

Supporting Information

see CLRDP 8.2.5

Table of Contents

Section 1. Project Report

see CLRDP 8.1.4 (2)

- 1a Project Description
- 1b CLRDP Consistency Determination
- 1c Environmental Compliance Documentation
- 1d Technical Reports
- 1e Consultation Documentation with other Agencies
- 1f Implementing Mechanisms
- 1g Correspondence Received
- 1h Project Manager

Section 2. University Approval Documentation

see CLRDP 8.1.4 (5)

Section 3. Environmental Compliance Documentation

see CLRDP 8.1.4 (5)

Section 4. Plans, Specifications, etc.

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

Section 5. Technical Reports

see CLRDP 8.1.4 (2d)

(this section used if Technical Reports are extensive)

1. Project Report

1a. NOID 09-1 Project Description

OUTDOOR RESEARCH YARD EXPANSION and PUBLIC ACCESS IMPROVEMENTS

The project reutilizes portions of the City of Santa Cruz Desalinization Pilot Project Improvements and provides for an expanded Outdoor Research Yard on the site of the existing pilot desal temporary building. The project also includes public access improvements, improvements to Overlook B, interpretive signage and landscaping. The project is consistent with the certified Coastal Long Range Development Plan for the UC Santa Cruz Marine Science Campus (CLRDP). The project site and its use conforms with the description of "Outdoor Research Area" in the CLRDP, and is located in the Lower Terrace development zone in a designated subarea consistent with this type of facility and use.

Outdoor Research Yard

What distinguishes a marine lab from any other laboratory is the seawater coursing through its facilities, and use of that seawater for holding, growing, and manipulating live marine specimens in the pursuit of science. The teaching and research faculty at UCSC's Marine Science Campus, also known as Long Marine Lab (LML), have identified the lack of flexible outdoor space configured to accommodate the changing needs for large outdoor aquaria for marine macroalgae, fish, invertebrates, and for short-term holding of wild pinnipeds in quarantine as a bottleneck in teaching and research productivity. To rectify this deficiency, the University proposes an expanded Outdoor Research Yard as a long term use on the site of, and utilizing many of the existing improvements that were constructed as part of, the City of Santa Cruz' temporary Desalinization Pilot Plant project under Coastal Development Permit 3-06-034 (City CDP Improvements).

Located on the site of the temporary desal pilot plant building, the Outdoor Research Yard expansion would use a portion of the concrete slab that will remain in place after the temporary prefab building is removed. The existing slab slopes to an area proposed for a future grate-covered drain and utility trench to accommodate the University's research and education activities. A portion of the north end of the 30' x 80' desal slab would be demolished and replaced with a slab on the same footprint that incorporates slab depressions for two in-ground pools and trench drains. Along the west edge an additional 960 square feet of slab (12' x 80') would be added to connect the "desal slab area" slab with the research area existing slab. With the additional 12' along the north edge of the "desal slab area" the final slab dimensions would be 42' x 80'. While this slab area would be 3,360 square feet the additional Outdoor Research Yard area would be 40' x 80' as the existing fence is 2 feet east of the existing research area slab, thus adding 3,200 square feet to the research area. After removal of the temporary building which houses the desalinization pilot plant project, the area of the slab and some ancillary areas would be securely fenced with a 7'-6"-above-grade wooden fence designed to match the existing nearby fences and building architecture.

The expanded Outdoor Research Yard would provide space to flexibly configure (and re-configure as necessary) tanks, aquaria, or small pools above grade, served by seawater and freshwater at multiple connection points. It would also include two small in-ground pools with adjacent haul-out slab space which could accommodate short-term holding of pinnipeds or other small marine mammals which need to be held separate from other resident marine mammals for a quarantine period. When used as a quarantine area, this portion of the facility would be temporarily fenced off internally from the rest of the area. Area lighting would be provided, along with exterior electrical, water, and seawater utilities to the facility. The existing pavement on service driveways to the north and south and a parking area to the east, which were re-graded and re-paved according to an approved drainage plan for the City CDP Improvements, will remain. The 960 square feet of slab area added by this project occurs over an area that is highly compacted with Class 2 aggregate foundation rock for the City CDP Improvements. The City CDP Improvements included the 960 square foot slab as part of the calculated impervious surface and will not change the drainage characteristics.

Marine life in the facility would be supported by the Long Marine Lab's existing seawater system, which would be used to supply filtered or raw seawater to various pre-fabricated tanks, aquaria and small pools. After circulation through the aquaria, seawater would flow into the existing LML discharge system to the Pacific Ocean. Discharge water quality would be consistent with the long established uses and discharges at the rest of LML—discharges would come from pools supporting live marine plants and animals. Both the seawater supply and discharge systems have adequate existing capacity to supply the needs of this expanded facility, and existing permits for same do not require modification to accommodate this project. The current demand for seawater on the Marine Science Campus is approximately one third of the 2,000 gpm capacity system permitted by the Coastal Commission for the NOAA expansion of the system under CD-50-98 and ND-50-01 and as reflected in the information submitted to the RWQCB for the LML NPDES discharge permit # CAG993003.

Public Access and Other Improvements

In addition to the improvements described above, the project will include public access improvements at Overlook B and its approach from McAllister Way, including improved landscaping, picnic tables and seating, and additional interpretive signage. The exterior of the two existing Caretaker Units which are immediately south of the City's CDP Improvements and adjacent to the proposed access improvements will be modified to bring them into conformance with the CLRDP by adding battens to exterior siding similar to the Seymour Center and painting of siding, trim, and roof vents to provide a better match to existing research and education buildings on site.

Summary of Proposed Improvements

The project is the conversion of the existing City of Santa Cruz Pilot Desalinization Plant (Desal Project) located in the Lower Terrace development zone of the UC Santa Cruz Marine Science Campus, to a fenced outdoor research yard which utilizes seawater in a flexible "farm" of small pools and tanks. As a condition of approval in accordance with the CLRDP, the project also includes public access improvements and exterior modifications to two existing caretaker residential units. The proposed project is depicted the attached Figures 1,2, and 3.

The following improvements constructed under the City's CDP Improvements shall remain after the closure of that project:

- a. Phase One Coastal Access Improvements set forth in Figure 1;
- b. Grading, Paving and Storm water drainage improvements;
- c. Seawater piping terminated at the slab and valved for convenient re-use by UCSC;
- d. Utility extensions capped off at the perimeter of the slab;
- e. Domestic water extensions terminated in utility hose bibs in convenient locations;
- f. Reinforced concrete slab, modified as described below
- g. Main electrical panel and transformer servicing the temporary pilot-scale facility would remain inside perimeter fence with marine-grade exterior enclosures.

The following improvements are proposed under this NOID after removal of all elements of CDP 3-06-034 except for those listed to remain above.

- a. Existing reinforced concrete slab to be modified with the addition of 960 square feet of slab so as to be approximately 42' x 80', contiguous with existing concrete slab west of the project, including a central trench drain with fiberglass grate cover (approximately 18"x 18" in cross section) connected to existing 36" x 36" utility trench to north (connection designed with vehicle rated cover at service driveway)
- b. The north end of the existing reinforced concrete slab will be removed and on the same footprint (within the 42' x 80' area), two in-ground pools (10' x 14' x 4.5'd) in slab with connecting trench drains from pools to central trench drain (approx 12" x 12" in cross section). Pool finish shall be smooth uncoated concrete with rounded, tooled corners and edges. Slab sloped to drain away from pools
- c. Various sockets cast-in-place into slab in various locations for potential future fence posts internal to new perimeter fence.
- d. 7'-6" high above grade solid stained western red cedar vertically-oriented board and batten perimeter fence with reinforced gates to match newer existing fence and gates on site. Includes new fence segment between Younger Building and pilot plant site, and new segment between

Caretaker Trailer fence and pilot plant site. Exterior perimeter fencing would include: two 3' personnel gates; two viewing "windows" for visitors, and; two 10' double leaf vehicle gates. Viewing "windows" would be located so as to facilitate visual access to the marine research by visitors and would have changeable interpretive signage adjacent to the "windows" related to the research activities.

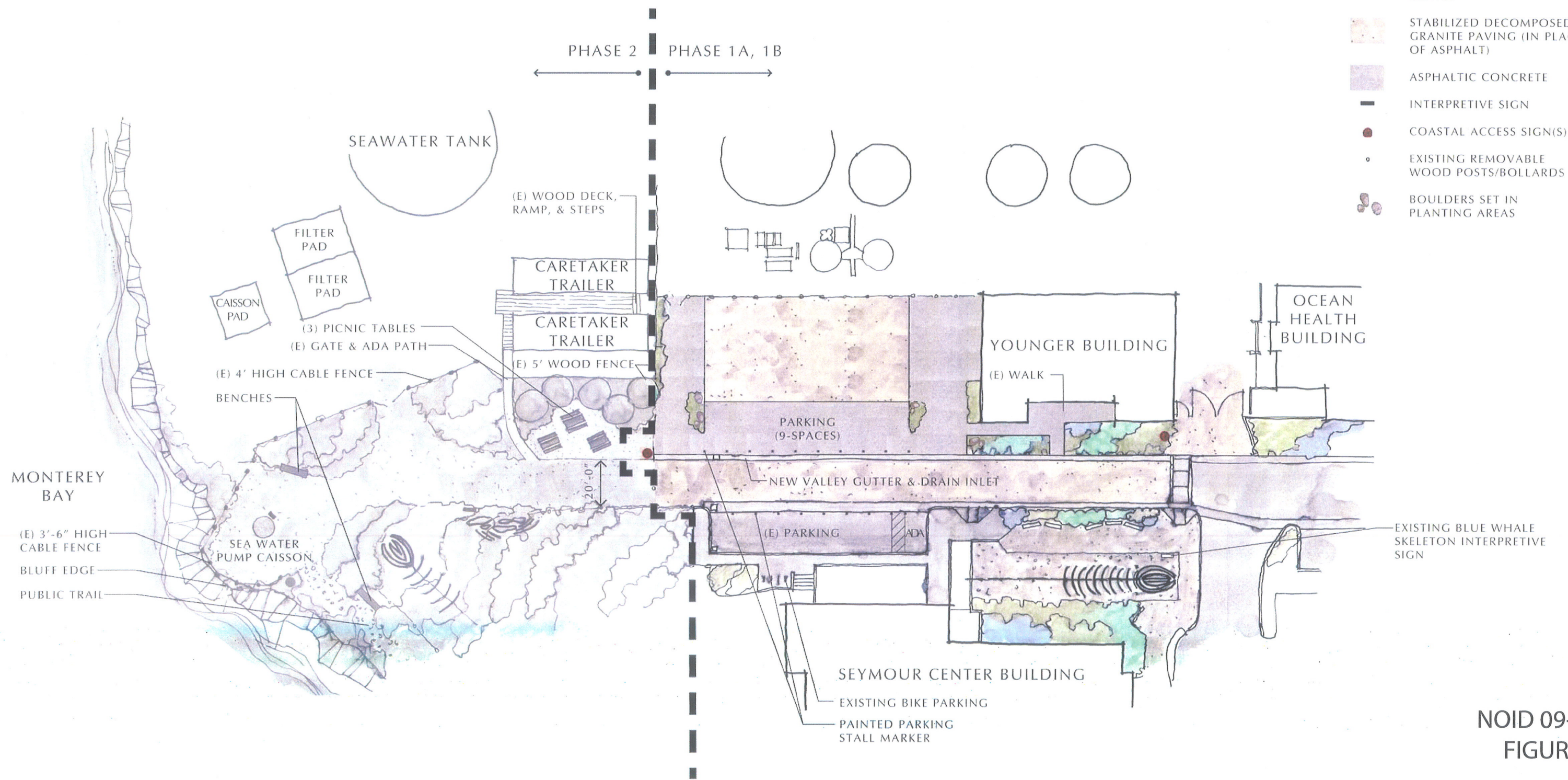
- e. Eight lighting fixtures would be provided on the outside of the perimeter fence with low power, shielded, down-directed fixtures approx. approximately 30" above grade.
- f. Phase Two Coastal Access Improvements set forth in Figure 2 include: 2 viewing windows into the Outdoor Research Yard Expansion; 2 additional interpretive signs adjacent to the viewing windows; 2 additional interpretive signs at Overlook B; a bench at Overlook B; a picnic area with 2 tables and trash/recycling containers in the wind shadow of the caretaker units; better pathway definition through re surfacing with decomposed granite, and expanded landscaped areas;
- g. Landscape improvements would include expanding currently planted areas with native species.
- h. Exterior modifications to the two existing Caretaker Units, per CLRDP IM 2.4.1, to be similar to the nearby research and education buildings. The modifications will include: Addition of battens to exterior siding at an interval similar to the Seymour Center; painting of siding, trim, and roof vents to provide a better match to existing research and education buildings on site.
- i. The two parking areas east and west of the pedestrian access way shall be designated for University vehicles. The ADA space east of the access way shall be relocated to the SW corner of the lot north of Seymour Center. There is no net change in existing spaces as a result. See IM 5.5.6 in the CLRDP Consistency Determination.

List of Figures:

- Figure 1: City CDP Improvements (CDP 3-06-034) Conceptual Plan prepared by Joni Janecki & Associates, 8/4/06 (shows concept for Phase I and Phase II improvements)
- Figure 2: Project Site Plan for NOID 09-1, 5/15/09
- Figure 3: Elevation and Details for NOID 09-1, 5/15/09

LEGEND

-  NATIVE COASTAL BLUFF & TERRACE PLANTING-MATCH EXISTING AT OCEAN HEALTH & SEYMOUR CENTER
-  STABILIZED DECOMPOSED GRANITE PAVING (IN PLACE OF ASPHALT)
-  ASPHALTIC CONCRETE
-  INTERPRETIVE SIGN
-  COASTAL ACCESS SIGN(S)
-  EXISTING REMOVABLE WOOD POSTS/BOLLARDS
-  BOULDERS SET IN PLANTING AREAS



NOID 09-01
FIGURE 1

SCALE: 1"=20'-0"
0 10 20 40

PHASE 1B - Post Pilot SWRO
University of California, Santa Cruz
City of Santa Cruz
Long Marine Lab Public Access & Pilot Study

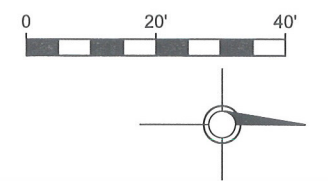
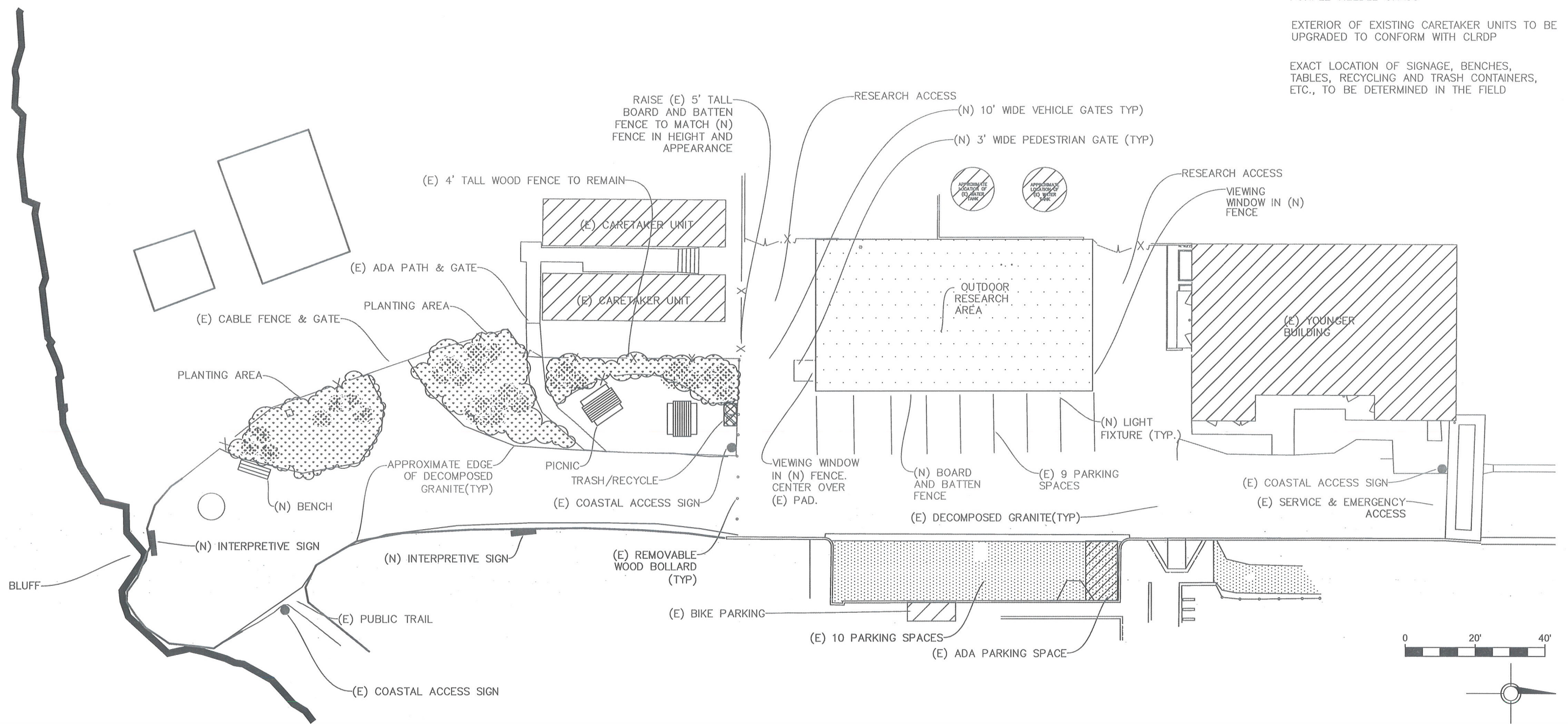
CONCEPTUAL PLAN

PREPARED BY:
JONI L. JANECKI & ASSOCIATES, INC.
August 4, 2006

PLANTING:
 YELLOW BUSH LUPINE
 COYOTE BUSH
 COASTAL BUCKWHEAT
 LIZARDTAIL
 PURPLE NEEDLE GRASS

EXTERIOR OF EXISTING CARETAKER UNITS TO BE
 UPGRADED TO CONFORM WITH CLRDP

EXACT LOCATION OF SIGNAGE, BENCHES,
 TABLES, RECYCLING AND TRASH CONTAINERS,
 ETC., TO BE DETERMINED IN THE FIELD



UNIVERSITY OF CALIFORNIA
 OFFICE OF PHYSICAL PLANNING AND CONSTRUCTION



Santa Cruz Campus

Santa Cruz, California

DESIGNED	APPROVED
DRAWN	
CHECKED	

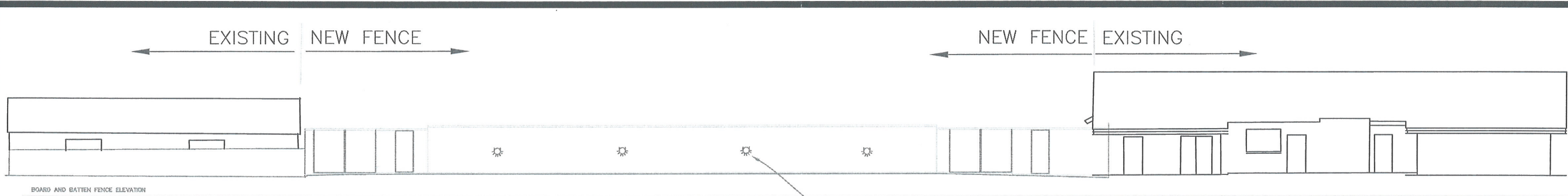
LOCATION	SHEET TITLE NOID 09-01 FIGURE 2 - PROJECT SITE PLAN
SCALE SHOWN	

FILE NO.	DATE MAY 15 2009
BUILDING OR PROJECT	

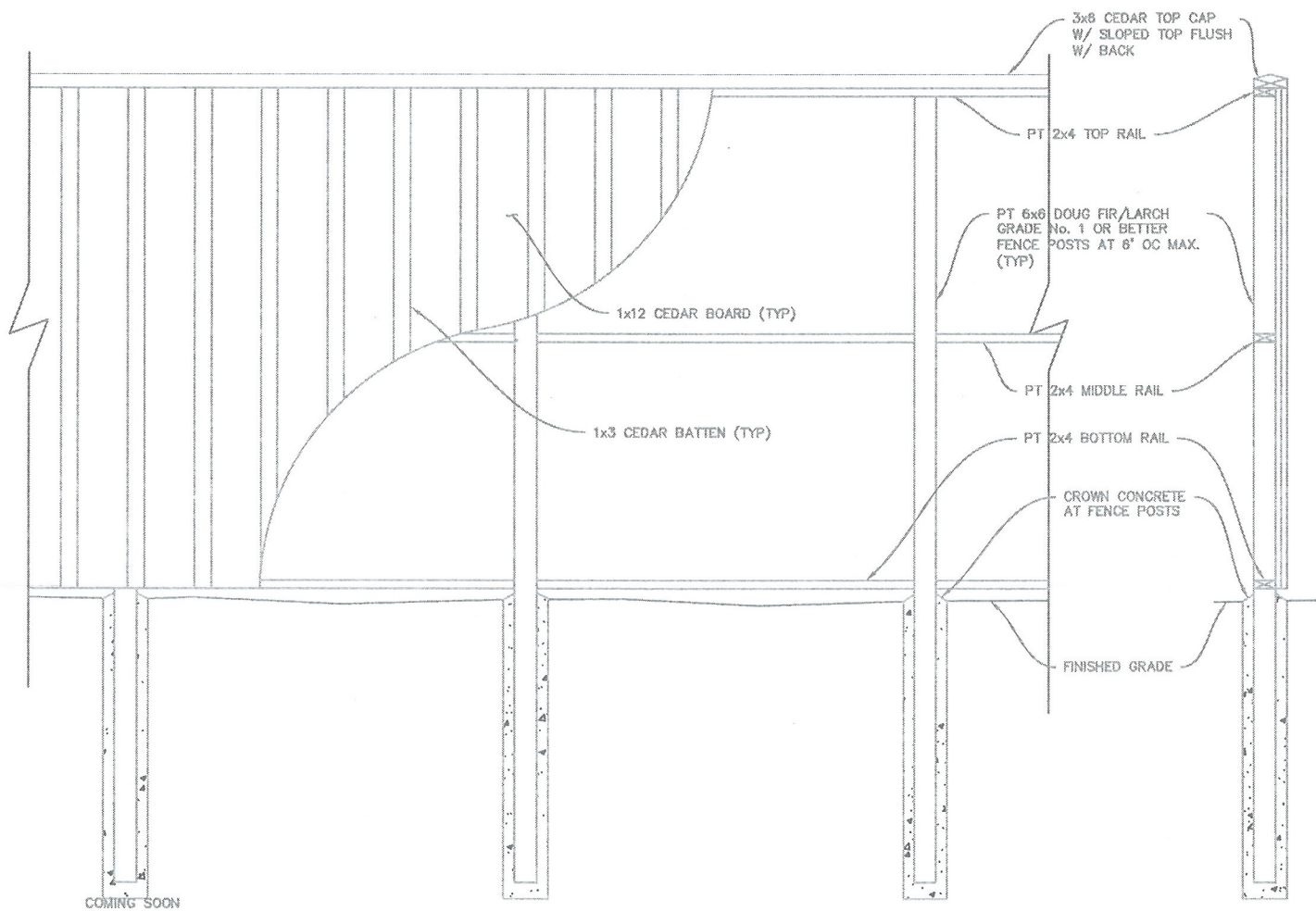
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FILE NO.	DATE MAY 15 2009
BUILDING OR PROJECT	

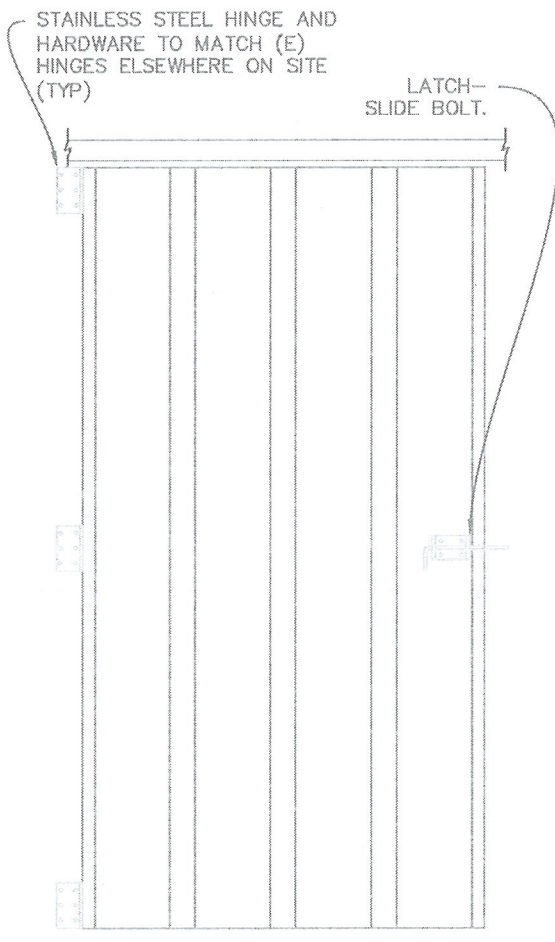
SHEET
 FIGURE
 2
 OF 3



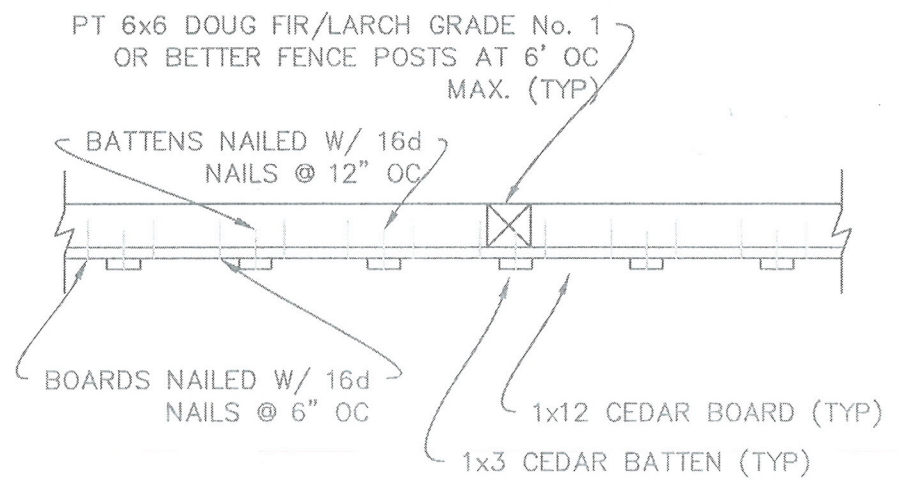
LIGHTS AT 20' O.C. 10' FROM END
36" ABOVE GRADE (TYP)



ELEVATION VIEW



SECTION VIEW



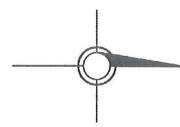
FENCE PLAN VIEW

NOT TO SCALE

BOARD AND BATTEN PEDESTRIAN GATE DETAIL

NOT TO SCALE

BOARD AND BATTEN FENCE DETAIL
NOT TO SCALE



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Santa Cruz Campus

Santa Cruz, California

DESIGNED
DRAWN
CHECKED

APPROVED

LOCATION
SCALE
SHOWN

SHEET TITLE
NOID 09-01
FIGURE 3 - ELEVATION & DETAILS

BUILDING OR PROJECT
MARINE SCIENCE CAMPUS

FILE NO.
DATE
MAY 15 2009

SHEET
FIGURE
3
OF
3

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. In addition, sections of Chapters 6, 7, 8, 9, and Appendices A and B that also apply to this NOID are referenced. Those that apply directly to this NOID are **bolded** and followed with a comment regarding the project's consistency. CLRDP sections that are irrelevant to this NOID are *grey*.

CLRDP 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.

As described below, the project is consistent with Figures 5.1 – 5.4, which show the "kinds, locations, maximum size and intensity" of allowed development. The project is also consistent with Chapters 5, 6, 7, 8, 9, and Appendices A and B and the type and locational restrictions of Section 5.2.

IM 1.1.2 Lease Agreements.

IM 1.1.3 Federal In-holding and CLRDP.

Policy 1.2 University Commitments

5.2. Land Use

Figure 5.1 Building Program

Figure 5.1 allows for development of up to a total of 70,000 sf for Outdoor Research Area. The project would add 3,200 sf (40' x 80') of Outdoor Research Area in the Lower Terrace where the total maximum Outdoor Research Area is 10,000 sf. After this project, the net remaining area allowed for future outdoor research would be 6,800 sf in the Lower Terrace.

Figure 5.2 Land Use Diagram

The project would be located in the Lower Terrace development zone, which is designated for Research and Education Mixed Use in the CLRDP. The project includes marine mammal research pools and public access improvements, which are consistent with the uses allowed in this land use designation. (see Project Description for more detail)

Figure 5.3 Locational Restrictions for Building Program

The project conforms with the restrictions described for development in the Lower Terrace column of this figure. Marine Research and Education may be located in the three main development zones. Up to 10,000 additional square feet of Outdoor Research Area is allowed in the Lower Terrace. The project would add 3,200 sf of Outdoor Research Area. After this project, the net remaining area allowed for future outdoor research in the Lower Terrace would be 6,800 sf. The Caretaker Accommodations are located in Subarea 13 and are allowed. New Equipment Storage and Maintenance Facilities related to the project would be limited to those uses ancillary to the allowed uses. For this project these include seawater piping and related electrical utilities that support the research pools, etc.

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.

Caretaker Accommodations in the Lower Terrace are located no closer than 500' from the western Campus property line. This project brings the Caretaker Accommodations into conformance with the CLRDP, but does not change their locations. (see Figure 3.15)

Policy 2.3 Designing for the Urban Edge

IM 2.3.1 Cluster Development.

IM 2.3.2 Impervious Coverage.

The project would not increase the impervious surface on the site.

IM 2.3.3 Windbreak/Screening Trees

IM 2.3.4 Buildout Planning.

The project is located adjacent to an existing Outdoor Research Area and would expand the area for marine research. The project does not interfere with the ability of future development to conform with the CLRDP or with other University commitments.

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.

The project includes bringing the existing caretaker units into conformance with the CLRDP with the first project in the Lower Terrace as described in this IM to emulate the design of the adjacent buildings. See Project Description.

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

The project is a marine research project, includes coastal access improvements and is coastal dependent.

5.3 Natural Resource Protection

Policy 3.1 Protection of the Marine Environment

IM 3.1.1 Seawater System.

This project does not increase the seawater intake flow rate.

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.

IM 3.2.2 Management of Terrace Wetlands.

IM 3.2.3 Protection and Enhancement of Wildlife Movement.

IM 3.2.4 Management of Special Status Species Habitat.

IM 3.2.5 Protect Habitat Areas From Human Intrusion.

IM 3.2.6 Natural Area Management.

IM 3.2.7 Management of Water Quality and Drainage Features.

IM 3.2.8 Maintenance and Monitoring of Terrace Habitats.

IM 3.2.9 Wetland Buffers.

IM 3.2.10 Natural Areas Habitat Management.

IM 3.2.11 CRLF Protection.

IM 3.2.12 USFWS Consultation Required

IM 3.2.13 Rodenticides.

IM 3.2.14 Non-Invasive Native Plant Species Required.

The project landscaping and vegetation includes only non-invasive native plants. See Project Description and Figure 2.

Policy 3.3 Use and Protection of Coastal Waters and Wetlands

IM 3.3.1 Pre-development Evaluation of Wetland Conditions.

See the Army Corps of Engineers Wetland Delineation in Section 5 Technical Reports

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.

The entire project area is already disturbed. There are no pre-project ESHA conditions that would be affected by the project.

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.

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 Outdoor Research Yard Expansion and Public Access Improvements Project (NOID 09-1) 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)

The project location is 100 feet from the nearside of the protective berm along the western edge of the Lower Terrace. Due to the distance and sightlines from YLNR, no part of the project will be visible from "lagoon-related" portion of YLNR. Elements of the project will be visible from the terrace areas of 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.

The improvements related to the outdoor research area are more than 100' from the bluff. All other improvements related to public access and irrigation to establish additional landscaped areas within the 100' bluff setback are allowed under this IM.

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

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.

Construction activities will be confined to near-to-the-surface activities. In the event archeological or paleontological resources are encountered, the provisions of this IM will be observed.

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.

The major additional construction material contemplated for this project is the western red cedar fencing material. This is required due to its inherent resistance to decay. The western red cedar is a renewable and sustainably harvested material. See http://www.wrcla.org/cedar_benefits/sustainability_practices/default.htm

IM 3.11.2 Energy Efficiency in Use.

Lighting to be minimal for way-finding around the perimeter of the fenced yard, utilizing induction lamped fixtures on photocell switches.

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.

5.4. Scenic and Visual Qualities

Figure 5.4 Development Subareas

The project would be located in Subareas 13 and 14 as well as outside the subareas within the Lower Terrace development zone. The elements of the project related to the Outdoor Research Yard Expansion and the upgrades to the Caretaker Units would occur in Subarea 13 in the Lower Terrace including, the slab and pools, fencing, viewing windows with interpretive panels and upgrades to the Caretaker Units. The elements of the project related to public access improvements including, pathway surfacing, landscaping, tables and benches, signage, recycling containers, etc. would occur in Subarea 14. The southernmost portion of the improvements to Overlook B may occur just outside the Lower Terrace boundary. Public access improvements such as pathways and overlooks are allowed outside of the development zones.

Policy 4.1 Protection of Scenic Views

IM 4.1.1 Location of Development.

As an addition to the existing outdoor research area in the Lower Terrace, the project is an example of clustered development.

Policy 4.2 Protection of Scenic Quality

The project is designed to be compatible with existing campus development in terms of scale, materials, color and construction detail.

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

The project site, adjacent to the existing outdoor research area in Subarea 13 is consistent with the intent of the CLRDP regarding siting and clustering. As noted below, the materials and height are consistent with both IM 4.2.3 and the guidelines set forth in Chapter 6. While Figure 7.2 (Illustrative Campus Buildout Site Plan) is only included in the CLRDP as "...an example of how development consistent with the CLRDP building program

could be arranged on the Marine Science Campus”, the project is serendipitously located in the area depicted in Figure 7.2 as Outdoor Research Area in the Lower Terrace.

IM 4.2.2 Alteration of Natural Landforms.

The project does not include alteration of natural landforms with the exception of the addition of some amended soil for the landscaped areas.

IM 4.2.3 Building and Other Structure Heights.

The majority of this IM applies to buildings and is therefore not applicable to the project. The last sentence refers to the height limits for other structures by referring to Figure 5.4. See consistency response above.

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.

The project is not a building and therefore this IM does not apply.

IM 4.2.7 Construction Materials.

The project fence will be constructed of vertically oriented “board and batten” western red cedar stained to match the existing stain on the Seymour Center. See Summary of Proposed Improvements in the Project Description.

IM 4.2.8 Building Setbacks.

IM 4.2.9 Building Length Limitations.

IM 4.2.10 Placement of Utility Lines Underground.

All seawater, drainage, electrical and other utilities are below grade. No additional utility work is contemplated in the project.

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.

The project is located in Subareas 13 and 14, as well as outside these Subareas and is set back from the established public access path between the public parking area and Overlook B. The proposed fencing that is necessary to secure the outdoor research area will be no higher than 7’-6” above grade and would not impede public views of the coast and Monterey Bay. There will be some low native landscaping southwest of the bollards to provide additional screening for the caretaker units and some minor wind protection for the proposed public access picnic/seating area. See Figure 2 and the Project Description.

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.

The project includes allowed improvements to Overlook B that are outside the subarea but within the development zone. These allowed improvements include landscaping, at-grade path upgrades and interpretive signage (the picnic tables area is within the Subarea). The southernmost portion of the improvements to Overlook B may occur just outside the Lower Terrace boundary. Public access improvements such as pathways and overlooks are allowed outside of the development zones. See Project Description.

Policy 4.3 Visual Intrusion and Lighting

The proposed lighting will be built-in downward-directed low-level lighting mounted at 36” above grade at the security fence only and will not exceed 0.5 footcandles at 144” from face of fence. (A footcandle is the illuminance on a surface that is one foot from a point source of the light of one candle.)

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.

Light levels will not exceed 0.5 footcandles 144” horizontally from the face of the fence.

IM 4.3.4 Building Lighting.

IM 4.3.5 Street and Trail Lighting.

There will be no street or trail lighting included in this project other than minimal light spill from the fence-mounted light fixtures.

IM 4.3.6 Parking Lot and Maintenance Yard Lighting.

The lighting for this project will be fence mounted, downward-directed and low-level.

IM 4.3.7 Sign Lighting.

IM 4.3.8 Lighting Plan Required.

The lighting design provides the lowest light level appropriate for security lighting to allow safe passage of caretakers to and from their residential units after dark. At this minimal level there is no contribution to the cumulative effects of increased light on wildlife or public views from outside the development zone.

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.

The parking areas that are located to the east (8 regular spaces and 1 ADA space) and west (9 spaces) of the pedestrian access way shall be designated for University vehicles that are parked without movement for longer periods of time and are not typically not moved in an out multiple times during the day. Service vehicles that cannot find parking elsewhere to provide service may use these spaces. The existing ADA parking space that is east of the pedestrian access way shall be relocated out of the area designated for University vehicles to the southwest corner of the lot that is north of the Seymour Center. Striping and ADA signage shall be adjusted per code, resulting in the addition of two regular spaces (for UC vehicles) opposite the Outdoor Research Area and the loss of two regular spaces at the public Seymour lot with the relocation of the ADA space. The result is no net change in existing parking spaces.

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

This project has a neutral effect on population as the research activities will be undertaken by existing LML faculty and staff, and therefore does not impact circulation and parking.

5.6. Public Access and Recreation

Figure 5.6 Coastal Access and Recreation Diagram

The Project is consistent with this figure and would improve public access amenities at Overlook B.

Policy 6.1 Public Access to the Marine Science Campus

IM 6.1.1 Free Public Access for Visitors.

Public access to Overlook B and to the marine research through the viewing windows would be free and available during daylight hours as specified in this IM.

IM 6.1.2 Public Access Parking.

IM 6.1.3 Public Access Trails.

The Project will improve existing pedestrian access to Overlook B and will add picnic and seating areas. The access route will be clearly signed as shown in Figure 2. The campus will maintain the facilities associated with Overlook B.

IM 6.1.4 Public Access Overlooks.

This project includes public access improvements to Overlook B and the approach to the overlook from the Seymour parking area. See Project Description and Figure 2.

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.

This project includes the addition of two interpretive panels near Overlook B, and two viewing windows into the proposed Outdoor Research Yard. See Project Description and Figure 2.

Policy 6.2 Management of Public Areas

IM 6.2.1 Public Use Hours for the Marine Science Campus.

Public access to Overlook B and to the marine research through the viewing windows would be free and available during daylight hours as specified in this IM.

IM 6.2.2 Public Trail Continuity.

Access path to Overlook B follows the alignment shown in Figure 5.6.

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.

This project includes improved public access at the approach to Overlook B. The campus will maintain barrier at bluff edge to limit accidental or intentional intrusion. In addition to the interpretive signage, the campus may install informative warning signs as necessary.

IM 6.2.6 Access to Laboratories and Research Areas.

The proposed expansion of the Outdoor Research Yard includes viewing ports or "windows" through the fencing, convenient to the public access path toward the ocean bluff, which provides visual access to seawater tanks and pools where marine life is studied. Each window will have a changeable interpretive panel of information for the public on current research activities.

IM 6.2.7 Caretaker Residence and Lab Security.

The proposed project provides public access to the Outdoor Research Yard through the inclusion of the viewing windows and interpretive panels. At the same time the fencing provides the level of security necessary to protect the research area.

IM 6.2.8 Bicycles on the Marine Science Campus.

Bicyclists would be allowed to ride to Overlook B. There are existing bike racks available for their use at the southwest corner of the Seymour Center.

IM 6.2.9 Domestic Pets.

IM 6.2.10 Public Access Signage.

The proposed improvements at Overlook B include two additional interpretive panels at the viewing windows, two interpretive panels, and coastal access signs at the two bollard in the pedestrian access way and a coastal access sign at the trail head for the trail that heads east along the bluff from Overlook B.

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

The proposed project represents a positive impact on public access with improvements proposed at and near Overlook B, but does not in the greater sense affect public access. A comprehensive Public Access and Recreation Plan is therefore not appropriate to this project, but would be appropriate when more significant or campus-wide changes are proposed.

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.

The project does not include any addition impervious surface.

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)

The seawater use in the proposed expanded Outdoor Research Yard will be contained within a well-drained slab to direct seawater spilled from tanks and pools into our existing seawater discharge system.

IM 7.1.8 Irrigation and Use of Chemicals for Landscaping.

Irrigation for new proposed plantings will be temporary, to support plant growth to establishment only, and shall ensure sparing application of water. Likewise, chemical fertilizers and herbicides shall be used sparingly and in accordance with guidelines of the UCSC campus and Younger Lagoon Natural Reserve.

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

The proposed project does not alter drainage patterns.

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

Domestic water use at the proposed expanded facility will be limited to outdoor utility hose use. In accordance with established procedures, all hoses will be fitted with automatic shut-off nozzles.

Policy 8.4 Impacts to City Water and Sewer Systems Offset

Policy 8.5 Utility Plan Required

The proposed project does not require expansion of capacity of any utility, nor will the project cause an overall significant increase in the use of utilities.

CLRDP CHAPTER 6 Design Guidelines

6.1 Building Design not applicable

6.2 Campus Street Design not applicable

6.3 Parking Design not applicable

6.5 Landscape Design

The landscape design and specified plants conforms to the requirements of the Planting Design Guidelines of CLRDP Chapter 6, Ornamental Landscape, and IM 3.2.14, Non-Invasive Native Plant Species Required. All plantings shall be non-invasive, native plant species propagated from local stock. Elkhorn Native Plant Nursery has indicated that they have a limited selection of plant species that have been propagated from seeds and cuttings taken from this site (for former planting projects)—these will be used along with other natives as needed.

6.6 Lighting Design

All new lighting on the site will be low-level, low-height (max. 30" above grade), fence-mounted, downward-directed lights which minimize light spill and reflectance but provide wayfinding. See Project Description. Figure 2 and IMs 4.3.1, 4.3.5, 4.3.6 and 4.3.8.

6.7 Signage Design

Signs and interpretive panels proposed for this project will be consistent with existing signage on the MSC—modest in size, low-key, and informative.

6.8 Fence / Barrier Design

Fence design conforms with the guidelines set forth in 6.8.3 "Solid Fencing" and "Fencing/Barriers for Buildings, Research Areas, and Seawater System Intake, Filtration, and Storage." See Project Description and Figures.

CLRDP CHAPTER 7 Illustrative Campus Buildout Site Plan and Preliminary Designs

7.2.4 Overlook B

Design of overlook and associated public access amenities conforms with the written description in the CLRDP and is based on the illustration in Figure 7.10. See Project Description and Figure 2.

CLRDP CHAPTER 8 Development Procedures

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

CLRDP CHAPTER 9 Capital Improvement Program

Figure 9.3: The implementation of Overlook B concurrent with development in the Lower Terrace conforms with the timing requirement of the CLRDP, which states that Overlook B shall be completed within 2 years of certification.

CLRDP APPENDIX A Resource Management Plan

The proposed project would be located in an area that is already developed and would not effect the Resource Management Plan.

CLRDP APPENDIX B Drainage Concept Plan

As described in the Project Report Section 1a, the proposed project would have no additional impervious surface and would be effect storm water runoff.

END of

1b. CLRDP Consistency Determination

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

There are no mitigations required by CEQA.

A copy of the License Agreement between The Regents of the University of California and the City of Santa Cruz is included herein:

LICENSE AGREEMENT
THE REGENTS AS LICENSOR

THIS AGREEMENT is dated August 8, 2006, ("Effective Date"), by and between THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a California corporation ("University") and THE CITY OF SANTA CRUZ, a charter law City organized under the constitution of the State of California and the City Charter ("City").

WHEREAS, the University owns certain real property on McAllister Way in the City of Santa Cruz, County of Santa Cruz, California, commonly known as the Marine Science Campus of the University of California, Santa Cruz (the "Property") as shown on the Vicinity Plan attached hereto as Exhibit A, page 1.

WHEREAS, the City seeks to acquire the right to enter upon the Property and, to utilize approximately 5500 square feet thereof (the "Premises"), as shown on the Premises Location attached hereto as Exhibit A, page 2, for the purposes set forth below and on the terms and conditions set forth herein.

NOW, THEREFORE, intending to be legally bound, the parties agree as follows:

1. Use. University hereby grants to City, its agents and contractors, a non-exclusive, revocable License to enter upon and use the Premises and the right of ingress and egress to and from the Premises, subject to the terms and conditions herein and those more particularly set forth in Exhibit D "Access Procedures", attached, for the construction and operation of a facility (the "Facility") to conduct a pilot study related to the feasibility of seawater desalination, as more particularly described in Exhibit B, attached (the "Project"). The Facility shall be constructed in accordance with the requirements of the Work Letter Agreement (Exhibit G), the Utility Installation Plan (Exhibit C) and "Coastal Access and Improvements" (Exhibit I), all attached hereto. The Facility shall be operated in accordance with the requirements of the attached Exhibit E "Management of Systems and Equipment", Exhibit F "Related Operating Costs" and Exhibit H "Waste residuals and Hazardous Materials Memo".

2. Term. This License shall commence upon the Effective Date and shall continue until March 31, 2008 ("Term"). At the expiration or earlier termination of this License, City shall immediately cease use of the Premises and remove the Facility, except as otherwise set forth in Exhibit G.

3. Consideration. The City shall reimburse the University on demand for all reasonable costs and expenses incurred by the University because of or in connection with the City's activity under this License including but not limited to shared electricity and other utility costs and charges, cost of security personnel, management fees and compensation, cost to maintain fencing, and road maintenance as set forth in Exhibit F.
4. Conditions Applicable to License. This License is subject to all existing covenants, conditions, reservations, contracts, leases, licenses, easements, encumbrances, restrictions and rights of way with respect to the Premises, whether or not of record.
5. No Transfer or Assignment. This License is personal to City. Any attempt to transfer or assign this License shall terminate it.
6. Permits and Regulations. City shall be responsible for securing any required approvals, permits and authorizations from any federal, state or local agencies and shall comply with all applicable laws and regulations.
7. No Interference. City shall not interfere with the normal operation and activities of University, and City shall conduct its activities on the Premises to minimize damage to the Premises and inconvenience to University, its agents, employees and invitees.
8. Repair and Restoration. If City, its agents or contractors cause any damage to the Premises, or to University's roads, infrastructure or other property and improvements located on the Property in connection with the exercise of this License, City shall repair and restore the Premises and the Property to their original condition prior to City's use of the Premises pursuant to this License. City shall perform the repair and restoration required hereunder prior to the expiration of this License, or within ten (10) days of the earlier termination of City's rights hereunder. In the event that repair and restoration is performed following the termination this License, the City's Indemnity and Insurance obligations in paragraphs 12 and 13 shall continue until repair and restoration is completed as provided herein.
9. Breach and Cure. In the event that City breaches any of its obligations under this License, University shall send City written notice specifying the nature of such breach. City shall have ten (10) days from the receipt of such notice within which to cure such breach. If more time is reasonably required for City's performance, then City shall notify University in writing of its proposed schedule for performance and commence performance within such ten (10) day period; thereafter, City shall diligently proceed to completion. If City fails to cure or to commence cure within such ten (10) day period, then University shall have the right to terminate this License immediately by serving City with written notice of termination. University shall have all rights and remedies available under California law including, but not limited to, actions for damages and specific performance, for any breach of City's obligations hereunder.

10. Alteration in Writing. This License supersedes any and all prior understandings and agreements, whether written or oral, between the parties with respect to the subject matter of this License. No alteration or variation of this License shall be valid unless made in writing and signed by University and City.

11. Notice. Any notice required hereunder shall be in writing and shall be addressed as follows:

University: University of California, Santa Cruz
Long Marine Laboratory
100 Shaffer Road
Santa Cruz, CA 95060
Attention: Steve Davenport

with a copy to:
University of California
Real Estate Services
2300 Delaware Avenue
Santa Cruz, CA 95060

City: City of Santa Cruz
Water Department
809 Center Street, Room 102
Santa Cruz, CA 95060
Attention: Bill Kocher

with a copy to:
City of Santa Cruz
Water Department
809 Center Street, Room 102
Santa Cruz, CA 95060
Attention: Linette Almond

or to such other address as either party may indicate in a written notice to the other. All notices and communications given under this License Agreement shall be deemed to have been duly given and received: (i) upon personal delivery, or (ii) as of the third business day after mailing by United States certified mail, return receipt requested, postage prepaid, addressed as set forth above, or (iii) the immediately succeeding business day after deposit (for next day delivery) with Federal Express or other similar overnight courier system, or (iv) 24 hours after facsimile transmittal with confirmation of receipt and followed by personal delivery, United States mail, or overnight delivery as specified in this Paragraph.

12. Indemnification.

City shall indemnify, defend, and hold harmless University, its officers, agents and employees, from and against any claims, damages, costs, expenses, or liabilities (collectively “Claims”) arising out of or in any way connected with this License including, without limitation, Claims for loss or damage to any property, or for death or injury to any person or persons but only in proportion to and to the extent that such Claims arise from the negligent or intentional acts or omissions of City, its officers, agents, partners, invitees or employees.

13. Insurance.

13.1 City’s Insurance. City, at its sole cost and expense, shall insure its activities in connection with this License and obtain, keep in force, and maintain insurance as follows:

1. Commercial Form General Liability Insurance (contractual liability included) with minimum limits as follows:

a. Each Occurrence	\$2,000,000
b. Products/Completed Operations Aggregate	\$5,000,000
c. Personal and Advertising Injury	\$2,000,000
d. General Aggregate	\$5,000,000

If the above insurance is written on a claims-made form, it shall continue for three (3) years following termination of this License. The insurance shall have a retroactive date of placement prior to or coinciding with the commencement of the Term of this License.

2. Business Automobile Liability Insurance for owned, scheduled, non-owned, or hired automobiles with a combined single of not less than one million dollars (\$1,000,000) per occurrence.
3. Property Insurance, Fire and Extended Coverage Form in an amount sufficient to reimburse City for all of its equipment, trade fixtures, inventory, fixtures and other personal property located on or in the Premises including improvements hereinafter constructed or installed.
4. Workers’ Compensation as required by California law.
5. Such other insurance in such amounts which from time to time may be reasonably required by the mutual consent of University and City against other insurable risks relating to performance.

The coverages required herein shall not limit the liability of City.

The coverages referred to under 1. and 2. of this Section 13.1 shall include University as an additional insured. Such a provision shall apply only in proportion to and to the extent of the

negligent acts or omissions of City, its officers, agents, and employees. City, upon the execution of this License, shall furnish University with certificates of insurance evidencing compliance with all requirements. Certificates shall provide for thirty (30) days (ten [10] days for non-payment of premium) advance written notice to University of any material modification, change or cancellation of the above insurance coverages.

13.2 Waiver of Subrogation. City hereby waives any right of recovery against University due to loss of or damage to the property of City when such loss of or damage to property arises out of an act of God or any of the property perils included in the classification of fire or extended perils ("all risk" as such term is used in the insurance industry) whether or not such perils have been insured, self-insured, or non-insured.

14. Lien Free Condition. City shall not cause or permit any liens to be placed against the Premises or against University's other property as a result of City's exercise of rights under this License. In the event of the filing of any such liens, City shall promptly cause such liens to be removed. In no event shall such lien removal require more than thirty (30) days.

15. Emissions; Storage, Use and Disposal of Matter.

15.1 Definitions. For purposes of this paragraph, the following terms shall be defined as set forth herein:

(a) The term "Hazardous Material" shall include, but shall not be limited to (i) any material, substance or waste which is or hereafter shall be listed, regulated or defined by Applicable Law to be hazardous, acutely hazardous, extremely hazardous, radioactive toxic, or dangerous; (ii) asbestos or asbestos-containing materials; (iii) polychlorinated biphenyls (PCBs); (iv) radon gas; (v) laboratory wastes; (vi) experimental products, including genetically engineered microbes; (vii) petroleum, natural gas, or other petroleum product; (viii) hazardous waste, and (ix) medical waste as defined in the Medical Waste Management Act (MWMA), sections 117600 - 118360 of the California Health and Safety Code.

(b) The term "Applicable Law" shall include federal, state and local statutes, regulations, rules, ordinances, and all other governmental requirements.

15.2 Compliance and Response. During the term of this License:

(a) City shall comply with Applicable Law in all respects, including, but not limited to, (i) acquisition of and compliance with all permits, licenses, orders, requirements, approvals, plans and authorizations which are or may become necessary for conduct of City's operations on the Premises; (ii) compliance with all regulatory requirements relating to such operations or the substances and equipment used therein or the emissions, emanations and wastes generated thereby; and (iii) reporting, investigation, and remediation of, or other response to the exposure or potential exposure, of any person to, or the emission, discharge or other release of any Hazardous Material into the Premises or the environment.

(b) City shall promptly respond to and remedy (by removal and proper disposal or such other methods as shall be reasonably required) to the satisfaction of applicable

governmental agencies any release or discharge of any Hazardous Material connected with City's operation or City's presence on the Premises. All such action shall be done in City's name, and at City's sole cost and expense. For purposes of this paragraph (b), the term "respond" shall include, but not be limited to, the investigation of environmental conditions, the preparation of feasibility reports or remedial plans, and the performance of any cleanup, remediation, containment, maintenance, monitoring or restoration work. Any such actions shall be performed in a good, safe, workmanlike manner and shall minimize any impact on the businesses or operations conducted at the Premises. In its discretion, University may, but shall not be required to, enter the Premises personally or through its agents, consultants or contractors and perform all or any part of the response activity or remedial action which it feels is reasonably necessary to comply with the terms of this License, and shall be reimbursed for its costs thereof and for any liabilities resulting therefrom.

(c) City will promptly notify University of City's receipt of any notice, request, demand, inquiry or order, whether oral or written, from any government agency or any other individual or entity relating in any way to the presence or possible presence of any Hazardous Material on, in, under or near the Premises or the City's compliance with, or failure to comply with, Applicable Law. Receipt of such notice shall not be deemed to create any obligation on the part of University to defend or otherwise respond to any such notification.

(d) Promptly upon discovery thereof, City will notify University of the discovery of any release, discharge, or emission of any Hazardous Material or of the existence of any other condition or occurrence which may constitute or pose a significant presence or potential hazard to human health and safety or to the environment, whether or not such event or discovery necessitates any report to any other person or government agency.

15.3 Other Emissions. City shall not:

(a) Permit any vehicle or equipment on the Premises to emit exhaust which is in violation of any Applicable Law;

(b) Create, or permit to be created, any sound pressure level which will interfere with the quiet enjoyment of any real property adjacent to the Premises, or which will create a nuisance or violate any Applicable Law;

(c) Transmit, receive, or permit to be transmitted or received, any electromagnetic, microwave or other radiation which is harmful or hazardous to any person or property in, on or about the Premises, or anywhere else, or which interferes with the operation of any electrical, electronic, telephonic or other equipment wherever located, whether on the Premises or anywhere else;

(d) Create, or permit to be created, any ground or Building vibration that is discernible outside the Premises; and

(e) Produce, or permit to be produced, any intense glare, light or heat except within an enclosed or screened area and then only in such manner that the glare, light or heat shall not be discernible outside the Premises.

15.4 Indemnification. City shall pay for all costs associated with, and defend (with attorneys reasonably satisfactory to Landlord), indemnify and hold harmless Landlord from, claims, damages, expenses, encumbrances, fees, fines, penalties or costs (including, but not limited to, legal fees; the costs of notice to any other person; the costs of environmental or technical risk assessment; any cleanup or remedial costs; the costs of any monitoring, sampling or analysis; and any diminution in property value or losses due to non-rentability) arising out of or in any way connected with the presence of any Hazardous Material on the Premises caused by City's activity or City's alleged violation of Applicable Law. This obligation shall not apply, if and to the extent that (a) such claims, damages, expenses, encumbrances, fees, fines, penalties, or costs arose solely out of conditions existing on the Premises prior to the commencement of City's first possession of the Premises or conditions created on the Premises after City has quit the Premises; and (b) City did not violate any Applicable Law or act negligently with respect to, or otherwise contribute to, the condition or the hazard posed by the condition.

15.5 Survival. The duties set forth in this paragraph shall survive the termination of this License.

15.6 Disposal of Other Matter.

(a) Refuse Disposal. City shall not keep any trash, garbage, waste or other refuse on the Premises except in sanitary containers and shall regularly and frequently remove and dispose of the same from the Premises. City shall keep all containers or other equipment used for storage or disposal of such matter in a clean and sanitary condition, and shall promptly dispose of all other waste. Per Exhibit F, City may utilize University-provided refuse service from a central location at Long Marine Laboratory.

(b) Sewage Disposal. City shall properly dispose of all sanitary sewage and shall not use the sewage disposal system (i) for the disposal of anything except sanitary sewage as permitted by the City of Santa Cruz, or (ii) in excess of the lesser of the amount allowed by the sewage treatment works, or permitted by any governmental entity. City shall keep the sewage disposal system free of all obstructions and in good operating condition.

16. No Recordation. City shall not record this Agreement nor any memorandum or short-form hereof.

Signatures on following page

IN WITNESS WHEREOF, the parties have executed this License Agreement the day and year first above written.

UNIVERSITY:

CITY:

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a California corporation

THE CITY OF SANTA CRUZ, a municipal corporation

By: *Kia Tove*

By: *P. Blocher*

Its: Director University Business Services
Date: 8/8/06

Its: 9/31/06 WATER DIRECTOR
Date:

Approved as to Form:

[Signature]
City Attorney

7/31/06
Date

LIST OF EXHIBITS

EXHIBIT "A" Vicinity Plan and Premises Location Map

EXHIBIT "B" Project Description

EXHIBIT "C" Utility Installation Plan, Services and Tie-in

EXHIBIT "D" Access Procedures

EXHIBIT "E" Management of Program Systems and Equipment

EXHIBIT "F" Related Operating Costs

EXHIBIT "G" Work Letter Agreement

EXHIBIT "H" Waste Residuals and Hazardous Materials Memo

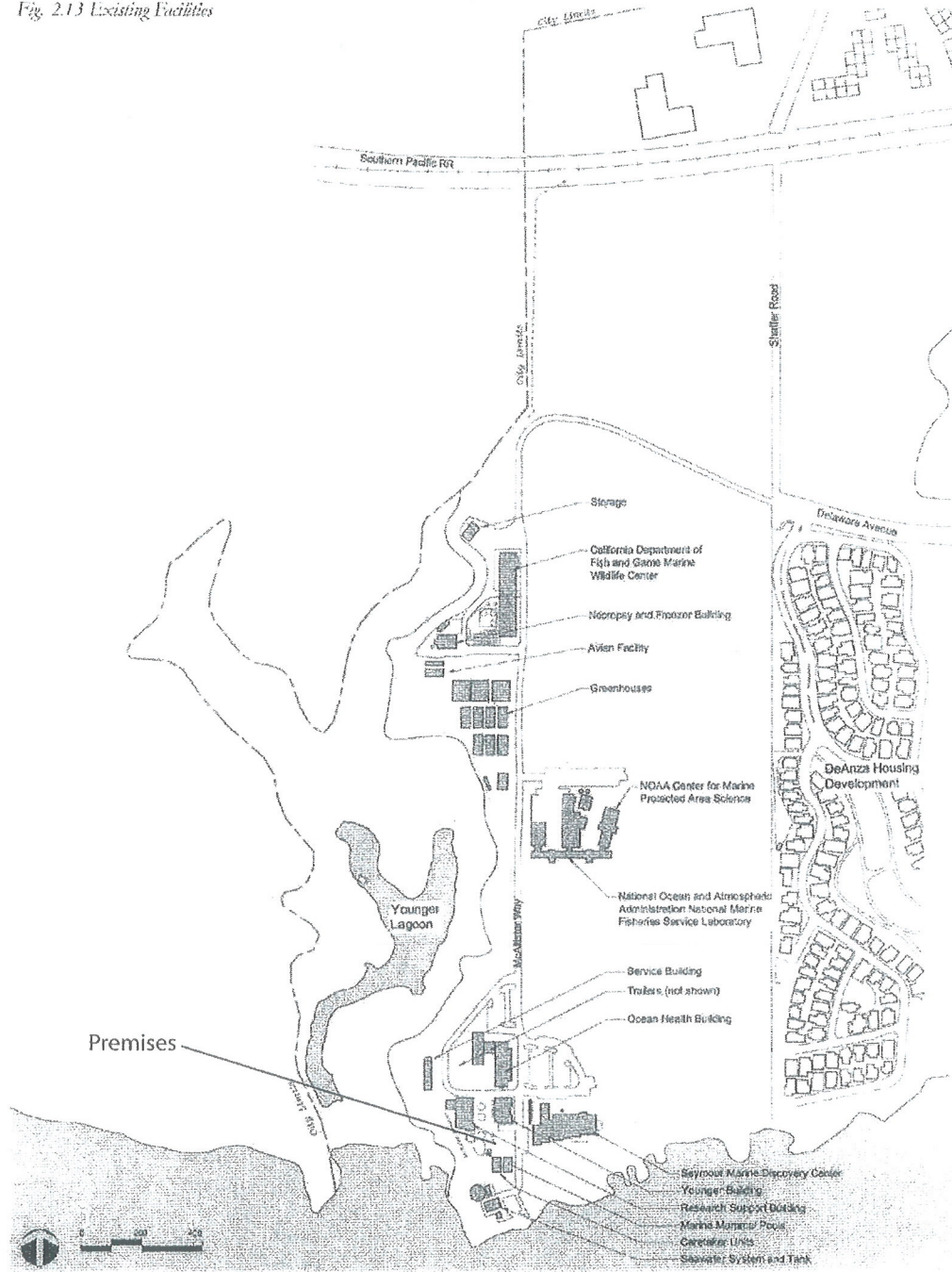
EXHIBIT "I" Coastal Access and Improvements

Exhibit A

Vicinity Plan

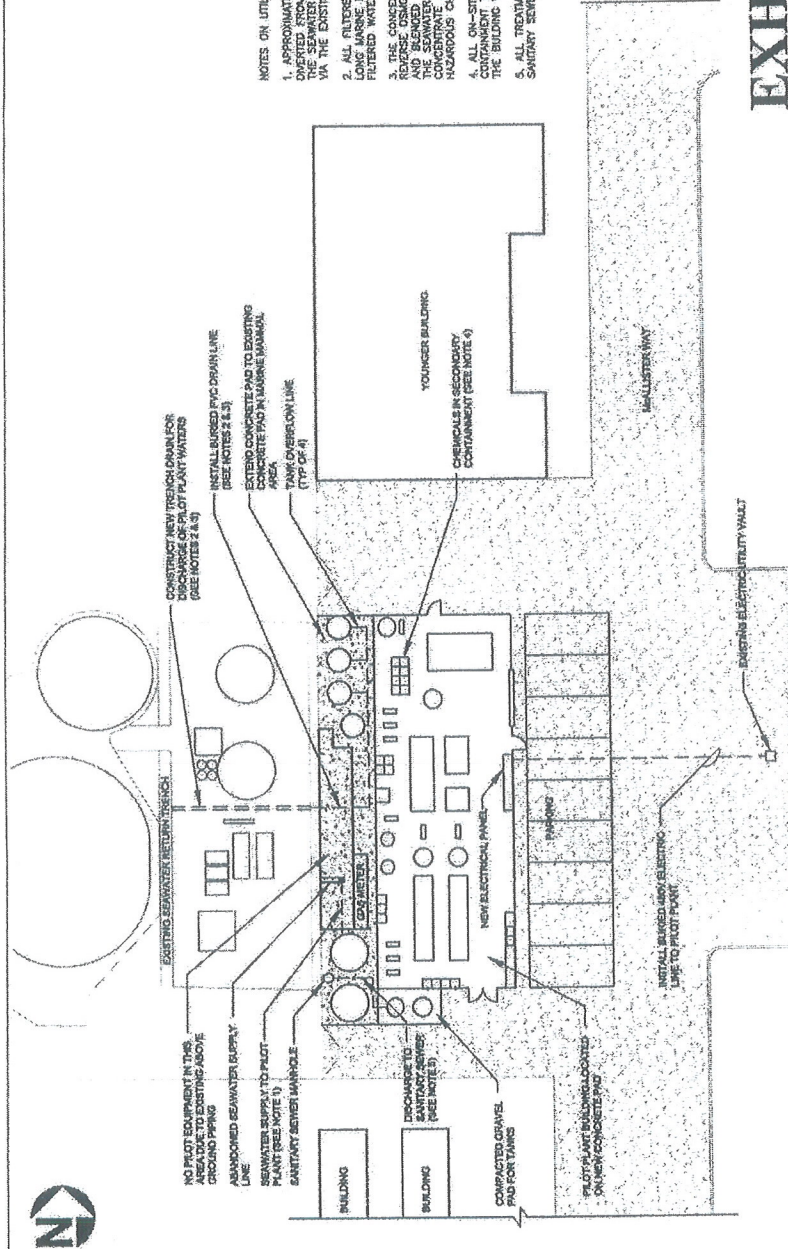
U C Santa Cruz Marine Science Campus

Fig. 2.13 Existing Facilities



· COASTAL LONG RANGE DEVELOPMENT PLAN ·

· 11 · 7 ·



NOTES ON UTILITIES:

1. APPROXIMATELY 50 GPM OF SEAWATER WILL BE TREATED IN THE PILOT PLANT. THE PERMEATE AND CONCENTRATE FROM THE PILOT PLANT WILL BE TRANSPORTED TO THE PILOT PLANT VIA THE EXISTING ABANDONED SEAWATER SUPPLY LINE.
2. ALL FILTERED SEAWATER TANKS WILL OVERFLOW TO LONG MARINE LAGOON SEAWATER RETURN TRENCH. THE FILTERED WATER WILL NOT CONTAIN HAZARDOUS CHEMICALS.
3. THE CONCENTRATE AND PERMEATE FROM THE SEAWATER REVERSE OSMOSIS PROCESS WILL BE COMBINED IN A TANK AND RETURNED TO THE PILOT PLANT. THE CONCENTRATE AND PERMEATE WILL NOT CONTAIN HAZARDOUS CHEMICALS.
4. ALL ON-SITE CHEMICALS WILL BE STORED IN DOUBLE CONTAINMENT TANKS WITHIN THE PILOT PLANT BUILDING. THE BUILDING WILL REMAIN LOCKED WHEN UNATTENDED.
5. ALL TREATMENT RESIDUALS WILL BE DISCHARGED TO SANITARY SEWER.

EXHIBIT A

Premises Location

Proposed Site Layout

City of Santa Cruz - Seawater Reverse Osmosis Desalination Pilot Test Program

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EXHIBIT B

City of Santa Cruz Water Department Pilot Seawater Reverse Osmosis Desalination Program Project Description

BACKGROUND & PURPOSE

The purpose of the proposed pilot-scale desalination plant is to allow for the gathering of information needed for the design and construction of a potential future full-scale Seawater Reverse Osmosis Desalination Plant (SWRO). This project would consist of the design, construction and operation of an SWRO pilot plant designed to 1) meet the requirements of the \$2,000,000 Proposition 50 Grant funding from the State of California and 2) provide the information necessary to select the preferred treatment process for the future, full-scale, desalination plant to serve the City of Santa Cruz. The facility would also serve as a tool to educate and inform the public on the City's Integrated Water Plan and the role of the proposed desalination plant in that plan. The full-scale desalination plant has not yet been approved and would require completion of a project-level EIR.

LOCATION

The pilot plant would operate at the original UCSC Long Marine Lab (LML) Complex Site (15.70 acres) in the Lower Terrace of the Marine Science Campus, and use existing facilities for source and discharge waters. The proposed use of the site for this outdoor, seawater-dependent research is consistent with the proposed land-use designation for the site under the University's proposed Coastal Long Range Development Plan (CLRDP).

The site currently consists of compacted gravel and is used for utilities (above and below ground), service, and staff vehicle parking. (See Figure 4.) No archaeological materials have been uncovered in past work on the site and there are no historic buildings or structures in the project vicinity. Since it is a graveled area, the project site does not provide suitable habitat for any special-status plant or animal species.

PHYSICAL PROJECT COMPONENTS

The pilot plant facility would consist of a small office trailer adjacent to an 80'x30' concrete slab upon which would be constructed a temporary, Butler-style metal building designed to meet current seismic code. The temporary building would vary in height from 12' to approximately 14'6". (See Figure 5.) The entire pilot plant footprint of about 3,000 ft² (including several tanks located outside of the structure) would be surrounded by a 7'-high, board and batten fence to match existing. Further, the building would be designed to attenuate noise and vibration caused by mechanical equipment contained within the structure such that the proposed operations would not impact marine mammals located in adjacent facilities or related research activities.

The components of the building would consist of the various physical and chemical processes necessary to meet the project goals stated above as well as additional testing to satisfy regulatory requirements and to investigate innovative technology and potential cost-and energy saving alternatives. (See Figure 6.) The plant would operate 24-hours a day, 7-days a week for approximately 12-18 months. The facility would be staffed by 1-2 operators, 8-hours/day, 7-days a week although special circumstances, such as storm events, would likely provide additional, useful information, and call for staffed-operation of the facility outside of the hours described above. While not staffed, the plant would run in automated mode. In the event of an emergency, an automated dialer would call the plant operator who would be on-site within 30 – 60 minutes. The plant would be shut-down in the event that no staffing would be available for a period of more than 24-hours (such as during a holiday).

There is currently space available for nine (9) standard vehicles. During pilot testing, there would continue to be space for nine (9) standard vehicles; however, the project office/trailer would assume three (3) of these spaces. Ample dedicated parking exists elsewhere at the Marine Science Campus to accommodate these displaced parking spaces as well as plant operator parking.

UTILITIES AND PUBLIC SERVICE

Utilities would be extended to the pilot plant site from the adjacent LML facilities. See Figure 7. The pilot plant would include improvements to these existing utilities to deliver a side-stream of 50 gallons per minute (gpm) of seawater from the existing LML intake system with discharge of ~50gpm of a re-blend (permeate and concentrate) to either 1) the existing LML seawater discharge channel (a.k.a. return trench) or 2) the marine mammal pools currently in operation at the LML. Both intake and discharge quantities are within the existing (and permitted) levels for the LML. Further (and as detailed below) the temperature, salinity, and chemical quality of water discharged to the Monterey Bay would be within the range of the current discharge, as evidenced by the fact that the discharge from the desalination plant would be of quality suitable for routing through the existing marine mammal tanks at LML before ultimate discharge to the Bay. There would be no adverse effects to biological resources in the Monterey Bay as a result of operating the pilot plant. Residuals would be discharged to the City of Santa Cruz' sanitary sewer system via the LML's existing service connection.

Utilities for the pilot plant would include the following.

- **Electricity:** Electrical power would be supplied through an existing LML electrical room/vault located approximately 60-feet east of the proposed pilot plant building. Electrical conduits would run underground from the electrical room/vault to the proposed pilot plant. NEMA 4 electrical panels in the pilot plant building would distribute power throughout the pilot plant. After the pilot study is completed, all electrical conduits/wire and electrical panels would remain for use by LML.
- **Raw Water:** Unfiltered seawater will be supplied through an abandoned raw-seawater line that currently is terminated adjacent to the proposed pilot plant site. This seawater line is part of the existing system that is not currently in use. This 10" diameter line and its valved tee connection with the currently active 8" diameter raw seawater supply line will require minor rehabilitation or the addition of a smaller line through it to bring 50gpm to the proposed pilot plant building. As part of this rehabilitation work, Licensee shall replace the existing aforementioned underground tee with a sweep ell, or some combination of fittings and valves to accommodate the "pigging" of these lines, the design for which shall be approved by University. At completion of the project these improvements shall remain in place. The final connection to the pilot plant shall be removed and a fitting shall be left in place at this connection point to the raw seawater supply so that it may be put back into service by LML if needed.
- **Sanitary sewer:** The solids residuals tanks would be connected to the existing sanitary sewer manhole located approximately 10-feet west of the proposed pilot plant building. The connection would consist of an above grade, 3-inch diameter pipe, approximately 20-feet in length. After completion of the pilot study, the solids residuals tanks and the connection to the sanitary sewer manhole would be removed.
- **Potable water supply** would be supplied through an existing connection about 50-feet west from the proposed pilot plant. The potable water would be piped to a few temporary hose bibs on the outside of the proposed pilot plant building and several locations within the building.

After the pilot study is completed, the 50-foot connection to the pilot plant would be left in place for use by the LML. The hose bibs and piping within the pilot plant would be removed.

- Communications: Through wireless source.
- Emergency Services: The proposed project is not expected to result in a significant demand for public services over and above those currently supplied at the site. Fire protection and police services would be provided by both the City of Santa Cruz and the University.

HAZARDOUS MATERIALS

The pilot plant would store and use several hazardous materials. Conditions of use, storage and disposal of hazardous materials at the site are defined in Exhibit H of the License Agreement (attached) between the City and the University. In addition, the City has acquired a Wastewater Discharge Permit from the City of Santa Cruz as well as a Hazardous Materials Management Plan from the County of Santa Cruz. These permits and plans would provide additional requirements for delivery, storage, use and removal of all chemicals, hazardous and non-hazardous, used in conjunction with pilot testing. (See attached.)

RESIDUALS DISCHARGE (TO CITY OF SANTA CRUZ SANITARY SEWER SYSTEM)

Waste residuals from the pilot plant would come from six treatment processes and would be discharged to and mixed in the two waste residuals tanks, which would be piped in series. The use of two tanks in series allows for equalizing flow and mixing the waste residuals prior to disposal into the sanitary sewer. Use of the existing sanitary sewer has been permitted by the City of Santa Cruz Wastewater Treatment Facility.

The expected maximum flowrate and solids mass of the waste residuals stream that would be discharged to the sanitary sewer is:

- Solids mass – maximum of 20 lbs of solids per day (expressed as dry solids); average of 10 lbs per day.
- Solids concentration – maximum of 1,000 milligrams per liter (mg/L); average of 200 mg/L.
- pH – between 6 and 9.
- Chemical amounts – described below.
- Peak day discharge – 5,000 gallons per day (gpd).

Sources of Solids and Chemicals

The waste residuals from the pilot plant include:

- Backwash from the *strainer* on the seawater supply connection pipe.
- Settled solids from the two *flocculation/sedimentation* tanks.
- Backwash from the filtration units: two pressure *granular media filters*; one *microfiltration* (MF) unit; and one *ultrafiltration* (UF) unit.
- Discharges of the chemically enhanced backwashes from the MF and UF units.
- Intermittent cleaning solutions from the MF, UF and *reverse osmosis* (RO) units.
- Discharge from the *chlorine dioxide* generation unit. This includes emissions of hydrogen gas which does not require a permit from the Monterey Bay Unified Air Pollution Control District.

Type of Solids

The discharges to the sanitary sewer primarily would consist of particulate matter removed from the seawater by the treatment units along with some chemical solids.

Chemicals

The particulate matter in the seawater would be coagulated periodically (i.e. during specific tests) using the following water treatment chemicals (which are NSF certified for drinking water):

- Ferric chloride \approx 10 parts per million (ppm) in a 50 gpm stream.
- Polymer coagulant aid \approx 2 ppm in a 50 gpm stream.

To maintain membrane performance, the MF and UF units would be backwashed with:

- Approximately 45 gallons per day of a 1% solution of citric acid.
- Approximately 45 gallons per day of a 0.05% solution of sodium hypochlorite.

The MF and UF units would require intermittent chemical cleanings. These cleanings would use:

- Approximately 600 gallons per month of a 2% solution of citric acid.
- Approximately 200 gallons per month of a 2% solution of sodium hydroxide.
- Approximately 400 gallons per month of a 0.05% solution of sodium hypochlorite.

The small amounts of citric acid being discharged to the waste residuals tanks would be buffered by the alkalinity in the seawater and would not drop the pH of the waste residuals below 6. The bacteria in the waste residuals would consume the trace amounts of chlorine (i.e. from the sodium hypochlorite) in the waste stream before it is discharged to the sanitary sewer.

One or more of the four seawater reverse osmosis (SWRO) units may be dosed periodically (i.e. during specific tests and not continuously) with chlorine dioxide, sodium hypochlorite, an antiscalant, antifoulant, and/or sulfuric acid. The chlorine dioxide and sodium hypochlorite may be dosed up to 5 ppm in no more than two 12 gpm SWRO feed streams. Most of the free chlorine would be consumed by the biological activity in the seawater. The antiscalant may be dosed up to 5 ppm in no more than two 12 gpm SWRO feed streams. The antifoulant may be dosed up to 10 ppm in no more than two 12 gpm SWRO feed streams. The sulfuric acid may be dosed up to 20 ppm in no more than two 12 gpm SWRO feed streams. The antiscalant and antifoulant are NSF approved for use in RO feedwater, in drinking water applications.

DISCHARGE OF RE-BLEND (TO LML EXISTING DISCHARGE CHANNEL OR TO THE MARINE MAMMAL POOLS)

Approximately 50 gpm (72,000 gallons per day) of seawater would be treated in the pilot plant. The raw seawater would have a salt concentration (i.e. total dissolved solids) of approximately 35,000 mg/L. As described above, small amounts of chemicals would be added in the pilot plant treatment units. In the last treatment step the seawater would be routed to four RO units that would produce approximately 20 gpm of salt-free permeate and 20 gpm of concentrate (brine) that would have a salt concentration (i.e. total dissolved solids) of approximately 70,000 mg/L.

Following analysis, the permeate and concentrate would be blended in a 1,500 gallon tank to recreate the seawater stream originally taken into the pilot plant. The expected quality of the "recreated" seawater is:

- Total dissolved solids - 35,000 mg/L.
- pH - 7.5 – 8.2
- Residual chemical concentrations (highest expected values are shown; in most instances the values would be less):
 - chlorine - < 1 mg/L
 - chlorine dioxide - < 1 mg/L
 - antifoulant - < 10 mg/L
 - antiscalant - < 5 mg/L
 - sulfuric acid – < 20 mg/L of sulfate ion would be added to the 2700 mg/L that exists in ambient seawater.
 - ferric chloride – < 1 mg/L
 - polymer coagulant - < 0.1 mg/L

The water quality of the re-blend would comply with the LML's permit for discharge to the Monterey Bay. The University is applying for an amendment to the existing General Permit. See attached.

The LML currently increases the temperature of their process stream by a maximum of 1°C, between intake and discharge. Ocean temperatures vary between 11-17°C. (Ref. <http://ims.ucsc.edu>.) The pilot desalination project would add a maximum of 2°C to its process water. Under worse-case scenario (i.e., if the LML could not receive the pilot plant re-blend into their marine mammal pools and the re-blend were discharged to the LML seawater discharge channel) waters discharged to the Monterey Bay would increase in temperature by an additional 0.08°C. See Figures 8, 9 and 10. This negligible increase in the water temperature is within the normal range of existing seawater discharges and Bay waters.

SOURCE MONITORING

An additional aspect of the project is Source Monitoring. Source Monitoring includes 16-months of water quality monitoring at both the LML intake as well as the proposed full-scale plant intake (i.e., the abandoned/retired outfall for the City's WWTP, see Figure 11) to:

1. Characterize source waters at the LML intake and the proposed full-scale intake.
2. Establish disinfection requirements based on pathogen concentrations as required by the Department of Health Services.
3. Identify potential sources of contamination for the supply for the proposed full-scale desalination plant.

Source monitoring would include:

1. Continuous monitoring for selected physical and chemical parameters at the abandoned outfall.
2. Monthly samples from the LML intake and the abandoned outfall for basic water quality constituents and key constituents of concern (e.g., algal toxins).
3. Samples collected at the LML and the abandoned outfall to characterize water quality during storm/runoff events, algal blooms or other conditions that may significantly impact water quality.
4. Quarterly sampling at the LML and the abandoned outfall as required by DHS under Title 22 for a new water supply.
5. Additional sampling at the San Lorenzo River and active WWTP outfall to determine the potential for contamination to the proposed, full-scale, desalination plant.

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are needed to see this picture.

EXHIBIT C**Utility Installation Plan, Services and Tie-in**

Utilities for the pilot plant will include the following:

- **Electricity:** Electrical power will be supplied through an existing LML electrical room/vault located approximately 60-feet east of the proposed pilot plant building. Electrical conduits will run underground from the electrical room/vault to the proposed pilot plant. NEMA 4 electrical panels in the pilot plant building will distribute power throughout the pilot plant. After the pilot Study is completed, all electrical conduits/wire and electrical panels will remain for use by LML. Licensee shall hire the services of an underground locator service to identify and label all existing underground utilities in the area of the proposed installation. Licensee shall provide overcurrent device, conduit and wire from the existing main switchboard to the new power distribution panel for the proposed installation. Licensee shall provide power monitoring equipment, PML 7350 units, on the service feeding the proposed installation mounted in the existing main switchboard. Equipment shall be capable of remote monitoring and connection to the campus SCADA system at a future date. Electrical power cost shall be borne by the Licensee. The University shall periodically read the electric meter and invoice the Licensee at cost for power.
- **Raw Water:** Unfiltered seawater will be supplied through an abandoned raw-seawater line that currently is terminated adjacent to the proposed pilot plant site. This seawater line is part of the existing system that is not currently in use. This 10" diameter line and its valved tee connection with the currently active 8" diameter raw seawater supply line will require minor rehabilitation or the addition of a smaller line through it to bring 50gpm to the proposed pilot plant building. As part of this rehabilitation work, Licensee shall replace the existing aforementioned underground tee with a sweep ell, or some combination of fittings and valves to accommodate the "pigging" of these lines, the design for which shall be approved by University. At completion of the project these improvements shall remain in place. The final connection to the pilot plant shall be removed and a fitting shall be left in place at this connection point to the raw seawater supply so that it may be put back into service by LML if needed.
- **Sanitary sewer:** There will be two connections to the existing sanitary sewer: one to the existing 4" gravity line located beneath the slab, and; the second to the existing sanitary sewer manhole located west of the proposed pilot plant building location.
- **Potable water supply** will be supplied through an existing connection about 50-feet west from the proposed pilot plant. The potable water will be piped to a few temporary hose bibs on the outside of the proposed pilot plant building and several locations within the building. After the pilot study is completed, the 50-foot connection to the pilot plant will be left in place for use by the LML. The hose bibs and piping within the pilot plant will be removed.
- **Communications:** Through wireless source.
- **Natural Gas:** No natural gas use is anticipated for the plant. A high pressure PG&E gas service pipe shall be re-routed around the building slab consistent with Code and PG&E requirements. Additionally the existing gas service to the Seymour Center shall be re-routed around the building slab consistent with Code. The existing gas meter shall also be re-located if required by PG&E.

Exhibit C

EXHIBIT D
ACCESS PROCEDURES

TO BE DISTRIBUTED TO ALL CITY'S REPRESENTATIVES

- I. Access Procedures for Licensee - As stated in the Agreement, Licensee's access to the Premises shall be subject to all procedures adopted from time to time by the University including, but not limited to, the procedures addressed in the License and in this Exhibit "D". Only Licensee's employees, agents, and/or contractors retained by Licensee as listed below shall be permitted access to the Premises. Visitors who are accompanied by representatives listed below are also allowed. Said representatives may be required to show appropriate identification prior to the requested access.
 - A. Non-Emergency Access - Non-emergency access to the Premises may be conducted seven days per week 6:00 AM to 8:00 PM. Access to the Premises during all other hours shall be granted for emergency purposes only, as described below, unless otherwise agreed to in writing between the parties.
 - B. Emergency Access - Licensee shall be permitted to access the Premises twenty-four (24) hours a day, seven (7) days a week for emergency purposes, as reasonably determined by Licensee. Within twenty-four (24) hours of such access, Licensee shall provide the UCSC LML Site Manager with a written explanation of the nature of the emergency.

- II. Prior to initial access to the site, City shall provide to University the names, company names and contact information for employees, agents and contractors who are permitted access to premises under this License Agreement.

III. Names/Titles and Phone Numbers of University Contacts:

Steve Davenport, UCSC LML Site Manager	831-459-4771 (Office) 831-251-9316 (Mobile)
John Nugent, LML Facilities Manager	831-459-4735 (office) 831-212-6852 (mobile)
Maria Choy, LML Administrative Office Manager	831-459-2883
LML Caretakers	831-212-6853 (mobile)
UCSC Police Department Dispatcher	831-459-2231

Exhibit D

EXHIBIT E

Management of Program Systems and Equipment

The City may take up to 50 gallons per minute of seawater from the unfiltered side of the Long Marine Lab seawater system for use in the Pilot Desalination Plant facilities. At the end of the plant's process stream, the outflows shall be recombined for either 1) re-use by LML in the marine mammal holding pools adjacent to the plant premises, or 2) for discharge to the ocean via the existing LML discharge lines. The City shall be responsible to provide all of the necessary connections, piping, and pumping (if needed) to convey the recombined water to either location. LML shall have sole discretion for the choice to re-use or directly discharge the re-combined outflow from the plant.

The quality of the recombined water, before re-use or ocean discharge, shall meet all waste discharge requirements of the Long Marine Lab NPDES General Permit for Discharges, Permit No. CAG993003 and Order No. R3-2002-0076.

Exhibit E

EXHIBIT F**Related Operating Costs**

The City shall be responsible to cover the costs of the following operating costs related to the operation of its Pilot Desalinization Plant at Long Marine Lab, either by direct payment to the service provider/purveyor or by reimbursement to University. University may add a reasonable surcharge, not to exceed 5%, on services it must process reimbursement requests for:

- Electricity
- Water
- Sanitary Sewer
- Natural Gas
- Telecom (voice and data)
- Hazardous Materials Disposal

The University shall provide, at no cost to City, the following:

- Raw (unfiltered) Seawater: Subject to a maximum rate of 50 gallons per minute and all other related requirements. Seawater delivery may be interrupted from time to time due to scheduled maintenance, equipment breakdown, or environmental conditions. University shall make good faith efforts to supply such raw seawater to City on an equal priority basis with seawater supply to itself.
- Refuse and Recycling: Subject to reasonable volumes. If the volumes contributed by City become unreasonable in the opinion of University, University may require reimbursement for such expenses at its discretion.
- Irrigation and maintenance of the landscaping improvements installed per requirements of the Coastal Development Permit for the project.

Exhibit F

EXHIBIT "G"**WORK LETTER AGREEMENT**

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA ("University") and THE CITY OF SANTA CRUZ, a Charter Law City organized pursuant to the Constitution of the State of California and the City Charter ("City" or "Licensee") are as of August 8, 2006 (date) executing this Work Letter Agreement ("Work Letter") relating to certain Premises as described in the License Agreement between the parties ("Agreement") in order to permit the City to operate a test program as further described in the Agreement.

This Work Letter defines the scope of University's approval rights and construction obligations with respect to the Premises as described in the Agreement. Capitalized terms not otherwise defined in this Work Letter shall have the meaning given to them in the Agreement.

SECTION A.**CITY CONSTRUCTED
IMPROVEMENTS**

1. Improvement Work to Be Completed. City shall construct the Facility and make installations in the Premises in accordance with plans and specifications approved by City and University ("Plans and Specifications") and the conditions of any applicable governmental approval. The Facility and other improvements to the Premises and the Property must satisfy the State Building Code and Federal Americans with Disabilities Act. The Facility and other improvements constructed by City shall be collectively referred to herein as the "Improvement Work".
2. Scope of Improvement Work. The Improvement Work and the obligation to construct all of the improvements as described herein shall be limited to such work as depicted on the attached appendices and as set forth in the Plans and Specifications and Construction Documents approved by the parties. The scope of the Improvement Work consists of the temporary facilities related to the pilot-scale desalination study and permanent facilities related to Coastal Access Improvements, as set forth in Exhibit I, and permanent improvements to the existing seawater system.
3. Ownership of Improvement Work. All Improvement Work related to the permanent Coastal Access Improvements as set forth in Exhibit I and those improvements set forth in paragraphs 15 and 16 below (the "Permanent Improvements") shall become the property of University effective upon completion of such work and City shall, upon request by University, execute all such documents which may be necessary to evidence University's ownership. City will retain ownership of all improvements listed in paragraph 14 of this Section A (the "Temporary Improvements") and will remove all such Temporary Improvements at the expiration or earlier termination of the Agreement. City further agrees that it shall restore the Premises to their condition on the Effective Date, if requested to do so by University upon the termination of this Agreement.
4. Preparation of Plans and Specifications. City shall prepare preliminary and final Plans and Specifications that describe the scope of the Improvement Work. University shall review and reasonably approve or disapprove of the Plans and Specifications promptly. University's disapproval shall advise City of modifications to the Plans and Specifications

- necessary to obtain University's approval. If City is so advised, City shall promptly cause the Plans and Specifications to be revised to correct any deficiencies or other matters University may require and promptly deliver the revised documents to University. Permanent Improvements and temporary connections to existing University utilities shall conform to the requirements of the Campus Standards as promulgated by University.
5. Preparation of Construction Documents. Subsequent to approval of the Plans and Specifications, City shall obtain a complete set of construction documents (the "Construction Documents") and provide two sets of the Construction Documents to the University.
 6. Record Drawings. City shall require Architect or Contractor to prepare and deliver three (3) sets of record drawings to University within ten (10) days after substantial completion of the Improvement Work.
 7. Construction / Demolition Staging. During the construction of the Permanent and Temporary Improvements and during the demolition of Temporary Improvements, contractor staging and parking shall be limited to the area defined as the Premises in Exhibit A, or other areas as needed and approved in advance by University. A public coastal access path to the ocean bluff shall be maintained with safety barriers and temporary signage during construction and demolition.
 8. Construction Activities. Construction may take place between 7 am and 7 pm M-F. City may request exceptions at least 48 hours in advance in writing. Disturbance of visitor, instruction and research activities shall be limited to the maximum extent possible. In all cases, City shall communicate and coordinate fully with the University on a regular basis.
 9. Construction of Improvements. After approval of the Construction Documents, City shall solicit bids in conformance with City's contracting requirements for the Improvement Work. The contractor so selected by City (the "Improvement Contractor") shall be retained pursuant to a construction contract (the "Improvement Construction Contract") and shall perform the Improvement Work in accordance with a schedule of performance approved by University.
 10. Payment of Improvement Costs. City agrees that all Improvement Costs shall be the responsibility of and paid by City.
 11. Scope of Improvement Costs. The Improvement Costs shall include all costs incurred by City and University in connection with the Improvement Work including, but not limited to, those incurred in connection with the design, preparation of Plans and Specifications and Construction Documents, construction and installation of the Improvement Work and any measures taken by University which may be reasonably required to accomplish construction of such Improvement Work, including, but not limited to, University's procurement of bonds, insurance policies and governmental permits, and University's project and construction management and/or on-site supervision, subject to the prior approval of City, which approval shall not be unreasonably denied or delayed.
 12. Improvement Warranties. City warrants to University that all materials and equipment furnished by City in its improvement of the Premises shall be new unless otherwise specified in the Work Agreement, and that all of City's work to be performed under the Work Agreement shall be of good and workmanlike quality, free from faults and defects, and in accordance with the final Plans and Specifications and the requirements of the Work Agreement. Any of City's work not conforming to the above standards shall be considered defective. For 1-year following construction of permanent improvements, City shall, following written notice from University, unconditionally make any repair,

replacement, correction or other alteration of any nature necessary by virtue of any defective construction of the Premises or defective materials used therein.

13. Site Work and Site Preparation. City will perform the following site work: Grade site as necessary to drain well around the new slab location. Remove abandoned booster pumps and piping at the LML secondary seawater storage tanks as necessary, and/or remove existing wooden fence on the west edge of pilot plant site (existing wooden fence posts may be left in place) as necessary to accommodate drain trench connection, slab construction, and/or pilot plant equipment.
14. Project Improvements to be Removed. As provided for in this agreement, the City shall remove the Temporary Improvements related to the pilot-scale desalination study as follows:
 - a. Structures, mobile office trailer, and desalination equipment;
 - b. On-site utilities, except as identified in Items 15 and 16 below;
 - c. Reinforced concrete slab (approximately 30' x 80'), except as may be modified by item 16 below.
15. Project Improvements to Remain. The following project Permanent Improvements shall remain in place after termination of this agreement:
 - a. Phase One Coastal Access Improvements set forth in Exhibit I;
 - b. Storm water drainage improvements set forth in Exhibit I;
 - c. Seawater piping terminated and valved for convenient re-use by UCSC;
 - d. Utility extensions capped off at the perimeter of the site;
 - e. At raw seawater tie-in location near the LML primary seawater pump caisson, buried tee with sweep tee or sweep ell (depending on final connection design) with valve at the raw water connection point;
 - f. Domestic water extensions terminated in utility hose bibs in convenient locations;
16. Provisions for Other Potential Improvements to Remain. The following are improvements that shall be constructed by the City and retained after termination of this agreement, subject to University authorizing such improvements in compliance with the provisions of its Coastal Long-Range Development Plan and review by the California Coastal Commission pursuant to the provisions therein and in compliance with CEQA. Such improvements are depicted in Figure 1 of this Exhibit:
 - a. Reinforced concrete slab (approximately 42' x 80') contiguous with existing concrete slab west of the Premises, including a central trench drain with fiberglass grate cover (approximately 18"x 18" in cross section) connected to existing 36" x 36" utility trench to north (connection designed with vehicle rated cover at service driveway)
 - b. Two in-ground pools (10' x 15' x 4.5'd) in slab with connecting trench drains from pools to central trench drain (approx 12" x 12" in cross section). Pool finish shall be smooth uncoated concrete with rounded, tooled corners and edges. Slab sloped to drain away from pools
 - c. Various sockets cast-in-place into slab in various locations for potential future fence posts internal to new perimeter fence (see below);
 - d. 7' high solid stained cedar perimeter fence with galvanized steel reinforced gates to match newer existing fence and gates on site. Includes new fence segment between Younger Building and pilot plant site, and new segment between Caretaker Trailer fence and pilot plant site. Fencing would include not more than: two 8' double leaf gates; two 3' personnel gates; two viewing "windows" for visitors, and; two 10' double leaf vehicle gates.

- e. Main electrical panel and transformer servicing the temporary pilot-scale facility would remain inside perimeter fence with marine-grade exterior enclosures.
- f. Lighting (+/-10 fixtures) would be provided on the outside of the perimeter fence with shielded, down-directed fixtures approx. 60" above grade.

17. Project Completion. At the expiration or earlier termination of the Agreement:

- a. City shall leave the Premises in a neat and clean condition. If the concrete slab must be removed, it shall be replaced with level compacted aggregate or other material as approved in the Coastal Development Permit for the project. All paving, drainage, and access improvements to remain shall be in good condition.
- b. City shall inform University in writing when it has ceased use of the Premises.
- c. University shall inspect the Premises and must accept the final condition of the Premises from the City in writing; such acceptance shall not unreasonably be withheld.

SECTION B

OTHER PROVISIONS

1. University's Review. University's review of the Plans and Specifications and Construction Documents as set forth in this Work Letter shall not imply University's approval of the same, or obligate University to review the same, for quality, design, code compliance or other like matters. Accordingly, notwithstanding that any Plans and Specifications and Construction Documents are reviewed by University or any architect, engineer or consultant of University and notwithstanding any advice or assistance which may be rendered to City by University or such architect, engineer and consultant of University, University shall have no liability whatsoever in connection therewith and shall not be responsible for any omissions or errors contained in the Plans and Specifications and Construction Documents or in the construction of the Improvement Work, and the indemnification and waiver and release provisions as set forth in Sections 12 and 15 of the Agreement shall apply to the review of such documents and the construction of the Improvement Work.

2. City's Representative. City has designated Linette Almond as its sole representative ("City Representative") with respect to the matters set forth in this Work Letter, who shall have full authority and responsibility to act on behalf of City as required in this Work Letter. City may change its representative under this Work Letter at any time by providing five (5) days prior written notice to University. All inquiries, requests, instructions, authorizations and other communications with respect to matters covered by this Work Letter from University will be made to the City Representative.

3. University's Representative. University has designated Steve Davenport as its sole representative ("University Representative") with respect to the matters set forth in this Work Letter, who shall have full authority and responsibility to act on behalf of University as required in this Work Letter. University may change its representative under this Work Letter at any time by providing five (5) days prior written notice to City. All inquiries, requests, instructions, authorizations and other communications with respect to the matters covered by this Work Letter from City will be made to the University Representative. City will communicate solely with the University Representative and will not make any inquiries of or requests to, and will not give any instructions or authorizations to, any other employee or agent of University, including University's architects, engineers, and contractors or any of their agents or employees, with regard to matters covered by this Work Letter.

4. University's Approval Rights. University may withhold its approval of the Plans and Specifications, Construction Documents (both Electrical Infrastructure and Improvement Work), or other work including any revisions requested by City which requires work that: (i) exceeds or adversely affects any part of the heating, ventilating, air conditioning, plumbing, mechanical, electrical, communication or other systems of the Property; (ii) violates any agreement which affects the Property or binds University; (iii) University reasonably believes will increase the cost of operation or maintenance of any of the systems of the Property; (iv) does not conform to applicable building codes or is not approved by any governmental authority with jurisdiction over the Premises; or (v) in University's determination detrimentally affects the uniform exterior appearance of the Property.

5. Incorporation of Agreement. This Work Letter shall be deemed to be incorporated by reference in the Agreement and all of the terms and provisions of the Agreement are incorporated herein for all purposes. Any default or failure to observe or comply with any of the covenants or provisions by City hereunder also constitutes breach under the Agreement. In the event of any breach by City under this Work Letter or under the Agreement then (i) in addition to all other rights and remedies granted to University pursuant to the Agreement, University shall have the right to cause Contractor to cease the construction of the Improvement Work and (ii) all other obligations of University under the terms of this Work Letter and the Agreement shall be forgiven until such time as such breach is cured pursuant to the terms of the Agreement.

6. Counterparts. This Work Letter may be executed in counterparts, each of which shall be deemed an original, but all of which together constitute one instrument.

7. Attorneys' Fees. In any action to enforce or interpret the terms of this Work Letter, the party prevailing in that action shall be entitled to recover its reasonable attorneys' fees and costs of suit, both at trial and on appeal.

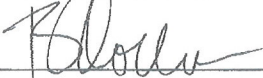
IN WITNESS WHEREOF, University and City have executed this Work Letter as of the date first above written.

University: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: 

Date: 8/18/06

City: CITY OF SANTA CRUZ:

By: 

Date: 7/31/06

QuickTime™ and a
decompressor
are needed to see this picture.

EXHIBIT H

CDM

One Walnut Creek Center
100 Pringle Avenue, Suite 300
Walnut Creek, CA 94596
tel: 925 933-2900
fax: 925 933-4174

Memorandum

To: Heidi Luckenbach, Santa Cruz Water Department

From: Paul Meyerhofer

Date: May 26, 2006

*Subject: Santa Cruz Seawater Desalination Pilot Study
Waste Residuals and Hazardous Materials*

The purpose of this memorandum is to describe the Santa Cruz Seawater Reverse Osmosis Desalination Pilot Plant waste residuals and the delivery, handling, storage, and conveyance systems for the hazardous materials that will be used at the pilot facility.

Waste Residuals Descriptions

Waste residuals from the pilot plant will come from the treatment units and will be directed to the waste residuals tanks. There will be two waste residuals tanks, in series. The use of two tanks allows for the equalization and mixing of the waste residual streams prior to disposal to the sanitary sewer. The waste discharge stream to the sanitary sewer will have a flow meter to monitor instantaneous and cumulative flow, a pH meter, and a sample port.

The expected characteristics of the waste residuals stream that will be discharged to the sanitary sewer are:

- Solids mass - maximum of 20 lbs of solids per day (expressed as dry solids); average of 10 lbs per day.
- Solids concentration - maximum of 1,000 milligrams per liter (mg/L); average of 200 mg/L.
- pH - between 6 and 9.
- Peak day discharge - 5,000 gallons per day (gpd).

consulting • engineering • construction • operations

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 2

The waste residuals from the pilot plant include:

Strainer Backwash

The strainer will be used to remove suspended solids larger than 100 micron from the pilot plant feed water. The types of suspended solids to be removed include sand, kelp, and shells. Seawater will be used to backwash the strainers. The strainers will be backwashed periodically throughout the day. No chemicals will be used when backwashing the strainer. The backwash flow from the strainers is expected to be about 200 gallons per day.

Settled Solids

The flocculation/sedimentation process will produce a sludge made up of ferric hydroxide, silts and colloidal matter from the seawater. The pH of the sludge will be between 6.5 - 8.0 pH units and will contain about 0.5% solids. Chemicals that may be used in the flocculation/sedimentation process include: ferric chloride; Cat Flocc L, and Cytex A-100. The sludge flow from the flocculation/sedimentation process is expected to peak at 1,400 gallons per day.

Media Filtration Backwash

The media filtration process will remove suspended solids and colloidal matter that pass through the flocculation/sedimentation process. The media filtration process is expected to be backwashed once per day, producing about 1,000 gallons of backwash water.

Microfiltration Backwash

The microfiltration (MF) process will remove suspended solids and colloidal matter that pass through the flocculation/sedimentation process. The MF process is expected to be backwashed about three times per hour, producing about 1,000 gallons of backwash water per day. MF backwashing does not require the use of chemicals.

Once or twice per day, the MF unit will perform a chemically enhanced backwash. One chemically enhanced backwash will use about 50 gallons of a 1.0% solution of citric acid. If necessary, a second chemically enhanced backwash will be performed. This backwash will use about 50 gallons of a 0.05% (500 ppm) solution of sodium hypochlorite. Typically, if two backwashes are performed, they are spaced 12 hours apart.

The MF process also requires cleaning approximately every four to eight weeks. The cleaning process uses two chemical cleaning cycles. One cycle will use about 100 gallons of a 2.0%

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 3

solution of citric acid followed by a thorough flush. The other cycle will use about 100 gallons of a 0.05% (500 ppm) solution of sodium hypochlorite in a 2% solution of sodium hydroxide.

Bacteria in the waste residuals will consume the trace amounts of chlorine (i.e., from the sodium hypochlorite from the cleaning process) in the waste stream before it is discharged to the sanitary sewer. The small amounts of citric acid being discharge to the waste residuals tanks will be buffered by the alkalinity of the seawater and will not drop the pH of the waste residuals below 6.

Ultrafiltration Backwash

The ultrafiltration (UF) process will remove suspended solids and colloidal matter that pass through the flocculation/sedimentation process. The UF process is expected to be backwashed about three times per hour, producing about 1,000 gallons of backwash water per day. This backwashing procedure does not use chemicals.

Once or twice a day, the UF unit will undergo a chemically enhanced backwash. One chemically enhanced backwash will use about 50 gallons of a 1.0% solution of citric acid. If necessary, a second chemically enhanced backwash will be performed. This backwash will use about 50 gallons of a 0.05% (500 ppm) solution of sodium hypochlorite. Typically, if two backwashes are performed, they are spaced 12 hours apart.

The UF process also requires cleaning approximately every four to eight weeks. The cleaning process uses two chemical cleaning cycles. One cycle will use about 100 gallons of a 2.0% solution of citric acid followed by a thorough flush. The other cycle will use about 100 gallons of a 0.05% (500 ppm) solution of sodium hypochlorite in a 2% solution of sodium hydroxide.

The bacteria in the waste residuals will consume the trace amounts of chlorine (i.e., from the sodium hypochlorite from the cleaning process) in the waste stream before it is discharged to the sanitary sewer. The small amounts of citric acid being discharged to the waste residuals tanks will be buffered by the alkalinity in the seawater and will not drop the pH of the waste residuals below 6.

Chlorine Dioxide Generation Unit

The chlorine dioxide generation unit is described in the *Chemicals and Chemical Systems* section of this memo. The chlorine dioxide unit has two liquid waste residual streams that will discharge to the waste residuals tanks. One stream will produce about ½ gallon of a solution that contains about 500 -700 mg/L chlorine dioxide. The other stream will produce about 1

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 4

gallon of a 20 % sodium hydroxide solution. There will also be a hydrogen gas stream that contains less than 0.5% hydrogen, by volume. The hydrogen gas stream is described later in the memo.

Chemicals and Chemical Systems

Delivery and Storage

The pilot plant will use several chemicals, both liquid and dry, at various stages of the treatment process. The aggregate amount of each liquid chemical onsite will be less than 55 gallons and the aggregate amount of each dry chemical onsite will be less than 500 lbs.

Liquid chemicals will be delivered in totes ranging in size from 5 gallons to 20 gallons. Upon receipt, these chemicals will be temporarily placed on spill containment pallets until the chemicals can be transferred to double walled mini-bulk tanks. The spill containment pallets will provide at least 150% of the largest container's capacity on that pallet. Non-compatible chemicals will not be stored on the same spill containment pallet. The intent is to transfer liquid chemicals to the mini-bulk tanks within one day of delivery with the exception of sodium hydroxide. A catalogue description of the spill containment pallets is attached.

Dry chemicals will be delivered to in sacks and/or drums not exceeding 50 pounds. Upon receipt, these chemicals will be placed on spill containment pallets. Non-compatible chemicals will not be stored on the same spill containment pallet.

The mini-bulk tanks will be constructed of crossed linked polyethylene (XLPE) and be capable of storing up to 35 gallons. The secondary containment on the mini-bulk tanks will provide at least 115% of the inner tank's capacity, complying with CRF-264.193. A catalogue description of the mini-bulk tanks is attached.

Empty hazardous material drums will be stored in the building before they are shipped to their return for reuse or shipment to a drum reconditioner or hazardous waste disposal site. No hazardous materials storage units will be cleaned on-site.

At the termination of the project, all chemicals (hazardous and non-hazardous) will be removed from the project site and disposed of in accordance with Federal, State and Local requirements. Recordkeeping of chemical deliveries and use will ensure that no materials are left behind at project completion.

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 5

Chemical Feed Equipment

The chemicals will be transferred from the mini-bulk tanks to points of injection by chemical metering pumps constructed of materials compatible with the chemical. The metering pumps will be mounted directly on top of, or directly adjacent to, the mini-bulk storage tanks. Chemicals will be pumped through high-pressure polymeric tubing, also constructed of a material compatible with the chemical. Secondary containment for the high-pressure polymeric tubing will be provided by a PVC hose with a tee connection at its lowest point. The tee connection will divert chemicals to a covered container (i.e. a separate spill tank for each chemical) with a capacity equivalent to 24-hours of metering pump output. The tank will be checked by the operator each morning when he/she arrives. Any spillage will be properly disposed.

Safety Equipment

The pilot plant will have the following safety equipment:

- Emergency eyewash/drench hoses located near the mini-bulk chemical feed equipment. They will drain to the floor and be contained. I.e., the floor drains will be equipped with valves that are closed. The valves will only be opened during housecleaning activities after the operators confirm that the floor area is free from any chemical or other contaminant spills.
- Chemical spill cleanup/control kits.
- Safety face shields, goggles, aprons & gloves.
- Fire extinguishers.
- First aid kit.
- Hazard identification labels (using NFPA rating numbers) on each mini-bulk storage tank and dry chemical storage area.
- Hazard identification labels (using NFPA rating numbers identifying the most hazardous chemical onsite) at each entrance to the building.
- Automatic dialer that will call the pilot plant operator after normal working hours, in the event of an emergency. (Note that the pilot plant will operate 8hrs/day, 7days/week. The plant will be shut down in the event it will be un-staffed for more than 24-hours. [E.g., holiday.] The operator on duty will respond to hazardous material releases during and after hours.)

Chlorine Dioxide

Chlorine dioxide (CD) will be used to control biological activity in the treatment processes. The CD concentration in the carrier water will be between 500 – 3,000 mg/L. The maximum

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 6

demand for CD will be approximately 0.5 gallons per hour for a combined total of 12 gallons per day. CD will be generated in an electrochemical process that uses water, a 25% sodium chlorite solution, and electricity to produce chlorine dioxide.

The CD gas is generated in the anolyte solution of the electrochemical cell. The anolyte solution is cascaded down a media in a sealed stripper column to strip CD gas from the anolyte solution. The CD gas is then transferred to a sealed absorption column, via a gas transfer pump, where it is absorbed in water. The absorption column contains about 12 gallons of solution and operates in a closed loop (i.e., under negative pressure). The CD solution is pumped to the pilot plant treatment process from this 12-gallon absorption column. The CD gas in the head space of the 12-gallon absorption column is recycled back to the sealed stripper column. The concentration of CD in the water of the absorption column is adjustable from 500 to 3,000 mg/L by controlling the flow of water. A vent line connects the absorption column to the stripper column. This vent line allows any off-gassing to be recycled back to the stripper column. A CD metering pump, integral to the CD generator, transfers the CD solution to its point of injection.

The CD generator produces three bi-products: hydrogen gas; an anolyte with a CD concentration of 500 – 700 mg/L; and a catholyte: a 20% solution of sodium hydroxide. Under continuous operation, hydrogen gas, 0.5% volume, is discharged from the CD generator to atmosphere by a blower. There is a blower flow switch on the stack that triggers system shutdown in the event overflow falls below a set point. The Monterey Bay Unified Air Pollution Control District has confirmed that no permit is required for a discharge of hydrogen gas. Approximately 0.5 gallons of the anolyte and 1.0 gallon of the catholyte are produced per day under continuous operation. Based upon the demands of the pilot plant, it is expected that the CD generator will only operate for about 3 hours per day. Thus, the quantities of anolyte and catholyte are expected to be one-eighth of the amounts mentioned above. The anolyte and catholyte will be combined and transferred to the waste residuals tanks.

The bacteria in the waste residuals will consume the trace amounts of chlorine dioxide in the waste stream before it is discharged to the sanitary sewer. The small amounts of sodium hydroxide being discharged to the waste residual tanks will not measurably increase the pH of the waste residuals.

The CD generator has the following safety features:

- Shutdown on low air flow through stripper column.
- Shutdown if anolyte loop flow is insufficient.
- Shutdown if anolyte pH does not change over specified time.

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 7

- Shutdown on loss of RO water supply pressure.
- Shutdown on hydrogen blower failure.
- Shutdown on high cell temperature.
- Shutdown on high cell amperage.
- Shutdown if analyte loop pH is below specified range.
- Shutdown of dosing pumps if absorber level is low.
- Shutdown of unit if absorber level is too high.
- Shutdown of unit and dosing pumps if permissive is tripped.
- Shutdown of dosing pumps if pilot plant operating conditions not met.
- Emergency shutdown button (mushroom type).
- CD gas leak sensor/alarm in the pilot plant connected through SCADA to the automatic dialer. The on-duty operator (who will be staying in Santa Cruz) will respond to the dialer.

A copy of the manufacturer's brochure is attached for reference. The brochure show a simplified process flow diagram and safety features.

Sodium Chlorite

A 25% solution of sodium chlorite is used in the production of chlorine dioxide. Since the CD generator will only be operated intermittently throughout the day, the anticipated demand for sodium chlorite will be approximately 0.5 gallons per day.

Ferric Chloride

A 39% solution of ferric chloride will be used as a coagulant to remove suspended solids, colloids, and dissolved organics from the seawater. Ferric chloride will be dosed to two separate treatment process trains from two mini-bulk tanks. The maximum demand for ferric chloride will be 0.08 gallons per hour per dosing pump for a combined total of 3.8 gallons per day.

Cat Flocc L

Cat Flocc L may be used as a coagulant aid. If Cat Flocc L is used in the pilot study, it will only be dosed to only one treatment process train at a maximum rate of 0.003 gallons per hour for a combined total of 0.07 gallons per day.

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 8

Cytec A-100

Cytec A-100 may also be used as a coagulant aid. If Cytec A-100 is used in the pilot study, it will only be dosed to only one treatment process train at a maximum rate of 0.004 gallons per hour for a combined total of 0.1 gallons per day.

Sodium Hypochlorite

A 12% solution of sodium hypochlorite will be used to control biological activity in up to two membrane process streams. The maximum demand for sodium hypochlorite will be 0.01 gallons per hour per metering pump for a combined total of up to 0.5 gallons per day.

Sulfuric Acid

A 93% solution of sulfuric acid will be used to reduce the pH of the seawater in two treatment process trains. The maximum demand for sulfuric acid will be 0.03 gallons per hour per metering pump for a combined total of 1.25 gallons per day.

Antiscalant

Antiscalant will be used to control mineral fouling of the reverse osmosis membranes. It is anticipated that antiscalant will be used in two RO units. The maximum demand for antiscalant will be 0.003 gallons per hour per metering pump for a combined total of 0.14 gallons per day.

The antiscalant is a proprietary chemical formula; therefore, the chemical formulation is not available. The manufacturer states that none of the chemicals are listed as potentially hazardous.

Antifoulant

Antifoulant will be used to control colloidal fouling of the reverse osmosis membranes. It is anticipated that antifoulant will be used in two RO treatment units. The maximum demand for antifoulant will be 0.006 gallons per hour per metering pump for a combined total of 0.28 gallons per day.

The antifoulant is a proprietary chemical formula; therefore, the chemical formulation is not available. The manufacturer states that none of the chemicals are listed as potentially hazardous.

CDM

Santa Cruz SWRO Pilot Study

May 26, 2006

Page 9

Citric Acid

Powered citric acid will be used to create a 2% solution of citric acid to clean the MF, UF and RO membranes. Typically, the cleaning solutions are made on an as-needed basis. The cleaning volume will not exceed 100 gallons of a 2% solution of citric acid at any given time. The maximum amount of powered citric acid used per cleaning is not expected to exceed 17 pounds per cleaning. It is expected that no more than two citric acid cleanings will be performed during any given month.

Sodium Hydroxide

A 50% solution of sodium hydroxide will be used to clean the MF, UF and RO membranes. Typically, the cleaning solutions are made on an as-needed basis. The cleaning volume will not exceed 100 gallons of a 2% solution of sodium hydroxide at any given time. The maximum amount of a 50% solution of sodium hydroxide used per cleaning is not expected to exceed 1.3 gallons per cleaning. It is expected that no more than two sodium hydroxide cleanings will be performed during any given month.

MSDS Sheets

MSDS sheets for all chemicals that may be used at the pilot plant are available upon request as well as at the job site.

EXHIBIT I**Coastal Access and Improvements**

In anticipation of approval of the Marine Science Campus Coastal Long-Range Development Plan (CLRDP), the pilot-scale desalination project shall provide the first phase of coastal access improvements, including storm water improvements, along McAllister Way south of the Ocean Health Building toward the existing overlook on the coastal bluff. The University shall provide the second phase concurrent with its first development project authorized for the Lower Terrace under CLRDP.

The following is a description of Phase One and Phase Two of the coastal access improvements. A conceptual rendering of the improvements and phasing is attached as Figure 1 of this Exhibit I.

Phase One Concurrent with Pilot-Scale Desalination Project

The City shall provide, as part of its physical development of the pilot-scale desalination project coastal access improvements, including storm water improvements, shown as Phase One on the attached Figure 1, *Conceptual Plan, Long Marine Lab Public Access & Pilot Study* prepared by Janecki & Associates, dated May 2, 2006 (with phase annotations). The City shall provide all access improvements with the exception that the University shall provide all landscape planting and plant maintenance described in the Phase One improvements.

- Remove asphalt paving on roadbed from the NE corner of Younger Building to the Phase Two match line.
- Replace paving with stable gold color aggregate product consistent with established pedestrian paths on site in order to convey the visual message of a continuous pathway to the overlook at ocean bluff.
- Add concrete valley gutter to the western edge of the roadway to capture drainage and direct through existing Stormceptor contaminant removal system via drop inlet and culvert.
- Install two coastal access signs, one near the NE corner of Younger Building, the other at the south end of Phase One improvements.
- Install an interpretive panel about the pilot project at the NE corner of the pilot plant facility.
- Add native plantings along the west side of McAllister way.

The following are preliminary conceptual storm water improvements to be completed in Phase One. Further development and verification consistent with good engineering practice must be completed by Licensee.

- Capture storm water from new valley gutter along west edge of McAllister Way (noted above) and tie into existing storm drain drop inlet on the east edge of McAllister Way near the southwest corner of the Seymour Center, which connects to the existing engineered treatment system.
- Storm water for the area along the proposed Pilot Plant building which is proposed for parking to be captured by new valley gutter (noted above). Tie storm water captured at this location to existing engineered treatment system.
- Storm water from the remainder of the area may be tied to landscaped areas, to be confirmed by licensee's civil engineer.
- All urban contaminants shall be captured and treated by either a bioengineering method or an engineered treatment system.

Exhibit I

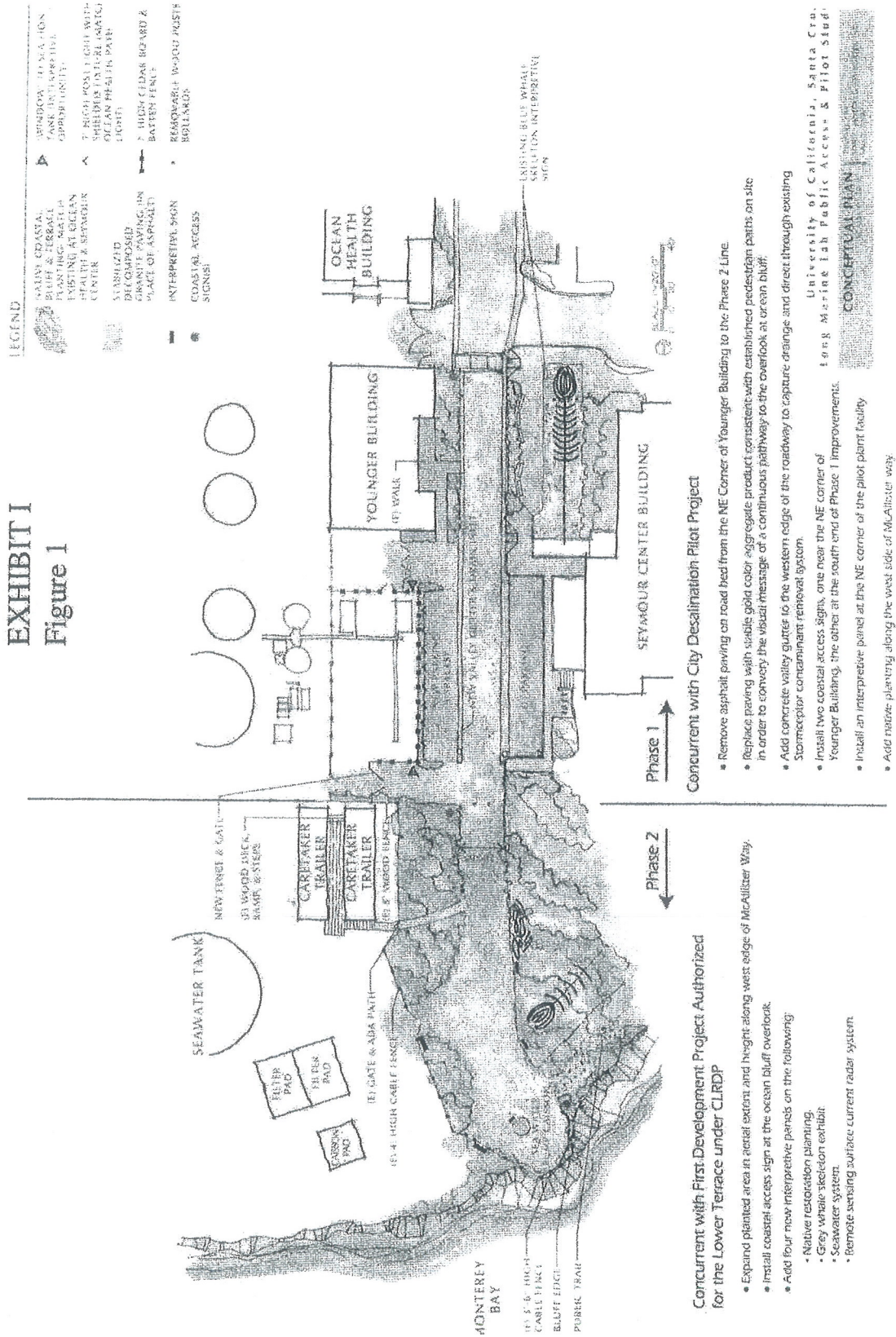
Phase 2 Concurrent with First Development Project Authorized for the Lower Terrace under CLRDP

The University shall provide concurrent with first development project authorized for the Lower Terrace under CLRDP the coastal access improvements shown as Phase Two on the attached *Conceptual Plan, Long Marine Lab Public Access & Pilot Study* prepared by Janecki & Associates, dated May 2, 2006 (with phase annotations).

- Expand planted areas in extent and height along west edge of access path on McAllister Way alignment including visual screening of the caretaker units.
- Install coastal access sign at the ocean bluff overlook.
- Add four new interpretive panels related to some or all of the following elements of marine research, etc.:
 - Native restoration planting
 - Grey whale skeleton exhibit
 - Seawater system
 - National Marine Sanctuary
 - Remote sensing surface current radar system

Exhibit I

EXHIBIT I
Figure 1



1g. Correspondence Received

None received

1h. Project Manager

Steve Davenport

phone: 831-459-4771

email: sldaven@ucsc.edu

2. University Approval Documentation

June 10, 2009

VICE CHANCELLOR THOMAS VANI

Business and Administrative Services

**Re: Project Approval
Outdoor Research Yard and Public Access Improvements**

Dear Tom:

Regents Delegation of Authority DA 2136 concerning approval of project design delegates to Chancellors "the authority to approve design for projects with a total individual project cost not exceeding \$5,000,000." Projects with a total cost between \$5,000,000 and \$10,000,000 require approval by the Vice President for Budget. Projects over \$10,000,000 require design approval by the Committee on Grounds and Buildings of The Regents.

Notice of Impending Development (NOID) 09-1 Outdoor Research Yard and Public Access Improvements falls within the authority of the UC Santa Cruz Chancellor for approval.

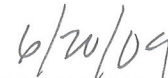
For Chancellor Blumenthal's consideration, NOID Appendix A "Project Report" includes the following information, all of which have been prepared in consultation with the Office of the President and Office of General Counsel:

- Project Description
- Environmental Compliance Documentation

Physical Planning and Construction recommended approval:




Frank Zwart, AIA Campus Architect
Associate Vice Chancellor Physical Planning and Construction



Date

Concurrence:



Thomas Vani, Vice Chancellor, Business and Administrative Services



Date

Reviewed by:



(initials)
John Barnes
Director of Campus Planning

ITEM FOR ACTION

FOR CHANCELLOR APPROVAL

NOID 09-1 Outdoor Research Yard Expansion and Public Access Improvements

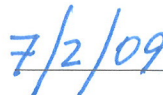
Associate Vice Chancellor for Physical Planning and Construction recommends that, upon review and consideration of the potential for environmental consequences of the proposed Outdoor Research Yard Expansion and Public Access Improvements Project (the Project) as described in the Project Report of Notice of Impending Development 09-1, and in accordance with University Delegation of Authority, the Chancellor of the Santa Cruz campus:

1. Determine the Outdoor Research Yard Expansion and Public Access Improvements Project to be Categorical Exempt under the California Environmental Quality Act (CEQA), as described in the Project Report (see Section 1); the Environmental Compliance Documentation (see Section 3); and
2. Approve the Outdoor Research Yard Expansion and Public Access Improvements Project

The Project would not result in any significant environmental impacts. The University has determined that the Project is Categorical Exempt from the provisions of CEQA under exemptions Class 1 (Existing Facilities), Class 4 (Minor Alterations to Land), and Class 11 (Accessory Structures), as shown in the Project's Environmental Impact Classification form (see Section 3 Environmental Compliance Documents).

APPROVED


Chancellor


Date

4. Plans, Specifications, etc. *(this section used if project documentation is large format or extensive)*

5. Technical Reports

1. **Army Corps of Engineers Jurisdictional Delineation**
Letter received October 1, 2009
Attachment 1, Map dated March 30, 2007



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

00101 2008

Regulatory Division

SUBJECT: File Number 27400S

Mr. Terry Huffman
828 Mission Avenue
San Rafael, California, 94901

Dear Mr. Huffman:

This letter is written in response to your submittal of October 25, 2002 requesting confirmation of the extent of Corps of Engineers jurisdiction at Terrace Point, in the City of Santa Cruz, Santa Cruz County, California.

Enclosed is a map showing the extent and location of Corps of Engineers jurisdiction. We have based this jurisdictional delineation on the current conditions on the site as verified during a site visit performed by our staff on March 27, 2007. A change in those conditions may also change the extent of our jurisdiction. This jurisdictional delineation will expire in five years from the date of this letter. However, if there has been a change in circumstances that affects the extent of Corps jurisdiction, a revision may be completed before that date.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

If your proposed activity is within our jurisdiction a permit may be required for your project. Application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. To avoid delays it is essential that you enter the file number at the top of this letter into Item No. 1 of the application. The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your project, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a Public Notice for a period of 30 days.

If an Individual permit is required to authorize your project, it will be necessary for you to demonstrate to the Corps that your proposed fill is necessary because there are no practicable alternatives as outlined in the U.S. Environmental Protection Agency's Section 404(b) (1) Guidelines. A copy of the Guidelines is enclosed to aid you in preparation of this alternative analysis. You are advised to refrain from starting your proposed activity until we complete our

review of your application and issue you the required authorization. Commencement of work before you receive our notification will be interpreted as a violation of our regulations.

Our Nationwide Permits and Regional General Permits have already been issued to authorize certain activities provided specified conditions are met. Your completed application will enable us to confirm that your activity is already authorized. You are advised to refrain from starting your proposed activity until we make a determination that the project is covered by an existing permit. Commencement of work before you receive our notification will be interpreted as a violation of our regulations.

You are advised that the Corps has established an Administrative Appeal Process, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; March 28, 2000), and outlined in the enclosed flowchart and "Notification of Administrative Appeal Options, Process, and Request for Appeal" form (NAO-RFA). If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to the District Engineer for reconsideration or submit a completed NAO-RFA form to the Division Engineer to initiate the appeal process. You will relinquish all rights to appeal, unless the Corps receives new information or a completed NAO-RFA form within sixty (60) days of the date of the NAO-RFA.

Should you have any questions regarding this matter, please call Nina Cavett of our Regulatory Division at 415-503-6765. Please address all correspondence to the Regulatory Division and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available online at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,



Jane M. Hicks
Chief, Regulatory Division

Enclosures

Copies Furnished

CA SWRCB, Sacramento, CA
CA CC, Santa Cruz, CA
CA RWQCB, San Luis Obispo, CA

**Attachment 1. Areas Subject to CORPS Jurisdiction
Under Section 404 of the Clean Water Act, Terrace Point,
Santa Cruz, CA**

- Legend**
- WOUS/Drainage Subject to CORPS Section 404 Jurisdiction (0.2 AC)
 - ⊆ Wetlands Subject to CORPS Section 404 Jurisdiction (8.21 AC)
 - CORPS/EPA Delineation Boundary
 - Younger Lagoon Natural Reserve Boundary



1 inch equals 100 feet

Map Dated March 30, 2007

NOI 09-1-100-1000
Project: Santa Cruz Bay Bridge and Coastal Access
Phase 1 - 100-1000
Prepared by: [unreadable]
Date: [unreadable]

