trail development, overlooks, etc.). These projects will be administered by Physical Planning and Construction in coordination with Reserve staff and are anticipated to have little impact on the restoration of the Terrace lands. However, it is important to highlight that this SRP recommends trails be limited primarily to the perimeter of the Reserve. This concept has incorporated into the preliminary conceptual design of the Marine Science Campus (see Appendix 3). Doing so balances public access with resource protection by providing viewing opportunities while reducing fragmentation of the Reserve, increasing native habitat (i.e. trails reduce native habitat), and distancing people from sensitive wetland habitats.

Coyote brush scrub-grassland restoration goals (Phase 1A)

Restoration within Coyote brush scrub-grassland areas will focus on increasing native plant species richness and percent cover (see Table 2 for restoration palette) and decreasing non-native plant cover. Species richness and percent cover goals are outlined in Table 3. Although scrub species will be the primary focus for these areas, native grasses will also be planted throughout. It is anticipated that there will be patches within the scrub that will remain relatively open. There will be no change in topography and/or hydrology.

Non-native grassland restoration goals (Phase 1A)

Restoration within non-native grassland areas will focus on increasing native grass species (see Table 2 for restoration palate) and decreasing non-native plant cover. Species richness and percent cover goals are outlined in Table 3. Although the primary effort will be to increase native grass cover and species richness, other native shrubs will be scattered throughout these areas through natural recruitment. There will be no change in topography and/or hydrology.

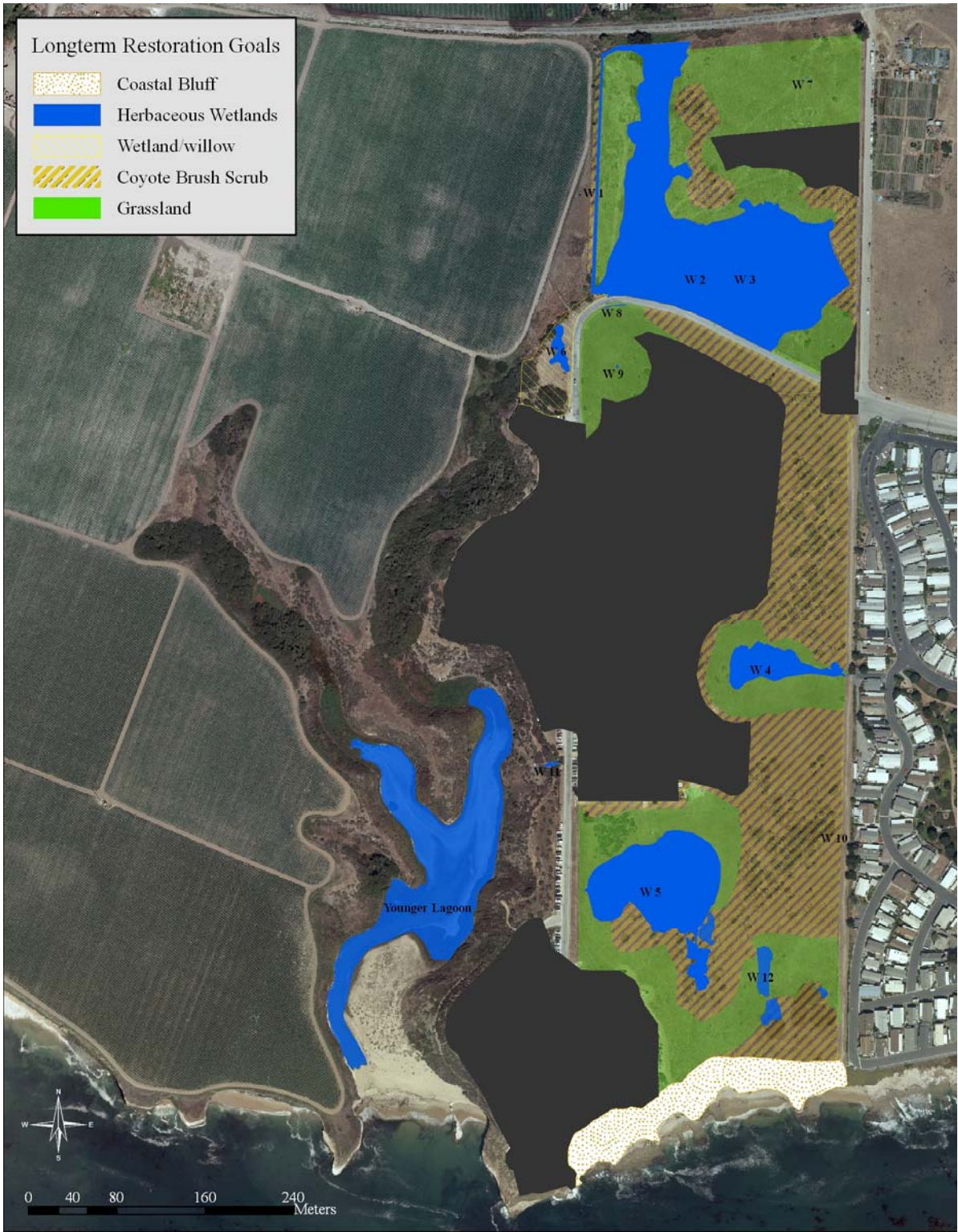


Figure 8. Twenty year restoration goal for Terrace Lands.

Coastal bluffs restoration goals (Phase IA)

Restoration within coastal bluff habitat will focus on continuing restoration of native plant species richness and percent cover (see Table 2 for restoration palate) and decreasing non-native plant cover. Species richness and percent cover goals are outlined in Table 4. There will be no change in topography and/or hydrology. These efforts will “connect” the coastal bluff restoration area immediately adjacent to the west within the SMDC and YLR.

Central areas of wetlands 4 and 5 restoration goals (Phase IA)

Restoration within the central areas of wetlands 4 and 5 will focus on increasing native plant species richness and percent cover (see Table 2 for restoration palate) and decreasing non-native plant cover. Species richness and percent cover goals are outlined in Table 5. There will be no change in topography and/or hydrology.

Wetland buffer restoration goals (Phase IA)

Restoration efforts in wetland buffers will focus on increasing native plant species richness and percent cover (see Table 2 for restoration palate) and decreasing non-native plant cover. Plants used in the wetland buffers will vary depending upon soil conditions. Buffer areas throughout the Terrace Lands differ drastically depending upon the distance from each particular wetland and moisture content of the soil. As such, species richness and percent cover goals will vary (e.g. some areas will likely be dominated by grasses while others will be dominated by shrubs). Table 6 provides an overview of success criteria for wetland buffer areas. There will be no change in topography and/or hydrology.

Wetland 1 and 2 hydrologic regime change goals (Phase 1B)

As noted above, Phase 1B of the SRP is described here to the extent it has been developed to date. Implementation details will be subject to agency consultation and permitting and likely will vary, at least in some details, from the conceptual outline provided here. The implementation of SRP Phase 1B is independent of the implementation of Phase 1A, although results of both would be monitored and reported at the end of SRP Phase 1. Due to the uncertainty related to the Phase 1B elements and implementation criteria it would be too speculative to evaluate the environmental effects of Phase 1B implementation at this time.

The restoration program for W1 and W2 will address historical modifications to site hydrology that served to drain wetlands on the site (e.g. drainage ditch at site W1). However, the restoration efforts will leave intact historic modifications that may have increased the extent and duration of inundation of wetlands (e.g. roadway). Management of site hydrology will advance several objectives, specifically, increasing the cover of native wetland plant species, potentially enhancing breeding habitat for amphibians, maintaining raptor foraging habitat, and improving water quality of inputs to YLR. Furthermore, restoration of both hydrology and vegetation will create a continuous north-south area for wildlife movement to YLR.

Once the hydrology of the area is altered by the diversion of water from W1 (that currently serves as a drainage ditch) and the placement of a partial diversion at the culvert area (see Figure 10) it is likely the vegetation composition of W1 and W2 will change. Thus, specific success criteria for the restoration of this area will be deferred until Phase II or III. Enhancement of existing native vegetation in W1 and W2 with small-scale plantings and collection of seeds and cuttings for propagation as well as weed control activities will take place during Phase 1A. The area to the west of W1 will be replanted with shrubs and serve as a buffer between the agricultural land and W1/W2 (the “living fence”). Presently the buffer includes land that is not being farmed on the adjacent agricultural lands; thus, increasing the extent of the buffer. Over time it is possible that

the unfarmed lands on the adjacent parcel may be put back into production; thus, decreasing the overall extent of the buffer to the west of W1.

Slight modifications to topography will likely occur when diversion structures are put into place (see Figure 10).

Priority one weed removal goals (for all P1weeds)

All priority-one weeds (see Table 2) will be controlled as they are detected throughout the Terrace Lands. Elimination of reproductive individuals is the goal, however YLR is surrounded by priority-one weed seed sources and it is likely that there will always be some level of priority-one weeds persisting on the terrace.

SITE AREA PREPARATION AND INVASIVE PLANT REMOVAL (SRP 3)

Early Detection Rapid Response (EDRR)

Preventing the introduction of new invasive species is the first line of defense against new invasions. However, even the best prevention efforts will not stop all invasive species introductions, particularly at a small urban reserve like YLR which is surrounded by potential weed sources. Besides prevention, the most time and cost-effective way to manage the potential negative impacts of new invasive plants is through EDRR efforts.

EDDR focuses on surveying and monitoring at-risk areas to find infestations at their earliest stages of invasion and then rapidly beginning the control of these species. These efforts greatly increase the likelihood that new invasions will be addressed successfully and new weeds will be prevented from becoming established and widespread in a given area. Along with prevention this method is the most successful, cost effective, and least environmentally damaging means of control (National Invasive Species Council 2008).

After initial introduction of a new invasive plant there is a short period of opportunity for eradication or containment. Once permanently established a new invader becomes a long-term management problem. The costs associated with catching weeds before they become established are also drastically less than those of long-term invasive species management for noxious weeds that have already become widespread. Therefore, any low incidence weed known or suspected to be invasive (and feasible to control) will be removed when detected.

Weeds that are currently undetected on YLR Terrace Lands, but known to exist nearby (W – see Table 1) will be actively patrolled for and eliminated as soon as they are detected. High priority (P1 – see Table 1) weeds will be eliminated from YLR Terrace Lands. Once eliminated, on-going monitoring for reemergence of these weeds will take place in conjunction with patrols for watch-listed weeds. Control efforts for medium priority (P2 – see Table 1) weeds will take place in conjunction with active restoration projects (e.g. planting), but P2 weeds are not expected to be eliminated from YLR Terrace Lands. Incidental control efforts for low priority (P3 – see Table 1) weeds may take place in conjunction with active restoration projects (e.g. planting), but P3 weeds are not expected to be eliminated from YLR Terrace Lands.

Site area preparation and invasive plant removal techniques will vary from site to site as needed, but will draw from a set of standard methods for weed control, outlined below.

Priority one weed control

Removal techniques for priority one weeds may include one or more of the following: hand pulling / mechanical control, clipping / weed whacking, flaming, solarization, burning, grazing, and herbicide application. When herbicide is applied all listed safety instructions will be followed to protect surrounding biological resources and will follow campus policy on pesticide applications. Due to their potential to re-invade, all priority one weeds with viable propagules will either be solarized and composted on site or bagged after removal and disposed of offsite. Some priority one weed control activities

will be ongoing throughout the year. Other activities will be restricted to the winter and spring months (exact timing will be dependent on soil moisture conditions and seed-set).

In addition to the above removal techniques, modifications to Wetlands 1 & 2 will likely alter species composition in these areas. The expected increase in inundation time in wetlands 1 & 2 may decrease the viability of many of the non-native plants that exist within these areas.

The distribution of priority-one weed species on YLR Terrace Lands and possible weed control methods for each is described below.

Ice plant (Carpobrotus edulis). Family: Aizoaceae

Extent of Ice plant on YLR Terrace Lands—Ice plant is primarily found along the coastal bluffs, with some scattered patches present throughout the lower terrace (Figure 6).

Methods of Control for Ice plant on YLR Terrace Lands —Ice plant can be controlled by manual methods (hand or tractor pulling), solarization, and herbicide application (glyphosate) (Bossard et al. 2000). When hand removal is employed all above-ground plant material will be removed and the soil will be raked in order to expose and remove any remaining roots or stolons. When solarization is employed, black agricultural plastic held in place by sandbags will be used to tarp Ice plant patches for 3-6 months. After solarization or herbicide application, dead ice plant may be left in place to prevent erosion and control weeds; dead ice plant can serve as ‘mulch’ that can be planted into.

Jubata grass (Cortaderia jubata). Family: Poaceae.

Extent of Jubata grass on YLR Terrace Lands—Jubata grass is restricted almost entirely to the upper Terrace primarily along the northern and western property lines (Figure 6).

Methods of Control for Jubata grass on YLR Terrace Lands —Jubata grass is effectively controlled by mechanical means (hand pulling / grubbing), and herbicide application (glyphosate) (Bossard et al. 2000). When hand removal is employed, all above ground jubata grass material will be removed before seed set, and then the root mass will be removed. When winching is employed the root mass will be removed from the ground.

As the jubata grass on YLR Terrace Lands is part of a population that extends beyond the northern and western property lines (Figure 6), effective control of jubata grass will require cooperation between adjacent land owners and reserve staff.

Monterey cypress (Cupressus macrocarpa). Family: Cupressaceae.

Monterey cypress is native to the Monterey coast area, but is considered moderately invasive in other parts of California (including Santa Cruz County) where it spreads via seed from planted windbreaks or hedgerows.

Extent of Monterey cypress on YLR Terrace Lands—All of the Monterey cypress trees that currently exist on YLR Terrace Lands are ‘volunteers’ that have grown from seeds that were either brought to the site in landscaping mulch or that blew into the reserve from MSC landscaping plantings.

Methods of Control for Monterey cypress on YLR Terrace Lands—Mature Monterey cypress trees will be controlled by cutting the above ground material from the root. Seedlings will be controlled by hand pulling/digging. In addition to removal efforts on Terrace Lands, collaborative efforts among UCSC staff and other MSC groups (e.g. NOAA/NMFS, CDFG, and Island Conservation) will be initiated to limit the transport of Monterey cypress to the site.

Cape ivy (Delawarea odorata). Family: Asteraceae.

Extent of Cape ivy on YLR Terrace Lands—Cape ivy is not present on the Terrace Lands; however, it is established in a patch on the northwest border of Younger Lagoon (Figure 6). The patch is located on a shady west facing slope. Cape ivy has overrun the herbaceous understory of the area and is beginning to climb into the Arroyo willow canopy.

Methods of Control for Cape ivy on YLR Terrace Lands —Cape ivy is difficult to eliminate for two reasons: stolons and underground parts readily fragment while being

removed and plants will grow from almost any remaining fragment. Therefore, frequent post removal monitoring and maintenance is necessary if removal efforts are to be successful. Cape ivy can be controlled through mechanical means or herbicide application (glyphosate and triclopyr or Transline) (Bossard et al. 2000). When hand removal is employed, all above ground plant material (both native and non-native plants, except native trees) will be removed in the infested area. After the removal of above ground material soil will be raked to expose and remove any remaining roots or stolons.

Panic veldgrass (*Ehrharta erecta*). *Family: Poaceae.*

Extent of Panic veldgrass on YLR Terrace Lands – Panic veldgrass on YLR Terrace Lands is currently restricted to several small patches located adjacent to SMDC.

Methods of Control for Panic veldt grass on YLR Terrace Lands —Once established panic veldgrass is extremely difficult to control / eliminate. Mechanical means of control (hand pulling / grubbing), and herbicide application (Fusilade, and glyphosate) have had mixed results (Bossard et al. 2000). Therefore, the highest priority must be given to preventing the further spread of this weed and eliminating it while it is still at a low incidence. When hand removal is employed, the entire plant will be removed from the ground (including the root mass).

Fennel (*Foeniculum vulgare*). *Family: Apiaceae.*

Extent Fennel on YLR Terrace Lands – Fennel is currently limited to a few scattered individuals on the west side of the middle and upper terrace.

Methods of Control for Fennel on YLR Terrace Lands —Fennel is effectively controlled by mechanical means (hand pulling / grubbing), and herbicide application (triclopyr and glyphosate) (Bossard et al. 2000). When hand removal is employed all above ground fennel material will be removed before seed set (root mass will also be removed).

French broom (*Genista monspessulana*). *Family: Fabaceae.*

Extent of French broom on YLR Terrace Lands—French broom was not detected on YLR Terrace Lands in 2009. However, it has previously been sighted in the middle terrace Development Zone near the greenhouses. In addition, an extremely large French broom population is located north of the reserve in the City of Santa Cruz Moore Creek Preserve making future re-infestations likely.

Methods of Control for French broom on YLR Terrace Lands —French broom is effectively controlled by hand pulling (weed wrenching), prescribed burning, flaming of seedlings, grazing by goats, herbicide application, or a combination (Bossard et al. 2000). Weed wrenches will be used to remove entire plants before seed set. Seedlings will be removed by flaming or manual methods.

Harding grass (Phalaris aquatica) Family: Poaceae

Extent of Harding grass on YLR Terrace Lands – Harding grass on the Terrace Lands is currently limited to a few scattered individuals on the west side of the middle and upper terrace.

Methods of Control for Harding grass on YLR Terrace Lands —Harding grass is effectively controlled by mechanical means (hand pulling / grubbing), and herbicide application (glyphosate) (Bossard et al. 2000). When hand removal is employed all above ground material will be removed before seed set (the root will also be removed).

Monterey pine (Pinus radiata). Family: Pinaceae.

Monterey pine is the most widely planted commercial timber tree in the world (Bossard et al, 2000). However, in its native range, consisting of five populations in California and Baja California, Mexico, the species is threatened by development, human-dispersed plant pathogens, non-native herbivores, etc (Bossard et al, 2000). Our classification of Monterey pine as a Priority one weed on the YLR Terrace Lands is specifically based on the fact that the Monterey pines on the YLR Terrace Lands became established on the site due to human introduction. Once established, Monterey pines can displace and shade

out native vegetation and alter fire regimes. Monterey pines produce thousands of light winged seeds that are easily wind dispersed.

Extent of Monterey pine on the YLR Terrace Lands – Monterey pine on the YLR Terrace Lands is currently limited to a few scattered individuals.

Methods of Control for Monterey pine on YLR Terrace Lands—Mature Monterey pine trees will be controlled by cutting the trunk at ground level. Seedlings will be controlled by hand pulling/digging. In addition to removal efforts on Terrace Lands, collaborative efforts among UCSC staff and other MSC groups (e.g. NOAA/NMFS, CDFG, and Island Conservation) will be initiated to limit the transport of Monterey pines to the site.

Himalayan blackberry (*Rubus discolor*). *Family: Roseaceae.*

Extent of Himalayan blackberry on YLR Terrace Lands – Himalayan blackberry is found at low incidence throughout YLR Terrace Lands.

Methods of Control for Himalayan blackberry on YLR Terrace Lands — Himalayan blackberry is effectively controlled by mechanical means (hand digging /weed wrenching). All above ground Himalayan blackberry material will be removed before seed set (roots will also be removed).

Medium and low priority grassland weed control

Although mowing, grazing, herbicide application, scraping, and burning are effective methods for reducing annual seed set and thatch in non-native grasslands, managing to reduce exotic grasses without seeding or planting natives is relatively ineffective in restoring natives because it simply shifts the species composition to low stature exotic forbs (DiTomasso 2000, Hayes and Holl 2003a, Hayes and Holl 2003b, Stromberg et al. 2007). Therefore medium and low priority weeds will not be controlled until active restoration projects (e.g. planting) are taking place in a site. Once active restoration has begun, a combination of weed control techniques will be implemented. Additionally, an

experimental approach to non-native grass control may be used to evaluate emerging techniques with the goal of incorporating promising methodologies into management activities.

Some non-native grassland control activities will be ongoing throughout the year. Other activities will be restricted to the winter and spring months (their exact timing dependent on soil moisture conditions and seed-set).

PLANTING PLAN (SRP 4)

The planting plan is composed of the following key components for successful restoration, plant palette and selection, planting design (plant mix and spacing), local plant material source, plant installation, erosion control, irrigation, and remediation. The planting palette is made up exclusively of native taxa that are appropriate to the habitat and region. Seed and/or vegetative propagules will be obtained from local natural habitats so as to protect the genetic makeup of natural populations. Horticultural varieties will not be used.

The use of locally collected seeds and cuttings in restoration projects reduces the risks of introducing non-local genes into the population; potentially decreasing species fitness. In order to maintain the genetic integrity of the rich assemblage of plants found along the central coast of California, all seeds and cuttings will be collected from coastal Santa Cruz and San Mateo Counties. However, the collection zone (within approximately one mile [1.6 km] of the Marine Science Campus and seaward of Highway 1) as outlined by the CLRDP is too small to meet CLRDP restoration goals. The prescribed collection zone is bounded by Hwy 1 to the north, the ocean to the south, Fair Ave to the east, and Coast Rd to the west (Figure 9). Much of this area is highly disturbed by urban and agricultural development, and is of limited value for collection. Although a portion of the botanically rich Wilder Ranch Beach and Lagoon and YLR itself are included in the collection zone, it is unlikely that a high enough quantity and diversity of seeds can be collected in this restricted geographic area. Therefore, the size of the seed collection zone will be expanded to include similar habitats along the coast of western Santa Cruz county and southern San Mateo County (first and lower reaches of the second marine terraces).

The restoration planting palate (Table 2) is comprised of possible revegetation species for each habitat type. If other species appropriate for restoration are identified they will be added to the restoration palate.

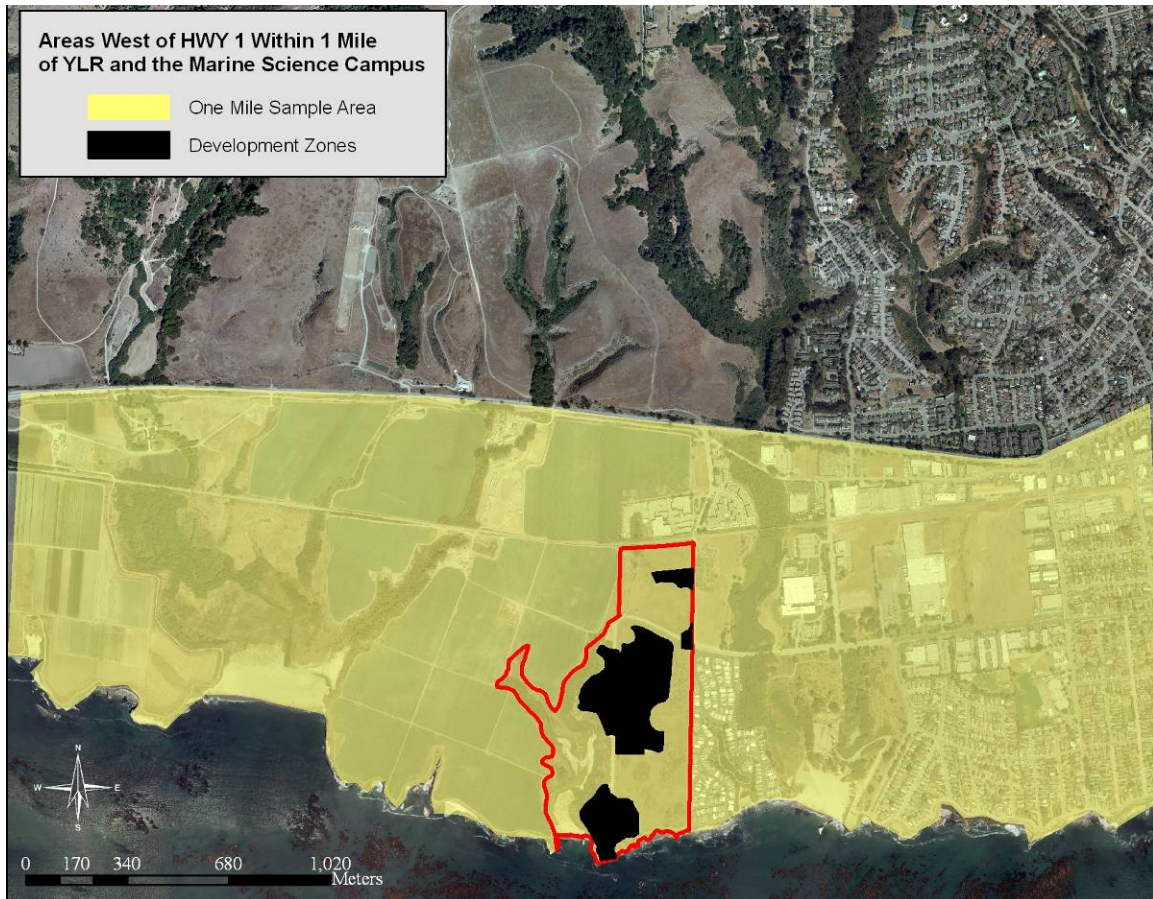


Figure 9. Seed collection area as defined by the CLRDP.

Table 2. Possible revegetation species.

<i>Common Name</i>	<i>Scientific Name</i>	<i>Grassland/ Erosion Control</i>	<i>Coastal Bluff</i>	<i>Wetland/ Riparian</i>	<i>Wildlife Corridor</i>	<i>Upland Buffer</i>	<i>Coastal Scrub</i>
Trees							
California box elder	<i>Acer negundo</i> var.			x	x		

<i>Common Name</i>	<i>Scientific Name</i>	<i>Grassland/ Erosion Control</i>	<i>Coastal Bluff</i>	<i>Wetland/ Riparian</i>	<i>Wildlife Corridor</i>	<i>Upland Buffer</i>	<i>Coastal Scrub</i>
	<i>californicum</i>						
California buckeye	<i>Aesculus californica</i>				X	X	
Coast live oak	<i>Quercus agrifolia</i>				X	X	
Wax myrtle	<i>Myrica californica</i>			X	X		
Arroyo willow	<i>Salix lasiolepis</i>			X	X		

Shrubs and Subshrubs

California sagebrush	<i>Artemisia californica</i>		X		X	X	X
Mugwort	<i>Artemisia douglasiana</i>		X	X			
Douglas' baccharis	<i>Baccharis douglasii</i>			X			
Coyote brush	<i>Baccharis pilularis</i>		X		X	X	X
Blue blossom ceanothus	<i>Ceanothus thyrsiflorus</i>				X		
California goldenbush	<i>Ericameria ericoides</i>		X				X
Seaside daisy	<i>Erigeron glaucus</i>		X			X	
Coast buckwheat	<i>Eriogonum latifolium</i>		X			X	X
Lizardtail	<i>Eriophyllum staechadifolium</i>		X			X	X
Oceanspray	<i>Holodiscus discolor</i>				X	X	X
Deerweed	<i>Lotus scoparius</i>	X					X
Yellow bush lupine	<i>Lupinus arboreus</i>		X		X	X	
Bush monkeyflower	<i>Mimulus aurantiacus</i>		X		X	X	X
Wax myrtle	<i>Myrica californica</i>				X		X
Coffeeberry	<i>Rhamnus californica</i>				X		X
California wild rose	<i>Rosa californica</i>	X		X		X	X
California blackberry	<i>Rubus ursinus</i>			X		X	X
Red elderberry	<i>Sambucus racemosa</i> var. <i>racemosa</i>			X	X	X	X

Forbs

Yarrow	<i>Achillea millefolium</i>		X	X		X	X
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<i>Common Name</i>	<i>Scientific Name</i>	<i>Grassland/ Erosion Control</i>	<i>Coastal Bluff</i>	<i>Wetland/ Riparian</i>	<i>Wildlife Corridor</i>	<i>Upland Buffer</i>	<i>Coastal Scrub</i>
Sea pink	<i>Armeria maritima</i>		x				
California aster	<i>Aster chilensis</i>	x	x	x			
Fat hen	<i>Atriplex triangularis</i>			x			
Beach saltbush	<i>Atriplex leucophylla</i>			x			
Sun cup	<i>Camissonia ovata</i>	x					
Wight's indian paintbrush	<i>Castilleja wightii</i>		x				x
Soap plant	<i>Chlorogalum pomeridianum</i>	x					x
Brownie thistle	<i>Cirsium quercetorum</i>	x	x				
American wild carrot	<i>Daucus pillus</i>	x	x				
Sea lettuce	<i>Dudleya farinosa</i>		x				
Western goldenrod	<i>Euthamia occidentalis</i>		x				
Beach strawberry	<i>Fragaria chiloensis</i>		x				
Gum plant	<i>Grindelia stricta</i>		x	x			x
Cow parsnip	<i>Heracleum lanatum</i>		x			x	
Douglas' iris	<i>Iris douglasiana</i>	x	x				
Coast trefoil	<i>Lotus formosissimus</i>	x					
Sky lupine	<i>Lupinus nanus</i>	x	x		x	x	
Lindley's varied lupine	<i>Lupinus variicolor</i>	x	x		x	x	
Wild cucumber	<i>Marah fabaceus</i>					x	
Pacific oenanthe	<i>Oenanthe sarmentosa</i>			x			
California polypody	<i>Polypodium californicum</i>					x	x
Pacific silverweed	<i>Potentilla anserina</i> ssp. <i>pacifica</i>			x			
Self heal	<i>Prunella vulgaris</i>	x	x				
California buttercup, coastal form	<i>Ranunculus californicus</i>	x		x		x	
Pacific sanicle	<i>Sanicula crassicaulis</i>				x		x

<i>Common Name</i>	<i>Scientific Name</i>	<i>Grassland/ Erosion Control</i>	<i>Coastal Bluff</i>	<i>Wetland/ Riparian</i>	<i>Wildlife Corridor</i>	<i>Upland Buffer</i>	<i>Coastal Scrub</i>
California bee plant	<i>Scrophularia californica</i>			x			x
Blue-eyed grass	<i>Sisyrinchium bellum</i>	x		x			
Coast hedge nettle	<i>Stachys bullata</i>			x			
Rushes/Sedges							
Baltic rush	<i>Juncus balticus</i>			x			
Western rush	<i>Juncus occidentalis</i>			x			
Common rush	<i>Juncus patens</i>			x			
Brown-headed rush	<i>Juncus phaeocephalus</i>			x			
Three-square	<i>Scirpus americanus</i>			x			
California tule	<i>Scirpus californicus</i>			x			
Low club rush	<i>Scirpus cernuus</i>			x			
Grasses							
Bent grass	<i>Agrostis pallens</i>	x	x	x	x	x	
California brome	<i>Bromus carinatus</i>	x		x	x	x	x
California oatgrass	<i>Danthonia californica</i>	x		x			x
Tufted hairgrass	<i>Deschampsia cespitosa</i>	x		x			
Saltgrass	<i>Distichlis spicata</i>		x				
Western ryegrass	<i>Elymus glaucus</i>				x		
Meadow barley	<i>Hordeum brachyantherum</i>			x			
Creeping wildrye	<i>Leymus triticoides</i>			x	x	x	
Foothill needlegrass	<i>Nassella lepida</i>	x			x	x	
Purple needlegrass	<i>Nassella pulchra</i>	x	x		x	x	x

Plants will be installed approximately 12 to 36 inches (30 to 90 cm) on center, depending on species. Smaller stature plants will be grouped and spaced closer together, while larger stature plants will be spaced further apart. In general, plants will be placed in non-linear arrangements to mimic plant distribution patterns observed in nature.

Seeds will be collected from local sources and grown by UCSC staff and students at the UCSC Arboretum, UCSC Teaching Greenhouses, and YLR. Some species may be grown by local restoration contractors.

With the exception of trees, all plants will be grown in Ray Leach ‘Conetainers’ or similar sized pots. Trees will be grown in ‘tree pots’. These containers will maximize utilization of greenhouse space and minimize per plant costs while producing relatively large plants with well developed root systems. Installation will begin after the first winter rains.

Erosion control

Because the Terrace Lands are essentially flat erosion is not likely to be a concern. If following planting or weeding efforts erosion control is required, appropriate materials (e.g. wood-chip mulch, jute netting, etc.) will be installed.

Irrigation

Ideally, plant installation will commence after the first winter rain and end well before the rains stop, ensuring that plants are naturally watered in and established before the summer drought. However, if supplemental irrigation is needed, plants will be watered using one or all of the following methods: vehicle application, drip hose, and/or overhead sprinkling. Water will be obtained from MSC infrastructure or other sources (e.g. rain, reclaimed water, etc.).

Remediation (maintenance / replacement plantings)

It is anticipated that plant mortality will likely be in the 10-40% range due to herbivory, desiccation, and/or trampling (by volunteers during planting and monitoring). Thus, plants will be installed at relatively high densities. If mortality is lower than anticipated, plants will be removed as necessary to ensure successful growth and reproduction and future planting densities will be adjusted. If a particular planting effort fails, plants will either be replanted that season or the following year if failure occurs after the rainy / planting season. Additionally, an alternative planting palette may be considered.

REPORTING ON IMPLEMENTATION ACTIVITIES (SRP 5)

A plan for documenting and reporting the physical and biological “as built” condition of the site will be prepared at the completion of the initial plan implementation activities. This report will describe the field implementation of the approved resource plan in narrative and photographs and report any problems in the implementation and their resolution.

The YLR manager will be on-site during restoration activities to take notes, photos, and to direct crews. After the end of the busy spring/summer restoration project season, she/he will compile notes and photos into a simple report describing the physical and biological “as built” condition of the site areas. This report will be submitted annually as an appendix to the YLR annual monitoring report.

INTERIM MONITORING AND MAINTENANCE (SRP 6)

Monitoring of restored areas on the Terrace Lands will provide data on coverage and richness of native species and thus gauge the “success” of restoration efforts. Specific monitoring methodologies, timing, and discussion of performance standards are included below in sections SRP 7 and SRP 8. Timing and methods for planting and weeding

(maintenance) are detailed in sections SRP 4 and SRP 5 above. Data from annual monitoring efforts will be used to assess whether restoration efforts are proceeding in the desired trajectory (e.g. increased coverage and richness of natives and decreased coverage of non-natives). Interim success criteria and remediation measures are specified in Tables 3-6 for each habitat type. A report on the progress towards both interim and final success criteria (as per SRP 7 below) will be compiled.

Data compiled from monitoring and maintenance activities will be included in an annual report that will be provided to the UC Santa Cruz Planning Director and the SAC by December 31st of each year following year one of the project period in which monitoring has been conducted. Each report will be cumulative (building upon previous efforts), will summarize monitoring results, and include a “Performance Evaluation” section where data will be summarized and used to evaluate restoration efforts. In order to remedy potential deficiencies in meeting success criteria each report will also include a “Recommendations” section that will discuss solutions and/or adaptive strategies to tackle unforeseen circumstances or new findings that require a change in restoration practices, maintenance, monitoring, or success criteria.

SUCCESS CRITERIA FOR HABITAT TYPES (SRP 7)

The SAC has defined final success criteria for species richness and coverage as well as remediation actions if criteria are not met. Success criteria will be evaluated by the SAC and may be changed if need be. Final success criteria will be evaluated only after a period of at least 3 years wherein the study site has been subject to no remediation or maintenance activities other than weeding. This section provides information on success criteria for each habitat type and a general overview of methods used to achieve these goals. Specific details regarding planting, site preparation, and weeding are included in sections SRP 2 (restoration and weeding goals), SRP 3 (site preparation), and SRP 4 (planting plan) above.

Ruderal, coyote brush scrub-grassland, and grassland areas

Enhancement and protection goals for ruderal, coyote brush scrub-grassland, and grassland are to maintain open space areas, protect and enhance the grassland, ruderal, and coyote brush scrub-grassland areas through eliminating priority one weeds, controlling to the extent possible lower priority weeds, promoting the abundance and diversity of native plant species (through weed abatement and phased revegetation), and preventing unauthorized trail development. During Phase 1 infilling/restoration/enhancement of ruderal, coyote brush scrub-grassland, and grassland will primarily be focused in areas where coyote brush habitat is currently present (see Figure 2); however, restoration efforts will also take place throughout the entire site as needed (e.g. weed abatement efforts, small scale planting, experimental manipulations, etc.). Interim and long-term goals for restoration of ruderal, coyote brush scrub-grassland, and grassland are included in Table 3.

Coyote Brush Scrub-Grassland enhancement in the northwestern region of the upper terrace (Figure 7) will focus on revegetating an earthen berm to create a “living fence” between the agricultural lands to the west and the upper Terrace. This habitat will provide cover for animals moving from the upper Terrace into Younger Lagoon.

Table 3. Summary of restoration activities, success criteria, and implementation actions for ruderal, coyote brush scrub-grassland, and grassland areas.

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 1 Priority 1 weeds	Eliminate on Terrace Lands	Year 3 and annually thereafter	No priority 1 weeds surviving to reproduction each year	Continue weed monitoring and control

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
			Priority 1 weeds reproducing on site	Increase frequency of monitoring and weed control; consider alternative control methods
RMP PS 2 Priority 2 Weeds	Reduce weedy seed set after planting efforts are initiated.	Timed to correspond with planting efforts.	Planted plants are established	Continue weeding program
			Annual weeds out-competing native plants.	Change weeding schedule or evaluate alternative methods.
RMP PS 2 Priority 3 Weeds	Incidental weed control efforts during active restoration projects (e.g. planting).	Timed to correspond with planting efforts.	Planted plants are established	Continue weeding program
			Annual weeds out-competing native plants.	Change weeding schedule or evaluate alternative methods.

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 3 Native plant species richness in Phase 1 grassland, ruderal, and coyote brush scrub-grassland areas	8 native plant species appropriate for habitat established in restoration areas.	Year 3--two years after planting**	6 or more native plant species established. <i>and</i> 10% cover (shrubs), 5% cover (non-shrubs), and evidence of natural recruitment present.	Continue monitoring
	40% cover of shrubs in ruderal, coyote brush scrub-grassland where coyote brush scrub is the primary target. 25% cover of non-shrubs (grasses, herbs, etc.) in grassland areas where grassland restoration is the primary target.		Fewer than 6 native plant species present. <i>or</i> < 10% cover (shrubs), < 5% (non-shrubs) or no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
		Year 5	<p>6 or more native plant species established.</p> <p><i>and</i></p> <p>≥ 25% cover (shrubs) >15% cover (non-shrubs) and evidence of natural recruitment present</p>	Continue monitoring
			<p>Fewer than 6 native plant species</p> <p><i>or</i></p> <p>< 25% cover (shrubs) and <15% cover (non-shrubs)</p> <p><i>or</i></p> <p>no evidence of natural recruitment present</p>	Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
		Year 7 and every 5 years thereafter **	8 or more native plant species present comprising \geq 40% cover (shrubs) and >25% cover (non-shrubs) <i>and</i> evidence of natural recruitment present	Continue monitoring
			Fewer than 8 native plant species or < 40% cover (shrubs) and <25% cover (non-shrubs) of native species <i>or</i> no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods. Consult SAC.
RMP PS 4 Native plant richness in Phase 2 and Phase 3 grassland, ruderal, and coyote brush scrub-grassland areas	Same criteria as for Phase 1 as adjusted by SAC.	Same criteria as for Phase 1 as adjusted by SAC.	Same criteria as for Phase 1 as adjusted by SAC.	Same criteria as for Phase 1 as adjusted by SAC.

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 5 Protection of revegetation in progress	No disturbance to revegetation plantings	Ongoing until revegetation is successful	Plantings undisturbed	Continue monitoring until revegetation is successful
			Plantings disturbed (plants broken, trampled, dislodged, removed)	Install signs or low fencing as appropriate and consistent with the CLRDP.

Coastal bluff

Enhancement and protection of coastal bluff habitat will be achieved by eliminating priority one weeds, promoting the abundance and diversity of native plant species through plantings, preventing unauthorized trail development, and increasing the extent of coastal bluff vegetation. Restoration of all coastal bluff habitat will begin during Phase I of the project. Interim and long-term goals for restoration of coastal bluff habitats are provided in Table 4.

Table 4. Summary of restoration activities, success criteria, and implementation actions for coastal bluff habitat.

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 6 Priority 1 weeds except	Eliminate on coastal bluff	Year 3 and annually thereafter	No priority 1 weeds surviving to reproduction	Continue weed monitoring and control

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
iceplant			Priority 1 weeds reproducing on site	Use different species weed abatement methods or frequency
RMP PS 7 Iceplant removal	Eliminate on coastal bluff	Prior to first rainy season following initiation of construction for first development project in Lower Terrace development zone	No iceplant on coastal bluff	Continue monitoring and control
			Iceplant growing on coastal bluff	Use different species, weed abatement methods or frequency
RMP PS 8 Native plant revegetation	8 native plant species appropriate for coastal bluff habitat. 40% cover of native species.	2 years after planting	4 or more native plant species established comprising \geq 20% cover within bluff areas <i>and</i> evidence of natural recruitment present	Continue monitoring

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
			<p>Fewer than 4 native plant species or < 20% cover of native species in bluff areas</p> <p><i>or</i></p> <p>no evidence of natural recruitment present</p>	<p>Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods</p>
		5 years after planting	<p>8 or more native plant species established comprising \geq 30% cover within bluff areas</p> <p><i>and</i></p> <p>evidence of natural recruitment present</p>	<p>Continue monitoring</p>
			<p>Fewer than 8 native plant species or < 30% cover of native species in bluff areas</p> <p><i>or</i></p> <p>no evidence of natural recruitment present</p>	<p>Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods</p>

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
		10 years after planting and every 5 years thereafter	8 or more native plant species established comprising \geq 40% cover within bluff areas <i>and</i> evidence of natural recruitment present	Continue monitoring
			Fewer than 8 native plant species or < 40% cover of native species in bluff areas <i>or</i> no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods. Consult SAC.
RMP PS 9 Protection of coastal bluff vegetation	No disturbance to coastal bluff vegetation	Ongoing	Vegetation undisturbed	Continue monitoring
			Vegetation disturbed (plants broken, trampled, dislodged, removed)	Install additional signs or low fencing as appropriate

Wetlands

Enhancement and protection goals for wetlands include increasing surface water flow, controlling weeds, promoting the abundance and diversity of native plant species, creating buffers, and controlling access by humans and non-native animals. Maintaining trails primarily along the perimeter of the Terrace area (i.e. eliminating trails that bisect the Reserve from East to West) will reduce the potential impact humans have on wildlife in wetland habitats. Table 5 highlights the performance standards and enhancement activities for wetlands across the entire project area and for the 20 year duration. The primary focal areas for wetland restoration during Phase 1 of the project will include PS 10, 12, 13, 16, and 17 (as per Table 5) as well as planting in the core areas of wetlands 1, 2, 4 and 5. Implementation efforts focused on hydrologically reconnecting Wetlands 1 and 2 will be initiated subsequent to Commission approval of the SRP Phase 1B NOID.

Plans for hydrologically reconnecting Wetlands 1 and 2 are described below to the extent it has been developed to date. Implementation details will be subject to agency consultation and permitting and likely will vary, at least in some details, from the conceptual outline provided here. The implementation of SRP Phase 1B is independent of the implementation of Phase 1A, although results of both would be monitored and reported at the end of SRP Phase 1. Due to the uncertainty related to the Phase 1B elements and implementation criteria it would be too speculative to evaluate the environmental effects of Phase 1B implementation at this time.

Initial efforts to reconnect W1 and W2 during Phase IB of the restoration will focus on modifying the flow pattern of Wetland 1 by installing an earthen dam, or other appropriate structure, at both the upstream and/or downstream end of Wetland 1 and/or a flash dam at the southern end of W1 (Figures 10 and 11).

The earthen dam, or other appropriate structure, at the head of W1 is expected to decommission the drainage ditch, diverting surface water into W2. The extent of W1 is unlikely to change significantly because of the steep side slopes and subsurface flow. Additional diversion structures in W1 may be considered to direct more surface flow into

W2. Water pooled in W1 behind these dams may provide amphibian breeding habitat. This approach of plugging the ditch will likely create small open water pool habitats. If the diversion structures at W1 prove successful, they will be rebuilt in a permanent manner. If they do not meet anticipated goals additional design and planning will occur during Phase II of the restoration project.

The broad geometry and dense vegetation of W2 is expected to spread the water that formerly flowed through W1 over a much greater area. This is expected to facilitate weed control, improve water quality, and may increase the extent of W2. It is also expected to promote infiltration and the subsurface storage of winter runoff, which will lengthen the duration of inundation in the spring.

The diversion structure at the southern end of W1 will be constructed by modifying an existing water control structure that consists of two short culverts in a concrete headwall. A flashboard dam in this location will enable management of wetland hydrology in the lower portion of W2. The structure is expected to increase the extent and duration of inundation in W2 without adversely affecting the other uses or the roadway, with benefits similar to those described above.



Figure 10. Hydrology of wetlands 1 and 2.

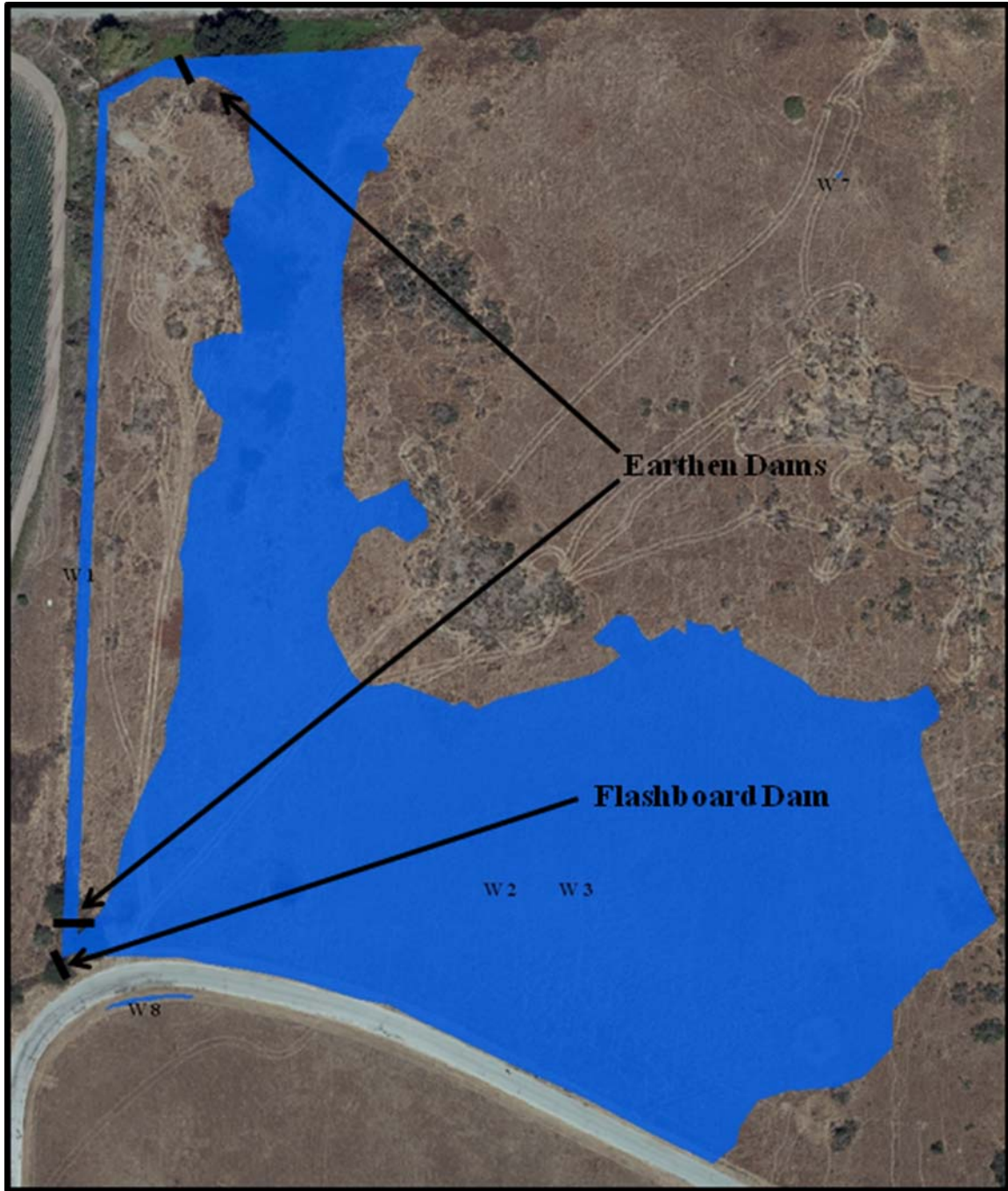


Figure 11. Potential modifications to Wetland 1.

Table 5. Summary of restoration activities, success criteria, and implementation actions for wetland areas.

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 10. Wetland 2 - flow diversion from Wetland 1	Wetland functioning as expected per design	1, 2, and 3 years after diversion completed	Structure remains intact Water diversion functioning as expected	Continue monitoring
			Structure fails Water diversion not functioning as expected	Fix with better structure Develop and implement plans to correct functioning; continue monitoring
RMP PS 11. Combined Wetland W1/W2 – creation of willow riparian corridor and restoration plantings west and east of the	3 native plant species appropriate for habitat established in planted areas to comprise 30% cover (e.g. Coyote brush, willow, etc.).	3 years after planting**	3 or more native plant species established comprising \geq 20% cover within planted areas <i>and</i> evidence of natural recruitment present	Continue monitoring

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
combined W1/W2 hydrologic corridor			Fewer than 3 native plant species <i>or</i> < 20% cover of native species established within planted areas or no evidence of natural recruitment present	Perform supplementa l planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods
		10 years after planting** and every 5 years thereafter	3 or more native plant species established comprising \geq 30% cover within planted areas <i>and</i> evidence of natural recruitment present	Continue monitoring

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
			Fewer than 3 native plant species <i>or</i> < 30% cover of native species established within planted areas or no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods. Consult SAC.
RMP PS 12. Priority 1 weeds	Eliminate in wetlands	Year 3 and annually thereafter	No priority 1 weeds surviving to reproduction	Continue weed monitoring and removal as necessary
			Priority 1 weeds reproducing on site	Increase frequency of monitoring and weed removal efforts; consider alternative control methods
RMP PS 13 Priority 2 Weeds	Reduce weedy seed set after planting efforts are initiated.	Timed to correspond with planting efforts.	Planted plants are not established	Continue weeding program

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
			Annual weeds out-competing native plants.	Change weeding schedule or evaluate alternative methods.
RMP PS 13 Priority 3 Weeds	Incidental weed control efforts during active restoration projects (e.g. planting)	Timed to correspond with planting efforts.	Planted plants are not established	Continue weeding program
			Annual weeds out-competing native plants.	Change weeding schedule or evaluate alternative methods.
RMP PS 14. Native plant revegetation	4 native plant species appropriate for habitat established in planted areas to comprise 30% cover within selected areas	2 years after planting**	Fewer than 4 native plant species <i>or</i> <10% cover of native species established in planted areas or no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
			4 or more native plant species established comprising \geq 30% cover within planted areas <i>and</i> evidence of natural recruitment present	Continue monitoring
		5 years after planting** and every 5 years thereafter	Fewer than 4 native plant species <i>or</i> < 25% cover of native species established in planted areas <i>or</i> no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, soil preparation methods, irrigation, and/or weed abatement methods. Consult SAC.
			Plantings undisturbed	Continue monitoring until revegetation is successful

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 15. Protection of revegetation in progress	No disturbance to revegetation plantings	Ongoing until revegetation is successful	Plantings disturbed (plants broken, trampled, dislodged, removed)	Determine cause; develop appropriate solution
			Wetlands undisturbed	Continue monitoring
RMP PS 16. Protection of wetlands	No unauthorized human disturbance to wetlands	Ongoing	Vegetation disturbed (plants broken, dislodged, trampled, removed); soils disturbed or compacted; other signs of trespass present	Install additional signs or low fencing as appropriate and per CLRDP specifications
			Wetlands undisturbed	Continue monitoring
RMP PS 17. Minimize anthropogenic changes to existing	Minimal changes to surface topography from management	Ongoing	Substantial changes to surface topography and/or drainage patterns evident	Determine cause; correct as necessary

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
surface drainage patterns in open space areas (except for W1/W2 hydrologic integration)	activities; no changes to surface topography due to unauthorized activities			

Wetland buffers

Enhancement and protection goals for wetland buffer areas (Figure 5 and 7) are to protect wetlands from adverse impacts due to weeds, noise, human and non-native animal intrusion, lighting, predation, and sedimentation. During Phase 1, restoration of wetland buffer habitat will be conducted primarily in the Wetlands 4, 5 and 6 buffers, but will also occur throughout other wetland buffer areas at a less intensive effort. Wetland buffers are delineated as 100 ft (30.5 m) beyond classified wetland habitat (with the exception of Wetland 5 which has a 150 ft [45.7 m] buffer area). Because conditions within wetland buffer areas vary, within and among wetlands, plant species used in revegetation efforts will be largely dependent upon soil conditions. In order to achieve the goal of “insulating” wetland habitat from noise and intrusion (both physical and visual) by people, planting efforts will include shrubs near the outer edge of the wetland buffer areas and adhere to interim and long-term goals for restoration of ruderal, coyote brush scrub-grassland, and grassland (see Tables 3 and 6).

Table 6. Summary of restoration activities, success criteria, and implementation actions for wetland buffer areas.

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
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<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 18. Reduce disturbance from automobile traffic	Construct new campus access road that diverts traffic between the Delaware Avenue/Shaffer Road intersection and the CDFG facility and abandon former access road (see management measures above)	See Table A.12 of CLRDP.	Roadway realigned and former roadway improved/restored	Maintain new roadway and trail/restoration areas of former roadway thereafter. Breaking up and removing pavement and then planting with native shrubs will enhance corridor along wetland 1.
RMP PS 19. Priority 1 weeds	Eliminate in buffer areas	Year 3 and annually thereafter	No priority 1 weeds surviving to reproduction	Continue weed monitoring and removal as necessary
			Priority 1 weeds reproducing on site	Increase frequency of monitoring and weed removal efforts; consider alternative control methods
RMP PS 20 Priority 2 Weeds	Reduce weedy seed set after planting efforts are initiated.	Timed to correspond with planting efforts.	Planted plants are not established	Continue weeding program

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
			Annual weeds out-competing native plants.	Change weeding schedule or evaluate alternative methods.
RMP PS 20. Priority 3 weeds	Incidental weed control efforts during active restoration projects (e.g. planting).	Timed to correspond with planting efforts.	Planted plants are established	Continue weeding program
			Annual weeds out-competing native plants.	Change weeding schedule or evaluate alternative methods
RMP PS 21. Creation of vegetated berm at periphery of the buffer for wetland W5 (seasonal pond); see also management measures above	Establish vegetated berm (note: weed removal and planting requirements for the berm shall be the same as for the remainder of the weed removal and planting performance standards specified in this table)	See Table A.12 of CLRDP.	Vegetated berm established <i>and</i> weed control/planting successful per this table	Monitor and maintain in its design state thereafter
			Vegetated berm not established <i>and/or</i> weed control/planting not successful per this table)	Establish berm, and pursue remedial planting actions per this table.

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
RMP PS 22. Native plant revegetation	8 native plant species appropriate for habitat established to comprise 40% cover within buffer areas that will be planted with shrubs and 25% cover in areas that will be planted with grasses and herbaceous plants.	2 years after planting**	4 or more native plant species established comprising \geq 10% cover within buffer areas <i>and</i> evidence of natural recruitment present	Continue monitoring
			Fewer than 4 native plant species or < 10% cover of native species established in buffer areas <i>or</i> no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, and/or soil preparation methods

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
		5 years after planting**	<p>6 or more native plant species established comprising \geq 25% cover for shrubs and 15% cover for grasses and herbs within buffer areas</p> <p><i>and</i></p> <p>evidence of natural recruitment present</p>	Continue monitoring thereafter
			<p>Fewer than 6 native plant species or < 25% cover for shrubs and 15% cover for grasses and herbs of native species established in planted areas</p> <p><i>or</i></p> <p>no evidence of natural recruitment present</p>	Perform supplemental planting using different species, propagule type, and/or soil preparation methods

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
		7 years after planting** and every 5 years thereafter	8 or more native plant species established comprising \geq 40% cover (shrubs) and 25% cover (grasses/herbs) within buffer areas <i>and</i> evidence of natural recruitment present	Continue monitoring thereafter
			Fewer than 8 native plant species or < 40% cover (shrubs) and 25 % cover (grasses/herbs) of native native established in buffer areas <i>or</i> no evidence of natural recruitment present	Perform supplemental planting using different species, propagule type, and/or soil preparation methods. Consult SAC.
RMP PS 23. Protection of revegetation in progress	No human disturbance to revegetation plantings	Ongoing until revegetation is successful	Plantings undisturbed	Continue monitoring until revegetation is successful

<i>Feature</i>	<i>Goal</i>	<i>Time Period*</i>	<i>Result</i>	<i>Action</i>
			Plantings disturbed (plants broken, trampled, dislodged, removed)	Install signs or low fencing as appropriate
RMP PS 24. Protection of buffer areas	No unauthorized human disturbance to buffer areas	Ongoing	Buffer areas undisturbed	Continue monitoring
			Buffer areas disturbed (plants broken, dislodged, trampled, removed); soils disturbed or compacted; other signs of damage present	Install additional signs or low fencing as appropriate and per the CLRDP requirements
RMP PS 25. Minimize anthropogenic changes to existing surface drainage patterns (except for those contemplated by and consistent with the CLRDP, including the Drainage Concept Plan (Appendix B)).	Minimal changes to surface topography from management activities; no changes to surface topography due to unauthorized activities	Ongoing	Wetlands/buffers undisturbed	Continue monitoring and work with Campus Planning and Construction to ensure potential temporary impacts from construction are not having long-term impacts on wetland buffer habitats.

SUCCESS CRITERIA (SRP 8)

Detailed success criteria for each habitat type are described in SRP 7 above. These criteria set an initial threshold of species richness and cover for specific habitat types throughout the restoration area. However, during the spring of 2010 species richness and cover data will be collected for grassland, scrub, and wetland habitats at five “Reference Sites.” Possible reference Sites include Franklin Point, coastal prairies near Gualala (Sea Ranch), Lighthouse field, Point Lobos State Park, Arana Gulch, Twin Lakes, Eliccott Slough, and Pogonip. These sites will be surveyed using the same methodologies described below in SRP 9. Results from surveys of Reference Sites will be presented to the SAC and used to assess whether the success criteria outlined in Tables 3-6 should be modified. Data from these areas will be used as a guideline and will not necessarily dictate specific success criteria. Thus, determination of whether enhancement and restoration efforts have met pre-determined goals will be measured by comparing percent cover and species richness of native species to the criteria outlined above in section SRP 7 or, depending upon guidance from the SAC, from data collected at the local Reference Sites. If success criteria are not achieved, the SAC will evaluate potential causes for the lack of success and recommend future adaptive management strategies to obtain desired goals.

MONITORING (SRP 9)

This section of the SRP defines the monitoring approach that will be used to evaluate whether success criteria for native plant cover and richness is being met. In order to assess the progress towards meeting defined success criteria, monitoring efforts will focus on Phase I target restoration/enhancement areas (Figure 7). The ultimate goal of Phase I is to meet success criteria for 1/3rd of the Terrace Lands (approximately 15 ac [6 ha]). The methodologies outlined below describe survey methods; however, a pilot study will be conducted in Spring of 2010 to refine methodologies and assess the appropriate number of plots necessary to ensure an adequate sample size that will enable cover to be estimated within 10% (confidence interval of 0.10) of actual cover values with an 80% confidence level ($\alpha = 0.20$). At a minimum, vegetation monitoring will be conducted in

years 1, 4, and 7. However, if extreme weather events occur in these years additional monitoring may be required. Monitoring will occur in the spring when species are blooming and readily identifiable. Percent cover and species richness will be calculated as described below; data will be compared to success criteria outlined in Tables 3-6.

Hydrological monitoring

Water levels in each major wetland (1, 2, 4, and 5) will be recorded monthly at a series of staff plates positioned strategically throughout the wetlands. The area with water at the ground surface will be mapped at least monthly during the rainy season by walking its periphery with a GPS and entering the data into a GIS. Rainfall data will be collected at a nearby weather station located at Long Marine Laboratory.

Coyote brush shrub-grassland, coastal bluff, willow riparian, and ruderal areas

These areas are dominated by shrub species. The line intercept method will be used to assess cover in Coyote brush shrub-grassland, coastal bluff, willow riparian, and ruderal areas. Each transect will be 164 ft (50 m) in length and distributed throughout the Phase I restoration areas within each habitat type. The first starting point will be randomly selected within each specific habitat type and additional transects will be established at fixed intervals of 246 ft (75 m) in a north south direction. Specific start locations of each transect will be permanently established; however, orientation of every transect will be randomly selected each time a transect is surveyed (i.e. in different years). This method establishes random transect points while ensuring adequate coverage of the entire restoration area. If transects extend beyond the target habitat type into either developed areas or different habitats, the random orientation or starting point will be reselected in order to ensure sampling occurs within the target habitat. Shrub cover will be quantified by recording the length each shrub species is observed under the transect tape to the nearest 2 in (5 cm); herbaceous and grass cover will not be quantified in areas where shrubs intersect with the transect.

For areas within Coyote brush shrub-grassland, coastal bluff, willow riparian, and ruderal areas that lack shrubs (i.e. interstitial open areas), herbaceous plants and grasses will be quantified using 2.69 ft² (0.25 m²) rectangular quadrats 0.82 x 3.28 ft (0.25 m x 1.0 m). Quadrats will be placed every 16.4 ft (5 m) perpendicular to the transect with the first quadrat placed randomly between (0-5 m). Quadrats will alternate between the right and left side of the transect (first placement selected randomly) unless only one side contains an open grassy area, in those cases the open area will be chosen. Percent cover of native and non-native species will be determined by estimating total cover of each species within each quadrat.

To adequately survey species richness, additional species (not found in transects or quadrats) that are observed in a 13 ft (4 m) wide belt transect along the line transect (6.5 ft [2 m] to either side of the line) will be recorded. Natural recruitment of native species will be noted in the line intercept and quadrat surveys by tallying the number of recruits per transect and/or quadrat. Recruits will be averaged across transects and quadrats.

Open Grassland Areas

These areas are dominated by grasses and forbs. Transects will be established as per methodologies described above in Coyote-brush shrubland, coastal bluff, willow riparian, and ruderal areas and serve as a backbone for quadrat surveys. Grasses and herbaceous cover will be quantified using 2.69 ft² (0.25 m²) rectangular quadrats (0.82 x 3.28 ft [0.25 m x 1.0 m]). Quadrats will be placed every 16.4 ft (5 m) perpendicular to the transect with the first quadrat placed randomly between (0-5 m). Quadrats will alternate between the right and left side of the transect (first placement selected randomly) unless only one side contains an open grassy area, in those cases the open area will be chosen. Percent cover of native and non-native species will be determined by estimating total cover of each species within each quadrat.

To adequately survey species richness, additional species (not found in quadrats) that are observed in a 13 ft (4 m) wide belt transect along the line transect (6.5 ft [2 m] to either side of the line) will be recorded. Natural recruitment of native species will be noted in

the belt transect and quadrat surveys by tallying the number of recruits per transect and/or quadrat. Recruits will be averaged across transects and quadrats.

Wetland Vegetation

Rectangular quadrats 2.69 ft² (0.25 m²) will be used to evaluate cover of grass, forb, sedge, and rush species in the wetland areas during Phase I (Figure 7). Quadrat size will be 0.82 x 3.28 ft (0.25 m × 1.0 m). A series of sampling locations will be determined by randomly assigning starting points at the edge of each wetland (determined by vegetation). At each starting point a transect tape will be extended across the wetland at a randomly chosen orientation to the opposite edge of the wetland. If the random orientation results in the transect being outside of the wetland area another orientation will be randomly selected. Quadrats will alternate between the right and left side of the transect (first placement selected randomly) falls within the wetland, in those cases the wetland area will be chosen. Percent cover of native and non-native species will be determined by estimating total cover of each species within each quadrat.

To adequately survey species richness, additional species (not found in quadrats) that are observed in a 13 ft (4 m) wide belt transect along the line transect (6.5 ft [2 m] to either side of the line) will be recorded. Natural recruitment of native species will be noted in the belt transect and quadrat surveys by tallying the number of recruits per transect and/or quadrat. Recruits will be averaged across transects and quadrats.

GIS and GPS Vegetation Surveys

Beyond on-the-ground transect and quadrat surveys described above, percent cover of large shrubs across the entire site will be calculated by digitizing the perimeters of shrubs occurring in Phase I restoration areas and throughout the Terrace Lands using GIS of recent aerial imagery (see for example Figure 2). Once plants are digitized, area and percent coverage can be calculated using spatial analysis, thus providing an additional

measure of cover for large shrubs. Aerial imagery analysis and on-the-ground GPS mapping will provide a thorough estimate of total coverage of patchily distributed species such as coyote brush, creeping wild rye, Douglas' baccharis, and wetland species (rushes, and sedges) that can be accurately be identified from aerial imagery. Digitizing of aerial imagery will be used when orthoimagery is updated and available (likely every 2-5 years).

Photo monitoring

On-the-ground photo monitoring will be conducted annually and be timed to correspond when plants are blooming and more easily identified (spring/early summer). Photos will be oriented to capture large scale changes over time and taken at permanent photo points established throughout the project area. Figure 12 identifies several photo points; however, additional points will likely be created over time in order to capture specific areas within the restoration site and ensure growing vegetation does not preclude adequate coverage. Each point has coordinate and bearing in order to ensure repeatability over time. Monitoring information collected for each photo point will include:

1. Photo point number
2. Date
3. Name of photographer
4. Bearing
5. Camera and lens size
6. Coordinates
7. Other comments

All on-the-ground photos will be included in the monitoring reports.



Figure 12. Photo monitoring points.

Monitoring study report and schedule

Results from monitoring efforts will be included in the reports (as per SRP 6) that will be submitted by December 31st of each year to UCSC, CCC, and the SAC. Reports will include a summary of restoration activities as well as an evaluation of whether success criteria are being achieved. The report will also discuss any corrective actions or adjusted protocols that may be required.

FINAL MONITORING REPORT (SRP 10)

The final monitoring report will be submitted to the UCSC Planning Director, Scientific Advisory Committee, and California Coastal Commission at the end of the final monitoring period of Phase I. The report will evaluate whether the site area conforms to the goals and success criteria set forth in the approved final resource plan.

PROVISION FOR POSSIBLE FURTHER ACTION (SRP 11)

If the final report (SRP 10) indicates that the project has been unsuccessful, in part or in whole, based on the approved success criteria, then the final report shall identify remediation measures to be implemented to compensate for those portions of the original plan that did not meet the approved success criteria.

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LITERATURE CITED

- Bossard, C. C., J.M. Randall, and M. C. Hoshovsky. 2000. Invasive Plants of California's Wildlands. University of California Press. Berkeley, CA
- California Native Plant Society. 1996. Policy on Exotic Invasive Plants. Adopted September 1996.
- DiTomaso, J.M. 2000. Invasive weeds in rangelands: species, impacts, and management. *Weed Science* 48:255-265.
- EcoSystems West. 2002. Biological Resources. Text and appendices. In Environmental Science Associates (ESA) Environmental Impact Report (EIR) for the University of California, Santa Cruz Coastal Long Range Development Plan.
- Elzinga, C.L., D.L. Salzer, J.W. Willoughby and J.P. Gibbs. 2001. Monitoring plant and animal populations, Blackwell Scientific, Malden, MA.
- Glinka, K. 2010. Senior Wildlife Biologist, EcoSystems West. Personal communication.
- John Gilchrist & Associates (JGA) and Environmental Hydrology (EH). 1997. Draft Wetland and Open Space Management Plan, Santa Cruz Coastal Marine Research Center at Terrace Point. Prepared for ATC Realty Sixteen, Inc. December.
- John Gilchrist & Associates (JGA) and Environmental Hydrology (EH). 1998. Landscape, Habitat and Open Space Management Plan, Santa Cruz Coastal Marine Research Center at Terrace Point. Revised Draft. Prepared for ATC Realty Sixteen, Inc. May.
- Hayes, G. F. and K. D. Holl. 2003a. Site-specific responses of native and exotic species to clipping frequency, litter accumulation and soil disturbance in a mesic grassland community. *Applied Vegetation Science* 6: 235-244.
- Hayes, G. F. and K. D. Holl. 2003b. Cattle grazing impacts on vegetation composition and structure of mesic grasslands in California. *Conservation Biology* 17: 1694-1702. Hickman, J.C. (Ed.), 1993. *The Jepson Manual, Higher Plants of California*
- Huffman-Broadway Group, Inc. 2004. Investigation of the Presence of Wetlands and Other Environmentally Sensitive Habitat Areas on the Terrace Point Site, University of California, Santa Cruz. Prepared for University of California, Santa Cruz, Campus and Community Planning. (*HUFFMAN-BROADWAY GROUP*,

INC. 2004 proposed CCC Wetlands boundary was updated during 2007 based on field data obtained from (1) an interagency (Corps and USEPA) peer review requested by the CCC, (2) CCC staff, and (3) HBG during the winter and spring of 2007).

Mori, B. 1997. Terrace Point California Red-legged Frog Site Assessment, Santa Cruz, California. Prepared for ATC Realty Sixteen, Inc.

The National Invasive Species Council. 2008. 2008-2012 National Invasive Species Management Plan. 35 pp. Available at: www.invasivespecies.gov

National Resources Conservation Service. 1992. Hydric Soil List for Santa Cruz County, California. United States Department of Agriculture. Available at: <http://www.ca.nrcs.usda.gov/mlra02/stacruz/>

Soil Conservation Service. 1980. Soil Survey of Santa Cruz County. United States Department of Agriculture and University of California Agriculture.

Stromberg, M. R., J. Corbin, and C. D'Antonio. 2007. California Grasslands: Ecology and Management. University of California Press, Berkeley, CA.

U.S. Fish and Wildlife Service. 1988. National list of vascular plant species that occur in wetlands. U.S. Fish & Wildlife Service Biological Report 88 (26.9).

University of California at Santa Cruz. 2008. Marine Science Campus Coastal Long Range Development Plan. Prepared for the California Coastal Commission, March 2008.

APPENDICES

Appendix 1. CLRDP A.6.1: Specific Resource Plan requirements

A.6.1 Specific Resource Plans Required

The RMP provides a fairly broad outline with general recommendations and specific guidelines for resource protection, enhancement, and management on the Marine Science Campus site. The intent is that the Scientific Advisory Committee (SAC) uses the RMP as the initial framework for development of more detailed and specific resource plans for RMP implementation. These may be adapted to address the current physical and ecological conditions, current understanding of biological and ecological processes, and current approaches to habitat revegetation, restoration, and enhancement, provided that the overall intent of the RMP is carried out, including the level of resource protection and the timing guidelines. For example, the RMP performance standards provide suggestions for standards of biodiversity and vegetative cover, but these might be altered in a detailed plan based on new research or revegetation experience at this site. Adjustments to the performance standards that are more protective of the resources and more responsive to the site conditions based on management experience over time are encouraged.

Therefore, implementation of the requirements of this RMP shall be based on more detailed resource plans. Some of these more detailed resource plans will be developed during the course of projects that emanate from the CLRDP building program that require certain mitigations and capital improvements as part of them, but others may be developed irrespective of the building program (see also Approvals section below). Implementation of the RMP shall be guided by the SAC composed of three to four native restoration professionals and academicians appointed by the UCSC Chancellor and selected in consultation with the Executive Director of the California Coastal Commission. This committee shall meet on an annual basis at a minimum (more frequently as needed), and provide overall direction for resource plan preparation, revegetation installation, long-term maintenance and monitoring.

Appendix 1. CLRDP A.6.1: Specific Resource Plan Requirements

Specific Resource Plans shall be prepared per 1M 3.2.10 by a qualified restoration ecologist under the guidance of the SAC, and will follow the guidelines below, as appropriate:

1. A baseline assessment, including photographs, of the current physical and ecological condition of the proposed restoration, enhancement, and/or management site area. As appropriate, this may be based on available historical information or include current surveys addressing wetland delineation (conducted according to the definitions in the Coastal Act and the Coastal Commission's Regulations), a description and map showing the area and distribution of vegetation types, and a map showing the distribution and abundance of sensitive species, if any. Existing vegetation, wetlands, and sensitive species shall be depicted on a map that includes the footprint of the proposed site area.
2. A description of the goals of the resource plan, including, as appropriate, topography, hydrology, vegetation, sensitive species, and wildlife usage.
3. A description of planned site area preparation and invasive plant removal.
4. A planting plan including the planting palette (seed mix and container plants), planting design, source of plant material, plant installation, erosion control, irrigation, and remediation. Except for the planting of Monterey cypress, the planting palette shall be made up exclusively of native taxa that are appropriate to the habitat and region. Seed and/or vegetative propagules shall be obtained from local natural habitats so as to protect the genetic makeup of natural populations. Horticultural varieties shall not be used. Materials should be collected from coastal habitats that are located within approximately one mile of the Marine Science Campus and seaward of Highway 1 (Morgan 2002).
5. A plan for documenting and reporting the physical and biological "as built" condition of the site area within 30 days of completion of the initial plan implementation activities. This simple report will describe the field implementation of the approved resource plan in narrative and photographs, and report any problems in the implementation and their resolution.
6. A plan for interim monitoring and maintenance, including:
 - a. A schedule.
 - b. Interim performance standards keyed to final success criteria (#7, below).
 - c. A description of field activities, including monitoring studies (#8, below).
 - d. The monitoring period.

Appendix 1. CLRDP A.6.1: Specific Resource Plan Requirements

- e. Provision for submission of annual reports of monitoring results to the Planning Director for the duration of the required monitoring period, beginning the first year after submission of the “as-built” report. Each report shall be cumulative and shall summarize all previous results. Each report shall document the condition of the site area with photographs taken from the same fixed points in the same directions. Each report shall also include a “Performance Evaluation” section where information and results from the monitoring program are used to evaluate the status of the project in relation to the interim performance standards and final success criteria. To allow for an adaptive approach to management, each report shall also include a “Recommendations” section to address changes that may be necessary in light of study results or other new findings.
7. Final success criteria for each habitat type, including, as appropriate:
 - a. Species diversity, including total number of taxa, number of native taxa, and number of invasive non-native taxa.
 - b. Vegetation coverage, including total vegetation, native vegetation, invasive non-native taxa, and dominant species.
 - c. Wildlife usage.
 - d. Erosion control and functional hydrology.
 - e. Control of invasive non-native plant taxa.
 - f. Maintenance of suitable habitat, and presence/abundance, for sensitive species or other individual “target” species.
 - g. A requirement that success be determined after a period of at least three years wherein the study site has been subject to no remediation or maintenance activities other than weeding.
 8. The method by which “success” will be judged, including, as appropriate:
 - a. Type of comparison. Possibilities include comparing a census of the site area to a fixed standard derived from literature or observations of natural habitats, comparing a census of the site area to a sample from a reference site, comparing a sample from the site area to a fixed standard, or comparing a sample from the site area to a sample from a reference site.
 - b. Identification and description, including photographs, of any reference sites that will be used.
 - c. Test of similarity. This could simply be determining whether the result of a census was above a predetermined threshold. Generally, it will entail a one- or two-sample t-test.

Appendix 1. CLRDP A.6.1: Specific Resource Plan Requirements

- d. The field sampling design to be employed, including a description of the randomized placement of sampling units and the planned sample size.
 - e. Detailed field methods; not simply a citation of a publication or standard methodology.
 - f. Specification of the maximum allowable difference between the restoration value and the reference value for each success criterion.
 - g. Where a statistical test will be employed, a statistical power analysis to document that the planned sample size will provide adequate statistical power to detect the maximum allowable difference. Generally, sampling should be conducted with sufficient replication to provide 90% power with $\alpha=0.10$ to detect the maximum allowable difference. This analysis will require an estimate of the sample variance based on the literature or a preliminary sample of a reference site.
 - h. A statement that final monitoring for success will occur after at least 3 years with no remediation or maintenance activities other than weeding.
9. Monitoring study design for each habitat type, including, as appropriate:
- a. Goals and objectives of the study.
 - b. Field sampling design.
 - c. Study sites, including experimental/revegetation sites and reference sites.
 - d. Field methods, including specific field sampling techniques to be employed. Photomonitoring of experimental/revegetation sites and reference sites shall be included.
 - e. Data analysis methods, including descriptive and inferential statistics with specified acceptable variance and significance levels to examine sample size, univariate and multivariate comparisons, and/or other param as appropriate and necessary to assess progress toward and meeting of success criteria.
 - f. Presentation of results.
 - g. Assessment of progress toward meeting success criteria.
 - h. Recommendations.
 - i. Monitoring study report content and schedule.
10. Provision for submission of a final monitoring report to the UCSC Planning Director and Scientific Advisory Committee at the end of the final monitoring period. The final report must be prepared by a qualified restoration ecologist. The report must

Appendix 1. CLRDP A.6.1: Specific Resource Plan Requirements

evaluate whether the site area conforms to the goals and success criteria set forth in the approved final resource plan.

- 11.** Provision for possible further action. If the final report indicates that the project has been unsuccessful, in part or in whole, based on the approved success criteria, then the final report shall identify remediation measures to be implemented to compensate for those portions of the original plan that did not meet the approved success criteria.

Appendix 2. Mitigation and monitoring requirements under CEQA

Appendix 2. Mitigation and monitoring program requirements under CEQA.

Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
<p>CLRDP Policy 3.2</p>	<p>Protection and Restoration of Habitat Areas: The biological productivity and the quality of coastal waters, streams, and wetlands, appropriate to maintain the optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through among other means minimizing adverse effects of wastewater discharges, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural watercourses. Campus natural areas (i.e., areas outside of defined development zones) shall be protected, restored, enhanced, and managed as high-quality open space and natural habitat areas.</p>	<p>Implemented through development of this SRP and, for SRP, through implementation of MM 4.4-1, 4.4-2 and 4.5-1, below; reporting as described in specific mitigation measures, below.</p>	<p>PP&C</p>	<p>Prior to and during construction</p>
<p>CLRDP MM 4.4-1</p>	<p>CA Red-legged Frog: For all projects proposed in the upper terrace under the CLRDP, the University will implement the following:</p>	<p>Conduct survey. Document results.</p>	<p>Prior to construction, of projects in upper terrace</p>	<p>PP&C</p>

Appendix 2. Mitigation and monitoring requirements under CEQA

Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
	<p>A preconstruction survey for CRLF will be conducted of all areas proposed for grading and construction by a qualified biologist, approved by the USFWS. If CRLF are observed, grading activities shall be postponed and USFWS shall be consulted to determine appropriate actions to avoid impact. Consultation with the USFWS will result in either a determination of the need to obtain a permit or in the identification of measures to avoid take of the individual(s).</p> <p>The biological monitor shall also conduct meetings with the contractor(s) and other key construction personnel to describe the importance of the species, the need to restrict work to designated areas, and to discuss procedures for avoiding harm or harassment of wildlife encountered during construction.</p>	<p>If CRLF are observed, consult with USFWS.</p> <p>Conduct meetings with contractor(s) and construction personnel. Include mitigation specifications in construction contract.</p>	<p>Prior to construction, if CRLF are observed</p> <p>Before beginning construction</p>	
<p>CLRDP MM 4.4-2</p>	<p>Nesting Birds: UCSC shall ensure that construction activities avoid disturbing nests of raptors (and other special-status birds). If ground-disturbing activities are scheduled to occur during the breeding season (February 1 through August 31), the following measures are required to avoid potential adverse effects on nesting special-status raptors and</p>	<p>Conduct survey. Document results.</p> <p>Create no-disturbance buffer in</p>	<p>Before beginning construction on each project</p> <p>Before beginning construction, if active raptor nests</p>	<p>PP&C</p>

Appendix 2. Mitigation and monitoring requirements under CEQA

Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
	<p>other birds:</p> <p>A qualified wildlife biologist will conduct preconstruction surveys of all potential nesting habitat. For burrowing owls, such surveys will follow the most recent CDFG Burrowing Owl Survey Protocol and Mitigation Guidelines.¹</p> <p>If active raptor nests are found during preconstruction surveys, a no-disturbance buffer acceptable in size to CDFG will be created around active raptor nests and nests of any other special-status birds during the breeding season, and maintained until it is determined that all young have fledged. Raptor or other bird nests initiated during construction are presumed to be unaffected, and no buffer is necessary. However, the “take” of any individuals will be prohibited.</p> <p>If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction/restoration period, no further mitigation is required. Trees and shrubs that have been determined to be unoccupied by special-status birds or that are located</p>	<p>consultation with qualified biologist. Include mitigation specifications in construction contract.</p>	<p>are found</p>	

¹ California Department of Fish and Game, *Staff Report on Burrowing Owl Mitigation*, The Resources Agency, October 17, 1995.

Appendix 2. Mitigation and monitoring requirements under CEQA

Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
	outside the no-disturbance buffer for active nests may be removed.			
CLRDP MM 4.5-1	Human Remains: If human remains are discovered during the construction of a development project under the CLRDP, the University and/or its employees shall notify the Santa Cruz County Coroner’s Office immediately. Upon determination by the County Coroner that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and the County Coordinator of Indian Affairs and appropriate Native American consultation shall be conducted, as outlined by PRC 5097.98. Implementation Measure 3.9.1, Construction Monitoring, as identified in the CLRDP, shall also apply. UCSC will be responsible for implementing this mitigation measure.	<p>Include in construction contract the requirement that the University be notified if suspected human bone is discovered.</p> <p>Contact archaeologist and County Coroner in the event of discovery of suspected human bone. Contact California Native American Heritage Commission and conduct Native American consultation if Coroner determines the remains are Native American.</p>	<p>Before beginning construction</p> <p>During construction</p>	PP&C

Appendix 2. Mitigation and monitoring requirements under CEQA

Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
<p>CLRDP IM 3.9.1</p>	<p>Cultural Resources Construction Monitoring: Should archaeological and/or paleontological resources be encountered during any construction on the Marine Science Campus, all activity that could damage or destroy these resources shall be temporarily suspended until qualified archaeologist/paleontologists and Native American representatives have examined the site and mitigation measures have been developed that address and proportionately offset the impacts of the project on archaeological and/or paleontological resources. Development shall incorporate measures to address issues and impacts identified through any archaeologist/ paleontologist and/or Native American consultation.</p>	<p>Include in construction contract the requirement that work be suspended if archaeological resources are disclosed.</p> <p>Contract with qualified archaeologist to develop appropriate mitigation measures.</p>	<p>Before beginning construction</p> <p>If archaeological resources are disclosed</p>	<p>PP&C</p>
<p>CLRDP IM 3.10.1</p>	<p>Use, Containment and Cleanup of Hazardous Materials. The University, through the Office of Environmental Health and Safety, will manage the use, and in the event of spillage, the containment and cleanup of, hazardous materials and petroleum on the UCSC Marine Science Campus in compliance with federal and state regulations related to the storage, disposal, and transportation of hazardous substances.</p>	<p>For UC entities, continue to implement UCSC Environmental Health and Safety programs involving oversight of individual units' compliance efforts and advising on improvements in procedures related to storage, disposal, and transportation of hazardous substances.; document activity of relevant EH&S programs</p>	<p>Ongoing, frequency varies with the type and quantity of hazardous materials; document annually</p>	<p>UCSC EH&S</p>

Appendix 2. Mitigation and monitoring requirements under CEQA

Measure #	Measure Text	Monitoring and Reporting Procedure	Monitoring and Reporting Responsibility	Timing
<p>CLRDP Policy 7.1</p>	<p>Productivity and Quality of Coastal Waters. The Marine Science Campus shall be developed and used in a manner that shall sustain and, where feasible, enhance and restore, the biological productivity and quality of coastal waters on and adjacent to the Campus through controlling, filtering, and treating runoff and other non-point sources of pollution, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging wastewater reclamation, and maintaining natural vegetation buffer areas that protect riparian habitats.</p>	<p>Implement Resource Management Plan as described in this SRP Construction practices consistent with Stormwater Concept Plan</p>	<p>Throughout construction</p>	<p>PP&C</p>
<p>CLRDP IM 7.1.8</p>	<p>Irrigation and Use of Chemicals for Landscaping. Any water used for landscape irrigation on the Marine Science Campus shall not be applied in a manner that would cause significant erosion. Any use of chemicals for fertilizer and/or weed and pest control shall be minimized to the degree feasible, including as required by the Drainage Concept Plan, and any chemicals unavoidably used shall not enter habitat areas or the ocean in concentrations sufficient to harm wildlife and/or to degrade habitat.</p>	<p>Establish polices for irrigation and use of chemicals in landscaping to minimize erosion potential and runoff into habitat areas or the ocean.</p>	<p>Before occupancy of first project developed under the CLRDP</p>	<p>Physical Plant</p>

Appendix 3. Conceptual Location of Perimeter Trail.



Figure is replicated from the UCSC Marine Science Campus Area Plan (2008). The figure includes conceptual design and buildout of the Marine Science Campus. This figure is included here simply to identify the approximate location of trails (denoted in yellow) within the YLR Terrace area.