Appendix H
Wetland Assessments
SAIC
May, November 2006

Evaluation of Wetland Areas on the Cabrillo Business Park Project Site with Regard to Consistency with City of Goleta General Plan Polices CE 3.5, Protection of Wetlands Outside the Coastal Zone, and CE 3.6, Wetland Mitigation

November 3, 2006

1. Introduction

The purpose of this analysis is to assess each of the previously defined twelve wetland areas on the Cabrillo Business Park (CBP) project site proposed to be filled relative to the City of Goleta General Plan Policy CE 3.5 and CE 3.6 (provided in attachment A), to assist in the determination of the project's consistency with these policies. This analysis was prepared by Thomas W. Mulroy, Ph.D. and Tamara Klug, B.A., Science Applications International Corporation, Santa Barbara, California for the City of Goleta, Planning and Environmental Services Department.***General Plan Policy CE 3.5***

The following questions are addressed relative to each of the twelve wetlands identified on site, as needed to address policy consistency:

- *Size*: is it relatively "small";
- *Isolation*: is it physically separated or disconnected from other wetland areas onsite;
- *Connection to a Larger Hydrological System*: is it part of a larger hydrological wetland complex; and
- *Functional habitat value*: is it productive in terms of groundwater recharge, nutrient removal, sediment stabilization, includes rare or endangered species, has a known or probable wildlife habitat use, provides aquatic habitat, or provides recreational uses.

If the wetland area is deemed not to satisfy General Plan Policy CE 3.5 criteria to allow for its filling, determine the extent of a buffer area extending from the wetland to ensure the biological integrity and a barrier to human intrusion.

General Plan Policy CE 3.6

If a wetland area satisfies satisfy General Plan Policy CE 3.5 criteria to allow for its filling, determine the appropriate ratio of creation or restoration of wetlands to area lost at between 2:1 or 3:1, given the project proposal to restore and enhance the eastern CBP wetland areas.

2. Methodology

This policy consistency assessment was based on a synthesis of existing data coupled with a reconnaissance visit. Key documents consulted include previous wetland delineation and restoration plans prepared for the current project design (i.e., Woodward-Clyde [1998], URS Corporation [2000], SAIC [2006] and Dudek [2006a, 2006b]) as well as earlier wetland delineations by Dames & Moore (1992, 1993, included in Woodward-Clyde 1998). The reconnaissance site visit was conducted on October 9, 2006 by Tamara Klug and Tom Mulroy.

The objective of the site visit was to define a general context for the site's resources, such that it was limited to observing wetland features observable from the margins of Los Carneros Road. Detailed surveying of onsite wetland vegetation had been recently accomplished (SAIC 2006). The above-referenced reports refer to the wetlands identified on site as falling into two groups corresponding to their location: the western uplands and the eastern lowlands. The individual features identified as wetlands that would be impacted by the project have been given letter designations (Dudek 2006b, Figure 1). Wetlands B through J are in the western uplands and wetlands K, L, and M are in the eastern lowlands. The largest and most contiguous wetlands on the project site are also located in the eastern lowlands area. These are proposed to be expanded and protected as part of a wetlands restoration and enhancement plan as mitigation for the wetland impacts of the project, and are not addressed in this analysis.

3. Results and Discussion

The project site has been significantly altered by farming, grading, filling and land development activities since the 1800s and significant alteration of the topography had occurred since the 1920s (Woodward-Clyde 1998). Analysis of aerial photographs indicates that the western uplands were used for orchards, grazing, a dairy operation, and field crops. A very short, shallow natural drainage was apparently present near the southern boundary of the site. This was completely indistinguishable from the adjoining areas in some years due to plowing and planting in the bed of the drainage. Beginning in the 1940s, ditches were constructed to convey runoff into this drainage from the rest of the upland area in the western part of the site, and some of these ditches still remain at the site. In all cases, these ditches were clearly constructed in upland areas used for ranch facilities or for field crops (Woodward-Clyde 1998).

A remnant of the natural drainage appears to remain at the southern end of the project site, extending about 450 feet from the site boundary and traversing wetland areas H, I, and J identified below. Although this drainage appears to be in its approximate original location, it has undoubtedly been altered during the past 100 years. In addition, runoff from nearby buildings and parking lots has been captured and directed through man-made ditches to this drainage remnant, changing its hydrology. This runoff is conveyed through this drainage remnant and appears to connect to the adjacent parcel to the south, a non-tidal marsh area owned and managed by the California Department of Fish and Game (URS 2000) that is considered to be part of Goleta Slough. The CDFG property is connected to the Goleta Slough through a culvert with a tide gate under Los Carneros Road (Woodward-Clyde 1998).

Access to the interior of the CBP site was not provided and so it was not possible to confirm the current status of the hydrological connection between the project site and the CDFG property. It is reasonable to assume, however, that a connection between the west side of the project site and the CDFG property still exists, based on previous reports and observations. Because of the small watershed area of the drainage on the project site, the volume of water potentially flowing from the project site onto the CDFG property is small and would comprise a minor contribution to the hydrologic budget of the CDFG site.

According to Woodward-Clyde (1998), the lowlands on the east side of the project site were located in the western portion of the delta of Tecolotito Creek. This portion of the site had been farmed periodically and there is evidence of periodic flooding and extensive unvegetated salt flats in the historic air photos. According to URS (2000), substantial earthmoving on the site was associated with the construction of a simulated lunar landscape in the mid-1950s to test the lunar roving vehicle. Fill of up to seven feet was placed in the lowlands, and a trench four feet deep was dug. A racetrack was also constructed around the perimeter of the lowlands. Most of this fill was removed and deposited on the east and south ends of the site in the 1970s (URS 2000). One of the wetlands in the northern part of the eastern lowlands may be a remnant of this previous grading (Woodward-Clyde 1998 and URS 2000). It appears, however, that much of the lowland area on the eastern part of the property lies near or possibly lower than the natural grade, with elevations that range from 13 feet MSL at the north end of the lowlands to 6.5 feet MSL at the south end (Woodward-Clyde 1998). A shallow 10- to 20-foot wide man-made drainage swale terminating in a blocked culvert is located in the eastern part of the site parallel to and bordering Los Carneros Road. There was no evidence of recent maintenance of the culvert. Without running water, a detailed inspection, including exploring inside the culvert behind the inlet grates, would be needed to determine connectivity. It appears that the culvert pipe under Los Carneros Road could not be directly viewed from the Cabrillo Business Park project site. The drainage culvert under Los Carneros Road appears to makes a right angle (T-shape) junction with a culvert parallel to the west side of Los Carneros Road. The latter culvert had drop inlets with grates on both sides of the driveway to the existing moving and storage yard.

Table 1 (at the end of this report) provides a summary of characteristics of wetlands that would be impacted at the proposed Cabrillo Business Park Site relative to their consistency with GCP Policy CE 3.5. A discussion of the individual factors and their relationship to consistency with the policy are presented below.

Summary of Factors in Assessing Project Wetlands Consistency with GCP Policy CE 3.5

Small size. Most of the wetland areas are very small and less than 0.1 acre in extent. The average size of wetlands that would be removed is 0.09 acres and the total that would be removed is 1.12 acres. Approximately 3.99 acres would remain on-site, 3.80 of which would be within the proposed restoration area. The largest of the wetland areas to be removed is 0.23 acre in size, and this would be replaced. By way of comparison, the wetlands on the CDFG property immediately south of the site total approximately 7.1 acres of marsh habitat. **Therefore, because of their generally small size, filling of onsite wetlands B through M would be consistent with GCP Policy CE 3.5.**

*Isolation***.** The sites are isolated from one another by distance and intervening upland habitat, except for the sites in man-made ditches on the western uplands that are generally connected to one another, but are isolated from other sites on the property. Site K along the eastern site boundary is a shallow, man-made swale that is connected to wetlands north of it (proposed for preservation and enhancement) and leads to a culvert that drains under Los Carneros Road into a freshwater marsh that is part of the Goleta Slough. The culvert is identified in various reports as being blocked and as discussed above it does not appear to be maintained. **Therefore, because of their general isolation, filling of onsite wetlands B through M would be consistent with GCP Policy CE 3.5.**

Connection to a larger hydrologic system. The CBP site is located at the margins of the Glen Annie/Tecolotito Creeks watershed and no tributaries pass through the site (URS 2000). The hydrologic source for on-site wetlands is therefore limited to direct precipitation input and runoff from other parts of the project property and adjacent paved areas (i.e., post office parking lot adjacent to the SE Corner of the project property). Connection of wetland areas on the eastern part of the site to the Goleta Slough during flooding would have been possible prior to site development. Currently, a combination of topography related to development of the site and Los Carneros Road, as well as a blocked culvert underneath Los Carneros Road (Woodward-Clyde 1998; URS 2000), prevent connection of the wetland areas on site with the Slough; the wetland areas function independently without interconnection. If the culvert were unblocked, which seems feasible, it would enable waters from the eastern portion of the site to flow into the Goleta Slough during high flood events. Establishment of a connection to the wetlands in Goleta Slough is proposed as part of the Wetland Restoration Plan for the Project (URS 2000). Modified remnants of a natural drainage appear to remain on the western lowlands part of the property encompassing areas H, I, and J. This drainage appears to flow onto the CDFG property, south of the site (Woodward-Clyde 1998 and URS, Greiner, Woodward-Clyde [URS] 2000). **Therefore, because of their general lack of a connection to a larger hydrologic system, filling of onsite wetlands B through M would be consistent with GCP Policy CE 3.5.**

Productive or functional habitat value. Wetland functions and values were discussed by Woodward-Clyde (1998) and URS 2000). The small size, isolation, nature of the vegetation, and limited duration of saturated conditions contribute to limited value as wildlife habitat (seasonal use by common species) and limited hydrologic functions such as groundwater recharge and nutrient removal. There is no function as habitat for fish or other species requiring perennial water. Use as aquatic habitat would be limited to aquatic lifestages of insects, other aquatic invertebrates that can inhabit temporary waters, and larvae of terrestrial amphibians such as Pacific chorus frog (*Pseudacris regilla*). No endangered, threatened, or rare species are known or expected to inhabit or use these sites. **Therefore, because of their general lack of productive or functional habitat value, filling of onsite wetlands B through M would be consistent with GCP Policy CE 3.5.**

Recreational uses. The wetlands currently do not serve recreational uses due to their location on fenced private property and limited visibility from areas accessible to the public. **Therefore, because of their lack of recreational uses, filling of onsite wetlands B through M would be consistent with GCP Policy CE 3.5.**

GCP Policy CE 3.6, Wetland Mitigation

Provision of mitigation measures. On-site mitigation generally as proposed in URS (2000) appears to be feasible and would improve overall wetland habitat functions and values on site. The proposed plan would preserve, expand, and enhance the largest and most productive wetlands on site in the eastern part of the project property. The resulting wetland complex would be provided with a suitable buffer with trails allowing recreational viewing of the wetlands. The URS (2000) wetland restoration plan would need to be revised to provide mitigation for additional onsite wetlands identified by SAIC in 2006. The URS (2000) wetland restoration plan includes replacement of the blocked culvert under Los Carneros Road to provide drainage toward the airport property but it is unclear from the plan how this would function if Area K is developed.

Additionally, the functions of the natural drainage remnants on the west side of the property could be improved by developing an effective engineered system for floodwater detention and nutrient absorption that would also provide habitat values, expanding on an existing proposal by the Applicant. This engineered system would require a minimum buffer from other development dictated by engineering standards (rather than biological standards); the key purpose would be to minimize the input of nutrients and pollutants in runoff from the site into the CDFG property. A properly designed system at this location would more effectively replace the function provided by the modified natural drainage remnants represented by wetland areas H, I, and J and satisfy the intent of Policy CE 3.6. In addition, it is recommended that a 50-foot separation from Cabrillo Business Park structural development (Building 10 currently) and the CDF&G wetlands be maintained, with installation of transitional wetland vegetation, where feasible, or other buffering vegetation between the wetlands and structures along the southern property boundary as part of the landscape plan.

Some improvements to upland habitat in the general restoration area may be included to improve overall function and habitat buffering.

Excluding the engineered floodwater detention/bioswale system described above, an overall mitigation ratio of 3:1 would adequately mitigate the loss of wetland sites B through M, identified above, given their small size, isolation, and limited ecological function. The ratio may include some upland habitat improvements as determined by site constraints in the eastern lowlands area that include provisions of adequate buffer areas.

Table 1. Summary of Wetlands Characteristics That Would be Impacted at the Proposed Cabrillo Business Park Site, and Consistency with City of Goleta Comprehensive Plan Policy CE 3.5.

Area	*Approx. Size (Acres)*	*Isolation*	*Connection to a larger hydrological System*	*Functional Habitat Value*	*Consistency with GCP Policy CE 3.5*	*Comments*[2]
WESTERN UPLANDS						
Area B – Isolated depression	0.03	Yes	No	Low	Yes	Italian ryegrass, common spikerush (N), curly dock. Standing water in 1998.
Area C- Ditch	0.02	Yes[1]	No[3]	Low	Yes	Barnyard grass. Concrete banks.
Area D- Isolated depression	0.004	Yes	No	Low	Yes	Italian ryegrass, curly dock.
Area E- Isolated depression	0.03	Yes	No	Low	Yes	Italian ryegrass, curly dock, toad rush (N).
Area F- Isolated ditch	0.02	Yes[1]	No[3]	Low	Yes	Alkali bulrush (N)
Area G- Ditch	0.05	Yes[1]	No[3]	Low	Yes	Barnyardgrass

Area H-Previously altered drainage remnant	0.15	No	Yes	Low	Yes[4]	Barnyardgrass. Areas H, I, and J are remnant segments of a small natural intermittent drainage that drains toward the Fish and Game (CDFG) Property. Suggest creating a detention basin and bioswale in the vicinity of Area J, where it could contribute to improved quality of site runoff entering the CDFG property. Areas H, I, and J have very low habitat value or significance apart from the fact that they drain into the CDFG property.

Table 1. Summary of Wetlands Characteristics That Would be Impacted at the Proposed Cabrillo Business Park Site, and Consistency with City of Goleta Comprehensive Plan Policy CE 3.5. (continued)

Area	*Approx. Size (Acres)*	*Isolation*	*Connection to a larger hydrological System*	*Functional Habitat Value*	*Consistency with GCP Policy CE 3.5*	*Comments*[2]
WESTERN UPLANDS (CONTINUED)						
Area I-Previously altered drainage remnant	0.19	No	Yes	Low	Yes[4]	Barnyardgrass, Harding grass. This is a remnant of a natural drainage that drains toward the Fish and Game Property. Suggest creating a detention basin and bioswale as described under Area H.
Area J-Previously altered drainage remnant	0.23	No	Yes	Low	Yes[4]	Barnyardgrass, Harding grass. This is a remnant of a natural drainage that drains toward the Fish and Game Property. Suggest creating a detention basin and bioswale as described under Area H.
EASTERN LOWLANDS						
Area K-Ditch	0.20	No	Yes	Low	Yes	Common spikerush (N). Connected to wetlands proposed for preservation and enhancement in the eastern lowland portion of the site and leads to a blocked culvert under Los Carneros Road, which would connect it to marsh habitat on the airport property. The wetland exists independent of the status of a connection through the culvert due to its low topographic position on the CBP site.
Area L-Isolated depression	0.11	Yes	No	Low	Yes	Common spikerush (N).
Area M-Isolated depression	0.09	Yes	No	Low	Yes	Cattail (N). Additional saturated area is dominated by upland species (result of leaky pipe). An isolated willow is nearby.

Table 1. Summary of characteristics of wetlands that would be impacted at the proposed Cabrillo Business Park Site and consistency with Goleta Comprehensive Plan Policy CE 3.5 (continued)

Notes:

1. The seasonal wetlands identified in ditches are physically separated and isolated from other wetlands on site but are generally connected to other seasonal wetlands in ditches on the western part of the site.
2. Dominant plant species are identified based on Woodward-Clyde (1998) or (SAIC 2006). N = native species. Unless indicated, all plant species listed for these wetland sites are non-native.
3. Ditches created in uplands are not considered part of a larger hydrological system in a beneficial sense for this policy analysis, although they are capable of conveying runoff and pollutants from the site during runoff events. They have very limited habitat or functional value. Mitigation identified would replace and improve the principal function served by the wetland features that have developed in these ditches.
4. Natural drainage remnants that connect to existing wetlands on the CDFG site were probably ephemeral drainages prior to developments that increased runoff from the site. Currently they are vegetated by dense non-native grasses and have very limited habitat value. Their main beneficial functions would be improved and replaced by appropriately designed and sized detention basins/bioswales that would retain runoff, release it slowly, and provide for nutrient uptake by plants., expanding on a proposal by the applicant

References Cited

Dudek 2006a. Cabrillo Business Park Wetlands Assessment. Letter to Russ Goodman, President, Sares-Regis Group, Oxnard, California from Saudamini Sindhar, Dudek, Santa Barbara, CA. September 11.

Dudek 2006b. Summary of Cabrillo Business Park Wetland Analysis with Respect to Goleta Community Plan (GCP) Conservation Element Policy CE 3.5. Memorandum to Patty Miller and Cindy Moore, City of Goleta, from Kenneth Marshall, Dudek, Santa Barbara, CA. September 20.

SAIC 2006. Cabrillo Business Park Wetland Re-evaluation. Memorandum to Patty Miller and Cindy Moore, City of Goleta, from David Stone and Tamara Klug, SAIC, Santa Barbara, California. May 30.

URS Greiner Woodward-Clyde (URS). 2000. Wetland Restoration Plan: Cabrillo Business Park. Prepared for SARES REGIS Group, Oxnard, California by URS Greiner Woodward-Clyde, Santa Barbara, California. March.

Woodward-Clyde 1998. Inventory of Wetlands and Other Native Habitats: Cabrillo Business Center. Prepared for SARES REGIS Group, Oxnard, California by Woodward-Clyde, Santa Barbara, California. July

Attachment A

Policy from Conservation Element of the Goleta General Plan/Coastal Land Use Plan, page 4-17:

CE 3.5 Protection of Wetlands Outside the Coastal Zone [GP]. The biological productivity and the quality of inland wetlands shall be protected and, where feasible, restored. The filling of wetlands outside the Coastal Zone is prohibited unless it can be demonstrated that:

a. The wetland area is small, isolated, not part of a larger hydrologic system, and generally lacks productive or functional habitat value.

b. The extent of the fill is the least amount necessary to allow reasonable development of a use allowed by the Land Use Element.

c. Mitigation measures will be provided to minimize adverse environmental effects, including restoration or enhancement of habitat values of wetlands at another location on the site or at another appropriate offsite location within the City.

A wetland buffer of a sufficient size to ensure the biological integrity and preservation of the wetland shall be required. Generally a wetland buffer shall be 100 feet, but in no case shall a wetland buffer be less than 50 feet. The buffer area shall serve as transitional habitat with native vegetation and shall provide physical barriers to human intrusion.

CE 3.6 Mitigation of Wetland Fill [GP/CP]. Where any dike or fill development is permitted in wetlands in accordance with the Coastal Act and the policies of this plan, at a minimum mitigation measures shall include creation or substantial restoration of wetlands of a similar type. Adverse impacts shall be mitigated at a ratio of 3:1 unless the project proponent provides evidence that the creation or restoration of a lesser area of wetlands will fully mitigate the adverse impacts of the fill. However, in no event shall the mitigation ratio be less than 2:1. All mitigation measures are subject to the requirements of CE 1.7.

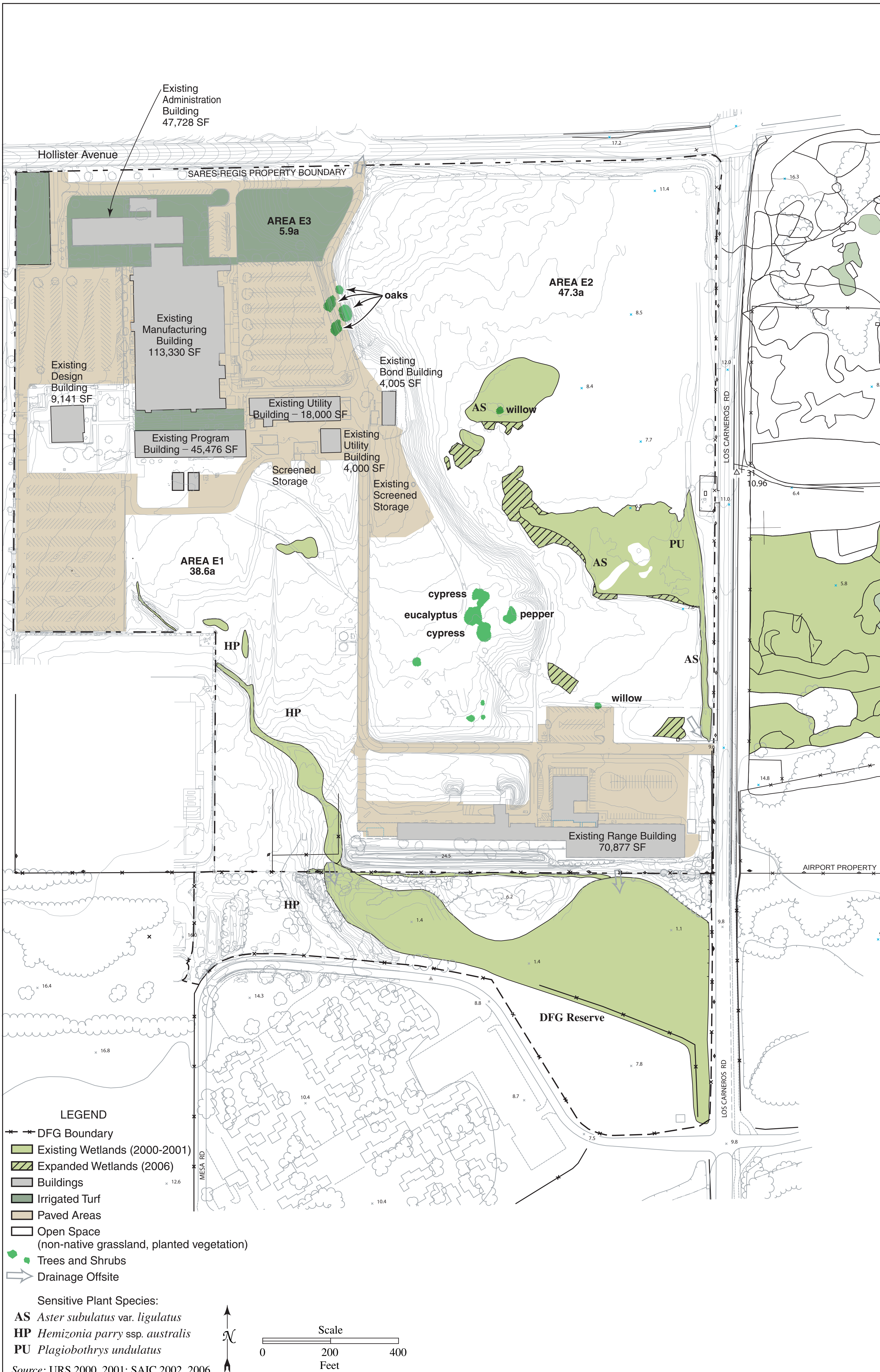

Figure 1. Habitats and Sensitive Plant Species on the Cabrillo Business Park Site and Adjacent Areas