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STAFF REPORT: REGULAR CALENDAR

APPLICATION NUMBER: 5-04-192 (Brightwater)

APPLICANT: **Hearthside Homes/Signal Landmark**

AGENT: **Ed Mountford, Hearthside Homes/Signal Landmark**
Dave Neish, Culbertson, Adams & Associates
Susan Hori, Mannat, Phelps & Phillips

PROJECT LOCATION: 17201 Bolsa Chica Road, (Bolsa Chica Mesa)
Bolsa Chica, Orange County

PROJECT DESCRIPTION: The 105.3-acre Brightwater project consists of a 379-lot private residential community on 77.3 acres and a 28-acre public upland habitat park, located on the upper bench of the Bolsa Chica Mesa. Development of the residential community also includes the construction of 379 single-family homes in a guard-gated community; a 2.5-acre private recreation center; a 2 million gallon underground water storage reservoir and above ground pumping facility; and other associated infrastructure. The proposed 28-acre upland habitat park, located along the gradual slope between the upper and lower benches and the bluff overlooking the Bolsa Chica Lowlands, contains a 30-space public parking lot at the proposed extension of Bolsa Chica Street into the park, a Class 1, all-weather bicycle/hiking trail, bike racks, kiosk, and interpretive exhibits. A series of constructed wetlands and a 1.3-acre detention basin (part of the residential water quality management plan) is also proposed within the upland habitat park. Grading to carry out the Brightwater development consists of 330,000 cubic yards of cut, 300,000 cubic yards of fill and 30,000 cubic yards of overexcavation.

Approval of the Brightwater development includes approval of Vesting Tentative Tract Map (VTTM) 15460 to subdivide the upper bench portion of existing Parcel 2 and an existing 8.2 acre upper bench parcel the applicant recently acquired from the Metropolitan Water District (MWD) into 379 residential lots and several additional lots for parks, conservation, roads, and utility purposes. The proposed subdivision will result in the irregularly shaped, 11.8-acre lower bench portion of Parcel 2 becoming a separate legal parcel. The applicant however states in the

application that the use of the proposed 11.8 acre residual or remainder parcel is unknown.

The applicant subsequently revised the project description to include (1) the creation of 114 (unstriped) public parking spaces within the new 20 feet of public right-of-way dedication/improvements along the south side of Los Patos Avenue, (2) revision of the public access plan to allow public pedestrian and bicycle access into the residential portion of the community at the two primary project entries, the three pedestrian paseos that connect the residential area to the proposed public park and through a new gated entry on Los Patos adjacent to the proposed private recreation center, (3) revision of the May 1, 2004 Southern Tarplant Translocation Plan to now translocate three populations of tarplant to nearby on-site locations rather than the lower bench as previously proposed, (4) revision of the water quality management plan to add continuous deflection separator (CDS) units to the storm drain system and enlarged the size of the detention basin to meet current agency standards, and (5) revised the public trails plan to relocate the proposed Class I bicycle/hiking trail approximately 75 feet inland from the Eucalyptus ESHA.

STAFF NOTE:

On July 13, 2004, Commission staff received a letter from the applicant dated July 12, 2004, requesting a revision to the project description for the proposed remainder (or residual) parcel being created on the lower bench of the Bolsa Chica Mesa through the proposed approval of VTTM 15460. The letter states that it is being submitted partially in response to the Commission staff's previous request that the applicant identify an intended use for the remainder parcel, noting that the proposed tentative tract map simply indicated that the parcel was "Not a Part" of the proposed subdivision and no use was proposed. The letter requests that the project description of Coastal Development Permit application 5-04-192 be amended to reflect that the remainder parcel is within the 103 acres covered by the (enclosed) Purchase and Sale Agreement and Escrow Instructions, and is proposed to be sold to the State of California for conservation purposes (Exhibit 6).

The letter also stated that the draft Purchase and Sale Agreement and Escrow Instructions between Signal Landmark and the State of California for the acquisition of 103 acres on the Bolsa Chica Mesa for $65 million, was being submitted pursuant to our request for information concerning the lower bench. On August 12, 2004 the WCB approved the purchase of the lower bench of the Bolsa Chica Mesa for $65 million. The letter did not, however, state that the applicant is revising the project description to include all of the applicant's holdings on the lower bench of the Bolsa Chica Mesa in Coastal Development Permit application 5-04-192 as staff had previously requested on several occasions during the coastal development permit application review process that began November 6, 2002 with the submittal of the prior application 5-02-375.

Commission staff has been aware of the applicant's on-going negotiations with the Department of General Services and the WCB for several months. Therefore, staff accommodated the applicant's request to postpone the original Brightwater development project application 5-02-375 from the February 2004 Commission meeting in San Diego to facilitate the on-going negotiations. However, staff informed the applicant that they had to first waive their right to a Coastal Commission final action on application 5-02-375 within 180 days of filing, since the application had been filed on September 24, 2003 and the only remaining hearing within the 180 day deadline would be a non-local hearing in Monterey in March. After receipt of the applicant's waiver of time limits from the required Commission final action on application 5-02-375, the application was then tentatively set for the Commission's June meeting in San Pedro. When the applicant requested a further postponement from the June Commission meeting to accommodate continued negotiations, staff informed the applicant that the Permit Streamlining Act does not allow postponements beyond a maximum of 270 days from the filing of a coastal development permit application. Staff suggested that Hearthside Homes withdraw application 5-02-375 and request a waiver of the six-month waiting period to allow an immediate reapplication.

By letter dated May 13, 2004 and received in the Commission office on May 17, 2004, the applicant withdrew application 5-02-375 and requested that the Executive Director waive the six-month waiting period to reapply for the same project. On June 4, 2004, Commission staff, on behalf of the Executive Director, honored the request, finding the applicant's on-going negotiations regarding the sale of the lower bench for conservation purposes, to be good cause. On May 21, 2004, the applicant submitted application 5-04-192 and requested that all plans and supplemental material from the previous application be considered for the new application[1]. The applicant requested that the new application be set for the Commission's August hearing in San Pedro. When staff agreed to waive the six-month waiting period, staff reiterated that the staff recommendation and findings would be based on the formal project description, as approved by the local government and other agencies, as submitted in the previous (5-02-375) application and as modified in the new application[2]. The importance of this discussion was that the applicant was asking staff to put the application on the August Commission agenda while negotiations were still on going and were not anticipated to be concluded in time for sale to be acted on by the WCB prior to the date that the Commission staff reports for the August hearing had to

[1] The applicant acknowledged the need for an updated mailing list and envelopes given the nearly 2 year period since the previous application was submitted. The applicant updated the mailing information and submitted a new fee. Staff agreed to file the new application with the submittal of these items. The application was therefore filed on the date of submittal, May 21, 2004.

[2] The applicant amended the project description of the original application 5-02-375 on April 16, 2004 to include the off-site improvement of Los Patos Avenue to accommodate (unstriped) parking for 114 cars and landscaping. Also, on June 11, 2004 the applicant submitted a ground squirrel survey pertaining to potential alternate burrowing owl habitat elsewhere on the mesa. With the exception of these two changes to the project description, the applicant submitted no other project revisions until the July 13, 2004 letter requesting only that the proposed lower bench remainder (residual) parcel approved through VTTM 15460 be added to the project description. On September 14 the applicant submitted further changes to the project description. Those changes are discussed as items 2 through 4 in the project description on page 2 of this staff report and the 9/14/04 submittal is attached to this staff report as Exhibit 6b.

published. As it is an integral part of the Bolsa Chica ecosystem and previous assessments, the disposition and treatment of the lower bench would be a critical factor in developing a staff recommendation. Staff did however agree at that time to add a note to the staff report to inform the Commission of the results of the negotiations, any further revisions to the project description made by the applicant, and explain how the disposition of the lower bench, would affect the staff recommendation concerning certain biological impacts of the project, provided the coastal development permit application was amended to include all of the applicant's holdings on the lower bench of the Bolsa Chica Mesa.

Because the applicant has chosen not to modify the project description to include all of their holdings on the lower bench of the Bolsa Chica Mesa in the coastal development permit application before the Commission, there is nothing for staff to comment on since the lower bench of the Bolsa Chica Mesa is not before the Commission, with the exception of the proposed creation of the 11.8-acre remainder parcel that is included in the local government action in the approval of VTTM 15460. The applicant owns a total of 103.2 acres on the lower bench, including the remainder parcel. However, only the remainder parcel is before the Commission. It constitutes only 11% of their ownership on the lower bench, which is the only portion of the lower bench that is included in this application[3]. The staff recommendation with regards to the proposed lower bench remainder parcel is discussed below.

On September 13, 2004, the applicant submitted another letter regarding the disposition of the lower bench (Exhibit 6a). The letter is in response to a conversation between the applicant and staff in which staff reiterated that despite the recent action by the Wildlife Conservation Board regarding the purchase of the lower bench, the applicant's refusal to include the lower bench in the coastal development permit application results in the Commission having no jurisdiction over or assurances that the lower bench sale will be completed. The applicant agrees that this is a valid concern and offers two alternative solutions: (1) that the Commission could add a special condition to the Brightwater CDP providing for issuance of the CDP upon satisfaction of any "prior to issuance" special conditions but limiting the "effectiveness" of the CDP until the sale of the lower bench is

[3] The exact acreage of the remainder (or residual) parcel proposed to be created through the approval of VTTM 15460 was initially in dispute. The residual parcel is that portion of existing Parcel 2 created by Certificate of Compliance No. CC 92-01. The applicant has stated and submitted correspondence that says the parcel is 11.8 acres in size. Additionally, the approved vesting tentative tract map (VTTM) contains a notation that says "REMAINING PROPERTY N.A.P. [not a part] 11.75 Ac". However, the VTTM does not show the location of this parcel nor its shape. The Orange County Subdivision Committee approved the VTTM on May 29, 2002. However, the subdivision approval does not mention the remainder or residual parcel at all and refers only to the 105.3-acre portion of the existing Parcel 2. Using the shapefile sent by the applicant to the Commission's Technical Services staff, it was determined through GIS mapping that the proposed residual parcel was 16.6 acres and not 11.75 acres as stated. Following the applicant's postponement of this application in August, the applicant submitted information indicating that 4.75 acres of the 16.6 acre lower bench portion of Parcel 2 had been sold to the State of California in 1997 as a part of the Isolated Pocket Lowland property. The roughly 5 acre portion of Parcel 2 was sold to the State as part of the area to be restored in the Bolsa Chica Wetlands Restoration Project because it lies below elevation 5 MSL and is therefore a part of the Isolated Pocket Lowland.

completed (close of escrow), or (2) the Commission could impose a special condition the the CDP requiring that the escrow instructions in the Purchase and Sale Agreement between the Wildlife Conservation Board and Signal Landmark be amended to require the Commission's Executive Director to deliver the CDP into escrow once all of the "prior to issuance" conditions of approval for the Brightwater CDP have been satisfied. The letter further reiterates that Hearthside Homes does not wish to include the lower bench in the CDP application because, "[a]mending our application to include the Lower Bench would expose Hearthside to the possibility of a Commission decision imposing a conservation easement and jeopardize the agreement between Signal Landmark and WCB. In the opinion of staff, the September 13th letter concerning the disposition of the lower bench does not resolve the significant consequences of the significant biological impacts that would result if the Brightwater project was approved as currently proposed.

Regardless of the disposition of the lower bench, the Brightwater development project, as currently proposed, results in the following significant adverse impacts: (1) removal of the Southern Tarplant ESHA near the Los Patos seasonal wetlands (and its translocation to within 50 ft of the wetland); (2) the loss of the burrowing owl ESHA in the vicinity of the proposed detention basin; (3) encroachments into the applicant's proposed (reduced) 100 ft. Eucalyptus grove buffer and the Eucalyptus ESHA itself for required on-going fuel modification for the adjacent residential lots and encroachments of park related development (portions of the entry road, parking spaces and portions of the trail) into the Eucalyptus grove ESHA buffer; and (4) the significant landform alteration (up to a 30 foot high fill slope) proposed within the Eucalyptus grove ESHA buffer at the current bluff edge overlooking the wetlands. Further, the proposed project provides inadequate public access and public recreation opportunities due to the prohibition of public vehicular access into the guard-gated residential subdivision to facilitate the use of the proposed public upland habitat park and scenic trail. The only on-site public parking is proposed within the (reduced) Eucalyptus ESHA buffer. On-site public parking, though necessary to maximize public access and public recreation, cannot be allowed as proposed due to its significant adverse impacts to the biological resources of the site.

Commission staff is recommending denial of the proposed Brightwater development project as currently designed. The decision to recommend denial, as opposed to approval with special conditions to address the above Coastal Act inconsistencies, was made by staff considering that the extent of necessary changes to bring the project into conformance with the Coastal Act would result in a significant redesign of the project. In addition, on several substantive areas, the applicant expressed no willingness to consider change. A discussion of the necessary changes to bring the project into conformance with the Coastal Act is found in Section J, Alternatives, of this staff report. The level of change that is necessary to bring this project into conformance with the Coastal Act is so significant that the project must come back to the Commission in a public hearing forum.

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends that the Commission **DENY** the proposed project, finding that, as currently designed, the Brightwater development project is inconsistent with Sections 30210, 30212, 30213, 30214, 30222, 30231, 30240, 30244, and 30251 of the Coastal Act. These policies seek to maximize public access and provide or enhance appropriate public recreation, especially lower cost visitor and recreational facilities; protect and enhance marine water quality; protect environmentally sensitive habitat areas (ESHA) and other important land resources and allow only resource dependent uses in ESHA and ensure adequate buffers between ESHA and development areas; to protect archaeological and cultural resources; and the protection of scenic coastal resources to and along the coast by minimizing the alteration of natural landforms.

The 105.3 acre Brightwater development site is located on the upper bench of the Bolsa Chica Mesa in Orange County, adjacent to the City of Huntington Beach. The Bolsa Chica Mesa is adjacent to the Bolsa Chica Lowlands which include the approximately 1,300 acre State owned Bolsa Chica wetlands and Bolsa Chica Ecological Reserve. The Bolsa Chica Mesa has an upper bench and a lower bench separated by a gradual, roughly 25-foot high slope. Together, along with the Huntington Mesa to the south of the Lowlands and the Lowlands themselves, the Bolsa Chica Mesa is a part of a fragile upland/lowland ecosystem. The project site contains an existing environmentally sensitive habitat area (ESHA) that is recognized by the Coastal Commission, Department of Fish and Game and the courts. The ESHA is a 5-acre Eucalyptus tree grove located along the bluff edge and down the slope of the upper bench, overlooking the Lowlands. There are also other important land and marine resources on the project site. A 0.06 acre seasonal wetland near Los Patos Avenue on the project's northern boundary and a 0.2 acre pocket wetland at the southern edge of the slope overlooking the lower bench of the Bolsa Chica Mesa (Exhibit 4). While these two wetlands are not considered by the Commission staff ecologist, Dr. John Dixon, to constitute ESHA under the Coastal Act definition, they are nonetheless protected under Section 30233 of the Coastal Act.

In addition to these previously identified land and marine resources, the site also contains other important land resources including additional areas that staff has concluded qualify as ESHA under the Coastal Act. With the exception of a few isolated individuals, the Southern Tarplant population is considered ESHA, as is the burrowing owl habitat. Among the important *non*-ESHA land resources, approximately 75 acres of the 105.3-acre site contain non-native annual grasslands/ruderal vegetation. This vegetation is an important land resource because it is critical to the ecosystem as foraging habitat for numerous raptors and ground mammals, some of which are special status species. The upper bench of the Bolsa Chica Mesa is also a natural landform. Though it has been altered in the past, staff believes that it still should be considered a scenic coastal resource, considering its scenic qualities when viewed from below the site from Bolsa

Chica State Beach or Pacific Coast Highway. From the project site are also spectacular views of the Lowlands and the birds that use them and the beach and ocean beyond.

Given the numerous resources of the site, all development must avoid significant, direct, adverse impacts to sensitive areas and must be carefully sited and designed to prevent impacts that would significantly degrade those areas. Development of the site must also appropriately maximize public access and passive recreational opportunities, especially given its location adjacent to the State's recently acquired wetlands where millions of dollars are currently being spent in wetland restoration efforts.

The proposed Brightwater development project conceptually includes several aspects that are consistent with Chapter 3 Coastal Act policies. For instance, the proposed project provides a public, lower cost, recreational use, a use that is preferred by the Coastal Act, namely the proposed 28-acre upland habitat park with walking and bicycle trails, public parking and interpretive information. It is also in a location on the project site which provides the public scenic views of the State owned wetlands, Bolsa Chica State Beach and the Pacific Ocean. However, the proposed trail and the on-site public parking are improperly located within the critical terrestrial buffers causing significant adverse impacts to the environmentally sensitive land resources that are to be protected by habitat buffers.

As summarized below and discussed in detail in this staff report, the Brightwater development project, as currently designed, does not adequately protect or enhance the coastal resources of the site and adjacent marine areas or appropriately maximize public access and passive recreational opportunities.

Areas of Major Controversy

- **Inadequate Buffer Between Eucalyptus Grove ESHA and Adjacent Development.** The proposed Brightwater development project provides a 100-foot buffer between the edge of the existing Eucalyptus grove ESHA and the proposed residential lots. The Eucalyptus trees are used as nesting, roosting, and perching sites by many species of raptors, including white-tailed kites, red-tailed hawks, Cooper's hawks, and great horned owls. Adequate buffers between habitat areas and development are essential in maintaining the viability of habitat areas. In order to provide adjacent foraging habitat and to prevent disturbance to nesting areas, staff recommends a 100-meter buffer (328 feet) between the Eucalyptus tree ESHA and the adjacent development. If grading occurs when raptors are nesting, an even larger buffer of 152 meters (500 ft.) should be provided around the nest during construction activities. Given the uncertainty of future development on the lower bench of the Bolsa Chica Mesa, the ESHA buffer on the upper bench is even more important.

- **Encroachments into the Eucalyptus Grove ESHA and the ESHA buffer.** As stated above, the Eucalyptus grove ESHA buffer at 100 ft in width is inadequate to protect the ESHA from adjacent development and should be 100 meters in width. Additionally, the proposed project includes significant encroachments into the proposed reduced100 ft. wide ESHA buffer, and, into the ESHA itself. Due to the location of proposed homes along the southern bluff edge, the entire 100 ft. wide Eucalyptus grove ESHA buffer is within the required Fuel Modification Plan. Fuel Modification Zone D includes the entire ESHA buffer and encroaches into or overlaps the Eucalyptus grove ESHA. In order to protect future residences on 16 of the proposed lots, the entire Eucalyptus grove ESHA buffer must be irrigated and its plant palette controlled for fire suppression purposes instead of being maintained to protect the ESHA from adjacent proposed urban impacts (Exhibit 14). Additionally, there would be initial and continued modification of the understory of the Eucalyptus grove affecting approximately 0.8 acre of the existing five acre Eucalyptus grove ESHA. Additional encroachments into the proposed (reduced) 100 ft. wide Eucalyptus grove ESHA buffer include: (1) approximately 600 linear feet of the proposed 12 ft. wide paved, all-weather, pedestrian/bicycle trail; (2) significant grading activity (including a 30 ft. high, fill slope, two acres in size); (3) five of the 30 proposed public parking spaces; and (4) approximately 250 ft. of the 32 ft. wide paved extension of Bolsa Chica Street. Finally, the project proposes fuel modification to protect the proposed adjacent residences throughout most of the proposed Upland Habitat Park, which is to be dedicated to the public upon completion of construction.

- **Elimination of Burrowing Owl ESHA.** The burrowing owl (Athene cunicularia) is a California Species of Special Concern (CSC), as designated by the California Department of Fish and Game. This bird hunts for prey over open areas and grasslands and typically nests in the abandoned burrows of rodents. Evidence of burrowing owl use of the site was documented in 2001-2002 and 2002-2003. Further, a raptor biologist with extensive knowledge of the Bolsa Chica Mesa has opined that wintering burrowing owls use the Bolsa Chica Mesa during most years. It is the opinion of the applicant that the bird does not reside on the project site, but only winters there. It is the opinion of the Commission's staff ecologist that the identified burrowing owl habitat on the upper bench constitutes an environmentally sensitive habitat area (ESHA) under the Coastal Act and therefore must be avoided. The proposed project would result in the loss of the burrowing owl habitat, as it is the location of the proposed 1.3-acre water quality detention basin for the residential development. On June 15, 2004, the applicant submitted a ground squirrel survey of the entire mesa to demonstrate that suitable burrowing owl habitat exists on the lower bench of the Bolsa Chica Mesa, allowing the identified burrowing owl habitat on the upper bench to be eliminated due to the proposed development. Commission staff ecologist, Dr. John Dixon disagrees with this conclusion of the applicant, as detailed in Section D., Biological Resources, and

recommends that the Commission require that the identified habitat with documented use remain intact.

Elimination of Southern Tarplant ESHA. Southern Tarplant is listed as a 1B plant (Rare, Threatened, or Endangered in California and Elsewhere) by the California Native Plant Society. Based on information provided by the applicant, including multi-year surveys, the Commission's staff ecologist has determined that the relatively large population of Southern Tarplant that surrounds the Los Patos seasonal wetland is an environmentally sensitive habitat area (ESHA) as defined by the Coastal Act. Dr. Dixon did not include in the ESHA designation those areas on the upper bench that only supported a few isolated tarplants. The Tarplant ESHA must be preserved in place and protected with an adequate buffer. The applicant proposes to translocate plants from this Tarplant ESHA (as well as all Southern Tarplant on the development site) from its current location where it would be within the footprint of the proposed private recreation center development and the proposed water quality BMPs to a nearby on-site location outside the footprint of proposed development.

- **Elimination of 75 Acres of Raptor Foraging Habitat.** The 105.3-acre project site is primarily vegetated with annual grasslands and ruderal vegetation along with several environmentally sensitive habitat areas. Although annual grassland/ruderal vegetation type is non-native, it nevertheless provides foraging habitat for many species of raptors, including white-tailed kites (a Fully Protected Species) and several California Species of Special Concern (CSC) such as northern harriers and the burrowing owls. The loss of this vegetation is also considered significant because it represents one of the last significant grasslands adjacent to a coastal wetland, making it an integral part of the wetland/upland ecosystem. The project as proposed and approved by the County of Orange provides no mitigation for these significant adverse impacts. The Department of Fish and Game, in its comments on the project EIR recommended that the loss of annual grassland/ruderal vegetation be mitigated by preserving 0.5 acre of foraging habitat for each acre lost.

- **Inadequate Public Access.** The 105 acre upper bench of the Bolsa Chica Mesa, at about 50 ft. above sea level, affords spectacular views of the Pacific Ocean, Bolsa Chica State Beach and the now State owned Bolsa Chica wetlands below the site. Although the project includes the addition of 23 acres of park land along the slope and bluff to the existing 5-acre bluff edge Eucalyptus grove ESHA to create a 28-acre public upland habitat park, the proposed guard-gated residential community would prohibit public vehicular access into the community to get to the park. The public will now have pedestrian and bicycle access through the community to access the upland habitat park but the public still can not drive into the community or park on its neighborhood streets to access the proposed public parkThe applicant subsequently further modified the proposed public access plan to add a gated entry from Los Patos Avenue through the residential development to

make the off-site parking spaces along Los Patos useable for park access purposes. The park will also be gated on Bolsa Chica Street, the only vehicular entry. Although thirty public parking spaces and bicycle racks are provided at the proposed Bolsa Chica Street extension and trailhead, public use of the park is not encouraged due to inadequate signage and public vehicular access restrictions. Further, staff is recommending that the Commission require that the 32-foot wide road extension and 30-space paved parking lot be removed (or relocated) because they are within the recommended100 meter Eucalyptus grove ESHA buffer. The removal of the only public on-site vehicular access and parking makes the need for public vehicular access into, and public parking within the community even more critical. Therefore, although the applicant is now allowing public pedestrian and bicycle access through the residential community, the only on-site public parking is not approvable due to its significant ESHA impacts as currently designed

- **Significant Landform Alteration.** The Bolsa Chica Mesa, although a natural landform rising some 50 feet above the Lowlands, has been altered in the past. The slope between the upper and lower benches is very gradual due primarily to grading and construction of two gun emplacements (concrete bunkers) on the slope during World War II. The bluff edge along the upper bench was also used as a borrow site for residential development in Huntington Beach in the early 1970's. Despite these alterations, the Bolsa Chica Mesa still remains a scenic, natural landform whose further alteration should be minimized. However, the applicant proposes further significant alteration of the bluff edge, adjacent to the protected Eucalyptus grove ESHA with a 30-foot high fill slope, 2 acres in size. Although the applicant argues that the proposed fill is to restore the slope to its 1939 condition prior to the above alterations, the merits of such a "restoration" are debatable, and in the opinion of Commission staff's geologist, Dr. Mark Johnsson, the proposed work clearly represents further significant alteration of a natural landform. The new fill area will allow the proposed residential development to be extended out to the current bluff edge by placing the Bolsa Chica Street extension and the public parking on the new fill slope. Although the extension of Bolsa Chica Street, a public road, and the provision of public parking are encouraged, they should be provided in a manner that does not cause further significant alteration of the bluff or be located within an ESHA buffer, as is currently proposed.

Additional project features that are inconsisten with the Coastal Act is location of the proposed 2.5 million underground water reservoir. The 65 ft. by 200 ft. water reservoir is proposed adjacent to Los Patos Avenue, between the road and the existing Los Patos wetlands and Southern Tarplant ESHA. While the underground reservoir is not directly beneath the wetlands, the limits of excavation extend another 35 ft beyond the reservoir footprint requiring grading within the 100 ft. wetland buffer and would come within a few feet of the Los Patos wetlands. Grading for the underground water reservoir will also impact a significant portion of the Southern Tarplant ESHA located adjacent and to the west of the wetlands. Impacts to the Tarplant ESHA for the

purpose of the construction of utilities is inconsistent with Section 30240(a) of the Coastal Act. Section 30233 of the Coastal Act does not allow impacts to a wetland for the purpose of the construction of a water storage facility to support adjacent residential development.

The applicant contends that the current project was designed to be consistent with the Commission's November, 2000 action on the proposed Bolsa Chica Local Coastal Program (LCP). The standard of review for the proposed project is the Coastal Act and not the Commission's action on the LCP since the LCP was never certified. However, even if the Commission's November, 2000 action did govern this action, as is discussed in Section C of this staff report, "Comparison of the Proposed Project With the 2000 Bolsa Chica LCP", the proposed project is not consistent with the Commission's 2000 action on the LCP in a number of significant provisions.

LOCAL APPROVALS RECEIVED: See Appendix A

SUBSTANTIVE FILE DOCUMENTS: See Appendix A

I. STAFF RECOMMENDATION OF DENIAL

Staff recommends that the Commission DENY a coastal development permit for the proposed development by voting NO on the following motion and adopting the following resolution

MOTION: *I move that the Commission approve Coastal Development Permit No. 5-04-192 for the development proposed by the applicant.*

STAFF RECOMMENDATION OF DENIAL:

Staff recommends a **NO** vote. Failure of this motion will result in denial of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO DENY THE PERMIT:

The Commission hereby denies a coastal development permit for the proposed development on the ground that the development will not conform with the policies of Chapter 3 of the Coastal Act and will prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit would not comply with the California Environmental

Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.

II. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares:

A. DESCRIPTION OF PROPOSED PROJECT AND PROJECT SITE

Bolsa Chica Mesa is made up of a lower bench and an upper bench (also referred to as the lower mesa and upper mesa) separated by a gentle slope. The upper bench is located adjacent to and south of Los Patos Avenue and Bolsa Chica Street in the unincorporated area of Bolsa Chica, County of Orange. Although the majority of the upper bench (105.3 acres) is located within the unincorporated Bolsa Chica area of Orange County, approximately .95 acres in the northeasterly corner of the Brightwater development is located within the corporate boundaries of the City of Huntington Beach (Exhibit 1). Huntington Beach has a certified Local Coastal Program. Therefore, the City of Huntington Beach would be the agency to which the applicant must file a coastal development permit application for these nine homes in the City of Huntington Beach. The site is surrounded on the north (across Los Patos Avenue) and northeast by (the Sandover development in the City of Huntington Beach) residential development, the Goodell property and Bolsa Chica Street; on the southeast by the Shea Homes property (the pending Parkside Development located in the City of Huntington Bench) and the existing concrete lined East Garden Grove-Wintersburg (EGGW) Flood Control Channel; on the south by the now State-owned Bolsa Chica lowlands; and on the west by the approximately 120 acre lower bench of Bolsa Chica Mesa and beyond the lower bench, the 306 acre Bolsa Chica Ecological Reserve owned and managed by the California Department of Fish and Game, Pacific Coast Highway and Bolsa Chica State Beach and the Pacific Ocean (Exhibit 2).

The proposed Brightwater development is located primarily on the 105.3-acre upper bench. The applicant owns approximately 103 acres on the lower bench of the Bolsa Chica Mesa, with the Ocean View School District owning 15 acres and the Department of Fish and Game owning the remainder of the lower bench as part of the upland portion of the Bolsa Chica Ecological Reserve. Although the applicant has indicated that the 120-acre lower bench is not a part of the development proposal, some development is actually proposed for the lower bench. Upper bench development consists of subdivision into 379 single-family residential lots in a guard-gated community. Both private and public recreation open space and habitat conservation areas are also proposed.

Overview of Brightwater Development Project

Residential Community

The proposed Brightwater residential community is a 379-unit, private gated development on approximately 77 acres of the 105.3-acre development site. It will have two guard-gated entries with guardhouses located off the main project entry at Warner Avenue and a second entry on Bolsa Chica Street. The community is planned at medium-low density (6.5-12.5 DU/Ac). The community design concept is that of a New England coastal village with six styles of single-family housing types and sizes. The four larger single-family home types have lots ranging from 4,000 to 7,000 square feet and homes ranging from 2,200 to 4,200 square feet. There will also be smaller units constructed as planned unit developments using reciprocal easements (zero lot lines) and other integrated site planning techniques but are detached single family residential units. The four smaller styled developments have lots that are approximately 3,000 sq. ft. and the homes range from roughly 1,500 to 1,900 sq. ft. All units range from 3 to 5 bedroom floor plans with one product type having as few as two bedrooms. None of the units will exceed 35 feet in height and most will be at 28 - 32 ft. high.

At the northeast corner of the Brightwater project site is the boundary between the City of Huntington Beach and the unincorporated Orange County area. The boundary cuts diagonally between the Brightwater site and the recently completed Sandover development in Huntington Beach (Exhibit 3). One of the project goals is to integrate the two communities. To accomplish this goal, three of the lots approved under the VTTM 15460 will be annexed to the City and combined with three of those lots. As a result of the annexation and vacation of the existing entry into the Sandover development the potential for nine additional lots will exists. Annexation and construction of any development in the City of Huntington Beach is not authorized under the subject coastal development permit. The City will handle development within the City of Huntington Beach as the certified Huntington Beach LCP covers the area.

Private Recreational Facilities

The 2.5 acre private recreation center, located near Los Patos Avenue in the center of project site, contains a 1,350 sq. ft. clubhouse, three swimming pools, two family/small group picnic areas, a tot lot and elevated boardwalk that provide a continuous, grade-separated viewing of the existing Los Patos Wetland and wetland buffer that will be enhanced. Three vertical walkways or "paseos" leading from the residential community to the park provide the community residents and their guest access to the public upland habitat park. A total of 50 parking spaces will be provided for the private recreation center. The private recreation facilities are located in Planning Area 7-1 (Exhibit 3).

Public Recreational Amenities

At the far western and southern edges of the Brightwater development project is Planning Areas 3A and 3B which is the 28-acre upland habitat park, located along the western slope edge and the southeastern bluff edge of the upper bench of the Bolsa Chica Mesa (Exhibit 3). The upland habitat park includes the existing 5-acre Eucalyptus grove ESHA along the southeastern bluff edge. The existing "pocket wetland" is also within the habitat park and it will be preserved in place and provided with a 100 ft. wetland buffer. Protective fencing will be placed around the Eucalyptus ESHA and the existing wetland. Split rail fencing will be on the bluffward side of the trail. The habitat park will be planted with coastal prairie, and coastal sage scrub and coastal bluff scrub habitats. Within the park will be a paved, 12 ft. wide multi-use pedestrian/Class I bicycle trail, and an interpretive/spur trail, bicycle racks for up to 20 bicycles, interpretive signage, an orientation kiosk and rustic seating along the trail. Bolsa Chica Street will be extended into to habitat park as the only vehicular entry where 30 on-site public parking spaces will also be provided (Exhibit 4). Protective fencing will also be located along both sides of Bolsa Chica Street. Once constructed, the upland habitat park will be dedicated to the County of Orange for public park and conservation purposes.

The series of five constructed wetlands and detention basin that serve as part of the water quality management plan treatment system for the residential community is also located within the upland habitat park.

Other community facilities include a 2 million gallon underground (35 ft. deep) water storage reservoir that will be provided for the community, as well as a domestic water pump station including two fire pumps. A temporary on-site groundwater well will be constructed and used during grading and construction operations. The temporary well will be abandoned once the permanent underground reservoir is completed. 630,000 cubic yards of balanced grading will be necessary to carry out the development as planned (30,000 cy of cut will be shrinkage from overexcavation). As detailed in Section G.2. of this staff report, the Orange County Fire Authority requires initial and on-going fuel modification for the homes that are adjacent to the upland habitat park.

Residual Parcel

The current coastal permit application is primarily to subdivide and develop the upper bench of the Bolsa Chica Mesa with a gated residential community. The upper bench, approximately 105.3 acres in size, is primarily one legal parcel comprised of a portion of Parcel 2 of Certificate of Compliance No.CC 92-01, but also includes an 8.2-acre parcel of land formerly owned by Metropolitan Water District. However, Parcel 2 extends down the slope separating the upper and lower benches and includes approximately 16 acres of land on the lower bench (Exhibit 5). Most of the 11 acres are located on the lower bench which is approximately 20 - 30 ft. above the adjacent Bolsa Chica Lowlands and wetlands. However, approximately 5 of the 16 acres of Parcel 2 that are not on the upper bench are

located below the lower bench and is actually within the Lowlands (at or below 5 MSL). This Lowland portion of Parcel 2 was sold to the State of California in 1997 when the applicant sold its holdings within the Lowlands to the State for wetlands restoration purposes. The applicant has submitted evidence showing that the portion of Parcel 2 that lies below 5 MSL was also sold to the State in 1997. Therefore the remaining portion of Parcel 2 that is subject to the proposed subdivision through VTTM 15460 is 11.8 acres in size (Exhibit 15).

Under the proposed VTTM 15460 the applicant is requesting to separate this 11.8-acre lower bench portion from larger upper bench portion of the existing parcel and create a "residual" parcel on the lower bench. Staff incompleted the initial coastal development permit application for the proposed development in November, 2002 for several items, including the applicant's plans concerning the lower bench[4]. Staff noted in the letter to the applicant that all previous evaluations of the biological resources, potential impacts and planning efforts for the Bolsa Chica Mesa included both the upper and lower benches. The applicant's response was that there were no plans, at the present time, for the lower bench. However, staff noted that the existing Parcel 2 to be subdivided in the current application also extends down the western slope and includes land on the lower bench. Staff further noted that the creation of this 11.8-acre residual lot is a division of land that constitutes development under the Coastal Act on the lower bench. Thus, the instant application did include development on the lower bench, and the creation of a new parcel thereon required some explanation of the plans for that parcel. Initially the applicant was proposing to also translocate Southern Tarplant existing on the upper bench, within the proposed residential development footprint, to the lower bench. However, the applicant has now revised this application to eliminate any translocation of tarplant to the lower bench. On September 14, 2004 the applicant submitted a revised SouthernTarplant translocation plan, "On-Site Preservation/Translocation Plan", Southern Tarplant (Centromadia Parryi ssp. Australis) Brightwater Development Project, Bolsa Chica Mesa, Orange County, California, LSA, September 13, 2004. All development in the coastal zone, unless it is otherwise exempt, must be approved by the Coastal Commission, since the local government has no certified LCP for this area. Despite the applicant's contention

[4] The initial coastal development permit application that was submitted on November 6, 2002 was application 5-02-375. The applicant provided Commission staff with the requested additional information in several separate submittals over an extended period of time. The application was finally filed on September 24, 2003. Staff tentatively scheduled the application for the Commission's February, 2004 meeting in San Diego. The applicant requested the postponement of the matter in order to allow them time to enter into discussions with the California Wildlife Conversation Board for the sale of the lower bench for conservation purposes. Commission staff agreed to the request provided the applicant waive their right to a final Commission action within 180 days of the completed application since this would not be possible with a postponement of the hearing date. The applicant waived his right to a hearing within 180 days, and the application was then tentatively scheduled for the Commission's June hearing in Los Angeles. Citing on-going negotiations over the sale of the lower bench, the applicant requested an additional postponement. Under the Permit Streamlining Act, the Commission must take a final action on an application within a maximum of 270 days or the application must be withdrawn. On May 13, 2004, the applicant formally withdrew application 5-02-375. On May 21, 2004, a new application, 5-04-192, the subject application, was submitted. Coastal development permit application 5-04-192,as submitted, was identical to application 5-02-375.

that none of the lower bench is before the Commission in the subject application, the Commission disagreed with this statement based on the creation of a separate legal parcel on the lower bench through the proposed subdivision of Parcel 2. Therefore, the proposed lower bench development is being analyzed under this application as was approved by the local government in the approval of Vesting Tentative Tract Map (VTTM) No. 15460 and included in the application submittal to the Commission. .

Site Description

The approximately 225-acre Bolsa Chica Mesa is only one portion of the Bolsa Chica LCP area. On the opposite end (to the south) of the LCP area is the Huntington Mesa, including the proposed Harriett Wieder Regional Park. The County of Orange began its LCP planning activities in 1977, segmented the area within its jurisdiction that is also within the coastal zone into four segments with 12 geographic subareas or segments, the Bolsa Chica area being of those segments. The Bolsa Chica LCP area is comprised of approximately 1,588 acres of unincorporated land within the coastal zone of northwestern Orange County. Currently, the land exists predominantly as open space containing both upland and wetland habitat. The Bolsa Chica and Huntington mesas rise some 50 feet above the lowlands and are open space areas consisting primarily of non-native grasslands. However, they are a very important component of the Bolsa Chica ecosystem. An extensive wetland area located between two upland mesas to the north (Bolsa Chica Mesa) and south (Huntington Mesa) dominates the site. The Pacific Coast Highway, Bolsa Chica State Beach, and the Pacific Ocean border the western side, while urban development occurs to the east. The Bolsa Chica wetlands were formerly part of an extensive coastal lagoon/salt marsh system, which was estimated to cover 2,300 acres in 1894 by the U.S. Fish and Wildlife Service. Today, substantial portions of the wetland habitat remain in the lowland area.

Bolsa Chica is a unique place along the California coast. Bolsa Chica has undergone substantial degradation caused by human interference with its natural wetlands processes commencing in the 1800's. Bolsa Chica has been used for a variety of purposes over the years, most notably for on-going oil and gas production since the 1930's. Beginning in the 1960's and continuing through the late 1980's, it became increasingly recognized that the wetlands at Bolsa Chica were in need of major restoration. Initially restoration was proposed to be achieved through construction of a new ocean inlet in conjunction with a marina (boating facility).

Over the past century, Bolsa Chica has been affected by urban, recreation, and oil-related development. Three state oil leases occur within the lowlands, which currently support 331 oil wells (active and inactive), related oil facilities, and improved and unimproved roadways. Although development has markedly changed Bolsa Chica, the area currently contains substantial and important natural resource values. The Bolsa Chica Lowlands contains one of the largest remaining coastal wetlands in southern California.

Although a good portion of the wetlands is now degraded due to oil production, road construction and flood control, tens of thousands of birds use Bolsa Chica lowlands every year, including six endangered or threatened species. Up until 1997, the majority of the lowlands were in private ownership. However, in 1997, the State of California acquired 880 acres of the lowlands for the purpose of carrying out a comprehensive wetlands restoration, including a new ocean inlet. The Ports of Los Angeles and Long Beach are providing funding for the wetland restoration.

The Bolsa Chica Mesa has also been subject to various activities and development over the years, including cattle and sheep grazing and other agricultural activities, hunting and the construction of the Bolsa Chica Gun Club in the 1890's, oil exploration including the construction of numerous oil wells and pipelines and the construction of numerous roads that crisscross the mesa, military use with the construction of two gun emplacements or bunkers during World War II, and a borrow site for surrounding urban development,. At the southern edge of the lower and upper benches of the Bolsa Chica Mesa is a continuous grove of Eucalyptus trees, planted by the property owner in the early 1900's to serve as a windbreak. Although Eucalyptus trees are not native to the area, they serve a vital biological role in the wetland/upland ecosystem. The Eucalyptus grove totals approximately 20 acres on both benches, 5 acres being on the upper bench. It is recognized by the Department of Fish and Game as an environmentally sensitive area and by the Coastal Commission and the courts as an environmentally sensitive habitat area or ESHA, as defined by the Coastal Act. Further inland from the Bolsa Chica Mesa bluff edge are grasslands that are used by both birds and land mammals, including, but not limited to, the burrowing owl, for foraging.

B. PLANNING HISTORY

The planning effort for the Bolsa Chica segment of the County of Orange Local Coastal Program is long and controversial. Although the subject application is the first substantial coastal development permit application to the Coastal Commission for permanent development on the Bolsa Chica Mesa, the Commission's first consideration of the Bolsa Chica Local Coastal Program (LCP) began in 1982. Despite the Commission's numerous actions on the Bolsa Chica LCP throughout this twenty-year period, no LCP has ever been fully certified.

The Bolsa Chica LCP planning area is approximately 1,588 acres in size. The planning area is flanked on the north by Warner and Los Patos Avenues and the Bolsa Chica Mesa and on the south by the Huntington Mesa and Seapoint Street[5]. Between the two mesas is the 1,300-acre Bolsa Chica Lowland. The Pacific Ocean (Bolsa Chica State Beach)

[5] Approximately 10 acres of the Huntington Mesa and Seapoint Street are within the City of Huntington Beach.

borders the western side of the planning area with residential development in the City of Huntington Beach on the east. The lowlands are primarily historic and currently functioning wetlands interspersed with former wetlands that are utilized for oil production activities (pads and roads) and upland areas that are Environmentally Sensitive Habitat Areas. The 306-acre Bolsa Chica Ecological Reserve, including Inner and Outer Bolsa Bay, are managed by the California Department of Fish and Game. The East Garden Grove-Wintersburg (EGGW) Flood Control Channel, maintained by Orange County Flood Control District, is also within the Bolsa Chica lowlands. The flood control channel empties into Outer Bolsa Bay.

The Commission's first approval of the Bolsa Chica Land Use Plan (LUP) occurred in November 1984. On October 23, 1985, a revised land use plan was adopted which would have allowed for intensive development of the area including 75 acres of mixed-use marina/commercial, a 150 room motel, 500 acres of high density residential development, a navigable tidal inlet, an arterial roadway through the Bolsa Chica Wetlands (the Cross-Gap Connector), and 915 acres of wetland restoration. The amount of wetland fill that would have occurred under this LCP was not specified. This controversial LUP was never fully certified.

In June 1995, the County of Orange submitted an amended proposal of the Bolsa Chica Local Coastal Program (LCP) for Commission certification. As submitted in 1995, the Bolsa Chica LCP would have allowed 2,400 units on the upper and lower benches of the Bolsa Chica Mesa, and up to 900 residential units in the Lowlands for a total of 3,300 residential units. The Lowland development would have resulted in the fill of 120 acres of wetland and the elimination of 65 acres of ESHA that was interspersed between the wetlands. The major property owner was required to fund the restoration of 770 acres of adjacent wetlands and dedicate the restored wetlands to a public agency, as mitigation for the wetland impacts. Public access and recreational facilities included a public loop road ("mesa connector road") on the Bolsa Chica Mesa, active and passive parks on both the Bolsa Chica Mesa and in the Lowlands, 100 public parking spaces on the Bolsa Chica Mesa and 60 public parking spaces in the Lowlands, pedestrian and bicycle trails on the mesas and in the Lowlands, a 4-acre kayak/conoe/beach facility on the inland side of PCH, and the optional provision of 10 acres of neighborhood commercial use on the Bolsa Chica Mesa. Fifty-eight acres of land on the Huntington Mesa was to also be dedicated to the County of Orange for the Harriet Wieder Regional Park. Development on the Bolsa Chica Mesa would have eliminated Warner Pond, a 1.7-acre wetland located on the lower bench. Additionally, the Eucalyptus grove ESHA on the Bolsa Chica Mesa was to be relocated onto the Huntington Mesa in order to accommodate the build-out of the Bolsa Chica Mesa. The Commission approved this amended version of the Bolsa Chica LCP on January 11, 1996. The Commission's decision became the subject of a lawsuit.

The trial court determined on June 4, 1997 that the Commission's approval of the Bolsa Chica LCP was deficient in two respects. First, that Section 30233 of the Coastal Act does not allow the fill of wetlands for residential purposes. Second, that the Warner Pond

wetland was an environmentally sensitive habitat area (ESHA) and that the Commission failed to explain how such an ESHA could be filled consistent with Section 30240 of the Coastal Act. The trial court remanded the Bolsa Chica LCP to the Commission. The Commission reheard portions of the proposed Bolsa Chica LCP on October 9, 1997. The Commission limited its review to those aspects of the case on which the court had remanded.

At the Commission's October 9, 1997 meeting, significant revisions were made to the Plan as originally submitted in June 1995. The Commission found in October 1997 that the fill of wetlands for residential development was not an allowable use and denied the development proposed in the lowland area. Residential development of the upper and lower benches of the Bolsa Chica Mesa was also scaled back to 1,235 residential units to avoid the widening of Warner Avenue which necessitated the fill of Warner Pond. Since lowland residential development was denied, the proposed wetland restoration mitigation project was also deleted from the Bolsa Chica LCP since it was to be funded by the developer through the lowland residential development. Furthermore, the wetland restoration program became moot since the majority of the lowland (880 acres) was acquired by the State of California, thus becoming public trust lands. The State and Federal governments have a Coastal Commission approved wetland restoration program covering 1,247 acres of the lowland. On November 13, 2001, the Commission approved Consistency Determination No. CD-061-01 (U.S. Fish and Wildlife Service) for the major wetland restoration project.

The Commission's October 9, 1997 decision on remand was again reviewed by the courts under the original challenge to the Commission's 1996 approval of the Bolsa Chica LCP. On April 16, 1999, the appellate court upheld the trial courts findings, added a new finding and remanded the Bolsa Chica LCP back to the Commission. The new finding of the appellate court was that the relocation of the Eucalyptus grove from the Bolsa Chica Mesa to the Huntington Mesa was not allowed under Section 30240 of the Coastal Act. To comply with the appellate court's remand, the Commission once again re-heard the Bolsa Chica LCP on November 11, 2000. The Commission certified the LCP again, with suggested modifications that were significantly different from the previous suggested modifications.

In the Commission's 2000 approval, it again limited the number of residential units on the Bolsa Chica Mesa to a maximum of 1,235 to avoid the filling of Warner Pond. However, the Commission further required that all future development be concentrated on the upper bench of the Bolsa Chica Mesa adjacent to existing residential development and that the entire lower bench (with the exception of a 10 acre school site adjacent to Warner Avenue) be designated for conservation and preserved through an open space deed restriction. The Commission found that in order to be most protective of the resources that development of the Bolsa Chica Mesa must be confined to the upper bench of the mesa, in close proximity to existing development, to conserve all of the resources of the lower bench in a manner that is more protective overall of significant coastal resources,

than protecting each specific habitat area in conjunction with development of the entire Bolsa Chica Mesa.

The Commission also required that the Eucalyptus grove ESHA remain intact and protected on the Bolsa Chica Mesa and that it not be relocated to the Huntington Mesa, as was previously proposed and approved under the earlier LCP. To protect the portion of the Eucalyptus ESHA located on the upper bench, the Commission required that all future residential development be set back a minimum of one hundred feet from either the inland edge of the ESHA or the inland edge of the bluff, which ever is the greatest distance. The Commission's 2000 action on the LCP further required that future development of the portion of the upper bench that overlooks the lower bench was required to be set back fifty feet from the upper edge of the slope separating the two benches. Other significant suggested modifications contained in the Commission's 2000 action included the prohibition of storm water discharges directly into Outer Bolsa Bay or other wetland area; the provision of a scenic public loop road allowing public parking on both sides, immediately landward of the buffer and paralleling the portion of the upper bench that overlooks the Lowlands; and the protection of cultural resources by requiring that a Native American monitor also be present during all grading operations.

The Commission's November 2000 action was unacceptable to the County of Orange and the landowner. In May 2001, the County notified the Commission that it would not be adopting the Commission's suggested modifications. Therefore, the Commission's certification of the LCP lapsed six months after its action. Therefore the standard of review for the currently proposed development remains the Chapter 3 policies of the Coastal Act since there is no certified LCP for the Bolsa Chica area of the County of Orange.

C. COMPARISON OF THE PROPOSED PROJECT WITH THE COMMISSION'S 2000 BOLSA CHICA LOCAL COASTAL PROGRAM ACTION

During consideration of the Bolsa Chica LCP in November 2000, the Commission approved 100-ft. and 50-ft. buffers around sensitive habitats on the upper bench. Although the buffers were limited, the reduced buffers were accepted in the context of balancing some resource impacts against benefits that could be derived from the concentration of development on the upper bench that allowed the enhancement of biological productivity and marine resources and the protection of a contiguous block of habitat through the placement of an open space easement over the entirety of the lower bench of the Bolsa Chica Mesa. This balancing approach was only possible because the Commission had the entire Bolsa Chica Mesa before it given that they were acting on an LCP amendment that included all of the area within the Bolsa Chica LCP Area. The current situation is qualitatively different because the applicant has, for the most part, excluded the lower bench from consideration.

The Commission approved the Bolsa Chica Local Coastal Program (LCP) with suggested modifications on November 16, 2000. Following Commission action the County of Orange informed the Commission that the suggested modifications were unacceptable, and they were not adopted by the Board of Supervisors. Therefore, pursuant to sections 13537(b) of the Commission's regulations, the Commission's certification of the LCP has lapsed and is no longer of any legal effect. Although the certification of the LCP has lapsed, making the standard of review the Chapter 3 policies of the Coastal Act, the Commission can still look at its 2000 action on the Bolsa Chica LCP as an example of one set of LCP provisions and a development scenario the Commission found to be consistent with the Chapter 3 policies of the Coastal Act.

Indeed, the applicant asserts that the current project has been designed using the 2000 Bolsa Chica LCP as guidance and further states that the proposed Brightwater development project is consistent with the 2000 LCP as approved by the Commission with suggested modifications. However, a comparison of the proposed project against the standards the Commission imposed in its action on the recent Bolsa Chica LCP demonstrates that the proposed Brightwater development project differs greatly from the Commission's 2000 action, in a number of significant ways.

FEATURE	2000 LCP AS APPROVED WITH SUGGESTED MODS	PROPOSED PROJECT
Bolsa Chica Mesa Land Area Covered	Entire Upper Bench; Entire Lower Bench	Entire Upper Bench; 11.8 ac of 103 ac ownership on the lower bench.
Land Use of Lower Bench	Except for the 10-acre school site depicted as Public Facility on Fig.2.1-2, the lower bench of the Bolsa Chica Mesa shall be designated Conservation. The Eucalyptus Grove ESHA and the Warner Ave. Pond ESHA shall be preserved. (Portion of County Policy 3.1.2.4, page 60 of Exhibit 21)	Land use of 11.8-acre residual parcel created by VTTM 15460 is unknown. The remaining 91.2 acres of the applicant's ownership of the lower bench is expressly not included in this application.
Size and Measurement of ESHA Buffer	The buffer on the Bolsa Chica Mesa upper bench overlooking the lowland shall	The applicant is proposing a 100 foot buffer on the bluff overlooking the lowland.

	extend inland one-hundred feet[6] from either the Eucalyptus grove ESHA or the edge of the top-of-bluff, whichever is the greatest distance. The buffer separating the lower bench from the upper bench shall extend from the top edge, fifty-feet into the upper bench. (Portion of County Policy 3.1.2.6, page 64 of Exhibit 21).	However, because the lower bench is not before the Commission there is no shifting of development from the lower bench to the upper bench to justify the reduced buffer. Further, the buffer is not being measured in the manner that provides the greatest distance, pursuant to the 2000 LCP. The applicant is measuring the buffer from the Eucalyptus grove ESHA. However, the existing edge of the top-of-bluff is landward of the Eucalyptus grove ESHA. Using the existing edge of the top-of-bluff would provide for a wider, more protective buffer, as required by the LCP Policy 3.1.2.6.
Allowable Development within ESHAs	Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas (New policy 5, page 61 of Exhibit 21).	The proposed project includes development within several ESHAs on the project site. Within a portion of the Eucalyptus ESHA, the applicant is proposing fuel modification activities. The applicant is also proposing water quality BMPs within the habitat of the burrowing owl, habitat which the Commission's staff ecologist has determined to meet the

[6]The adopted findings of the LCP, dated November 27, 2000, pages 251 – 262 indicate clearly that the ESHA buffer was being reduced to 100 feet, as opposed to 100 meters, in order to concentrate development on the upper bench since a conservation easement was required to be placed on all areas of the lower bench that were owned by the landowner/master developer of the upper bench, as required by County Policy 3.1.2.6 and other LCP policies.

		ESHA definition of the Coastal Act. Finally, recreational facilities and water quality BMPs are proposed within populations of Southern Tarplant that meet the Coastal Act definition of ESHA. The proposed uses within the ESHAs are not dependent on the ESHA resources.
Development Adjacent to ESHA (within ESHA buffers) or Park and Recreation Areas	Development in areas adjacent to ESHAs and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas. (New Policy 6, page 61 of Exhibit 21)	The proposed development within the (reduced) Eucalyptus grove ESHA buffer includes portions of a paved road, trail and parking lot. The entire Eucalyptus grove ESHA buffer is being planted, managed and irrigated for fire protection purposes for the adjacent residences.
Water Quality BMPs	Where drainage facilities /BMPs, or erosion control measures are necessary to comply with applicable Federal, State and local water quality or flood control regulations, such facilities shall be located outside of natural drainage courses, to the maximum extent feasible, as well as outside of environmentally sensitive habitat areas or buffers (County Policy 3.2.2.4, page 69 of Exhibit 21).	The proposed 1.3 ac detention basin is located within the habitat of the burrowing owl. The habitat of the burrowing owl meets the Coastal Act definition of ESHA, according the Commission staff ecologist. Also, 2 of the 5 proposed created wetlands, a component of the water quality program, is located within Southern tarplant ESHA.
Bluff Face "Restoration" Grading	The following proposed LCP policy was **rejected** by the Commission in its entirety:	The proposed project proposes "restoration" grading of the bluff face, as specifically rejected by the

	The historically degraded slope between Bolsa Chica Mesa and the Lowland Pocket Area, that extends from the southern corner of the Mesa to the EGGW Flood Control Channel, shall be remedially graded for establishment of the Mesa development. The base of the slope shall be protected from Muted Tidal flows related to wetlands restoration.. Public Class I bicycle and pedestrian trails shall be included in the design of the established slope (County Policy 3.3.2.10, page 72, Exhibit 21). Proposed County Policy 3.3.2.10 was **replaced** with the following policy: Development shall assure stability and structural integrity and neither create nor contribute significantly to erosion, geologic instability or destruction of the site or surrounding area. Development shall be sited and designed to minimize the alteration of natural landforms and shall not require the construction of protective devices that would substantially alter natural landforms. Where permitted to be altered pursuant to the Conservation Land use designation the bluff will be	Commission. The project includes a 30 foot high, 2 acre fill slope between the Lowland Pocket Area that extends from the southern corner of the Mesa to the EGGW Flood Control Channel. The purpose of the fill slope is to extend the mesa residential area beyond the current bluff edge, to stabilize the residential development, and to accommodate the proposed alignment of the extension of Bolsa Chica Street into the proposed public park and provide public parking at the end of Bolsa Chica Street extension.

	restored to a natural appearance through landscaping consisting of native drought-torelant vegetation.	
Public Loop Road	A public vehicular bluff edge scenic road shall be provided on the Bolsa Chica Mesa immediately landward of the buffer as required below. The purpose of the bluff edge scenic road is to maximize public access to the public buffer trail, separate private residential land use from public use areas, to preserve scenic views of the lowland and the ocean, and allow for public safety and emergency vehicle access to the public areas. (Portion of New policy 14, page 81 of Exhibit 21).	The project includes The proposed project contains no public vehicular bluff edge scenic road as described or illustrated in the LCP. No public vehicular access is provided through the residential portion of the subdivision. The project would extend the existing public road, Bolsa Chica Street, onto the project site (as a part of the proposed "restoration" fill slope) providing the only public vehicular access on the entire project site.
Public Parking	Parallel public parking shall be provided along both sides of the bluff edge scenic road, and no red curbing or signs shall be permitted or any other structure or practice allowed to prohibit public parking except near street intersections where necessary for public safety reasons (portion of New Policy 14, page 81, Exhibit 21). *Note: Also see New Policy 15, below, for additional public parking requirements.*	The project proposes no bluff edge scenic road through the upper bench of the Bolsa Chica Mesa and thus no public parking within the residential portion of the proposed subdivision.
Private Roads (Gated Development)	Private roads which limit the public's ability to park within	The proposed project includes exclusively private roads

	any residential areas shall not be allowed unless a public parking lot containing a minimum of 30 parking spaces is provided adjacent to the public scenic roadway. Public roads will provide public on-street parking (New policy 15, page 81, Exhibit 21).	(except as indicated below) that limit the public's ability to drive onto and park within any of the residential areas. No public scenic loop road is provided and thus no public parking is provided adjacent to the road. The applicant however is proposing 30 public parking spaces through the extension of an existing public road, Bolsa Chica Street onto the project site. The 30 public parking spaces, which is the only on-site public parking being provided, would be located on the proposed "restoration" fill slope. In the 2000 LCP the Commission specifically rejected this "restoration" grading (see County Policy 3.3.2.10 above).

As demonstrated in the table above, the proposed Brightwater development project is not consistent with the Commission's action on the 2000 LCP with regards to: failure to include the applicant's lower bench holdings (with the exception of a proposed 11.8-acre remainder parcel being created by the proposed subdivision) in the coastal development permit application in conjunction with the consideration of development on the upper bench and thus no offer of dedication of a conservation easement over the lower bench is included as a part of this application; Eucalyptus ESHA buffer is proposed to be reduced from 100 meters to 100 feet without providing a conservation easement over the lower bench as a part of this coastal development permit application; the Eucalyptus ESHA buffer is not being provided in a manner that would provide for maximum protection of the ESHA; various types of residential and recreation support development, not dependent on the ESHA resources, would be located within the proposed 100 ft. wide Eucalyptus grove ESHA buffer as well as the Southern tarplant and burrowing owl ESHAs and buffers; significant landform alteration ("restoration" grading) is proposed at the southeastern bluff edge to provide for stability of the residential development and public access provisions; no public vehicular scenic loop road with parking along both sides is proposed; and exclusively private roads are proposed within the residential portion of the subdivision

prohibiting the public's ability to park within the residential area, without the provision of a 30 space public parking lot adjacent to the public scenic road[7].

Although the proposed Brightwater development project differs significantly from what the Commission approved with respect to the 2000 LCP as demonstrated in the above table, that fact in and of itself is immaterial. For one thing, there are undoubtedly multiple approvable ways to structure development on the Bolsa Chica Mesa. Moreover, the standard of review for this project proposal is the Chapter 3 policies of the Coastal Act, not the Commission's previous action, which has expired and is of no legal force or effect. However, the comparison of the proposed project with the most recent LCP action for the area is a useful exercise since the Commission in its action on the LCP found that a project designed to be consistent with the policies of the LCP, as approved with suggested modifications, would also be consistent with the Chapter 3 policies of the Coastal Act. In addition, the applicant has asserted that its current proposal is consistent with the Commission's 2000 LCP action.

D. BIOLOGICAL RESOURCES

Although 82.6 acres of the105.3-acre Brightwater development project site (78%) is dominated by non-native annual grasslands and forb or ruderal communities, the upper bench of the Bolsa Chica Mesa also contains a Eucalyptus grove, Southern Tarplant, coastal bluff scrub communities, and two wetlands. These native and non-native communities combine to make the Bolsa Chica Mesa ecologically valuable. The mesa and its associated bluffs provide habitat for over 88 species of land birds, including some 33 resident species, 38 migrants, 15 wintering species and 3 summering species. Reptiles and at least ten species of mammals also utilize the Bolsa Chica Mesa.

The Bolsa Chica Mesa must also be viewed in the larger context of its role in the upland/ wetland ecosystem. According to both the California Department of Fish and Game and the U.S. Fish and Wildlife Service, the Bolsa Chica Mesa and the lowland wetlands are biologically interdependent. Together with the Bolsa Chica wetlands, a part of the roughly 1,300 acre Bolsa Chica Lowlands, the mesa communities which include both the Bolsa Chica Mesa and the Huntington Mesa to the south of the Lowlands, combine to make this area an important upland-wetland ecosystem. These biological interdependencies are vital to maintaining biological productivity and diversity. However, it must also be recognized that over the years, this resource area has declined due to human impacts and development pressures. Commission staff ecologist, Dr. John Dixon, summarizes the

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[77]Instead of providing a minimum 30-space public parking lot along a public scenic loop roadway, the applicant proposes to locate 30 public parking spaces within the public park on the proposed "restoration" slope. The proposed "restoration" slope was specifically rejected by the Commission in its action on the 2000 LCP, finding that the "restoration" slope constituted significant landform alteration, inconsistent with Coastal Act Policy 30251.

declining, but still valuable, overall ecological condition of the greater Bolsa Chica area in his July 15, 2004 memo on the Proposed Brightwater Development Project in this way:

> "The Bolsa Chica wetlands once covered over 30 square miles and, on the Bolsa Chica and Huntington Mesas, were bounded by coastal sage scrub communities that interacted ecologically with the wet lowlands. Although the wetlands have been reduced to less than two square miles and the adjoining mesas have been substantially developed and the remaining open space much altered, the U. S. Fish and Wildlife Service in 1979 nonetheless identified the Bolsa Chica ecosystem as "one of the last remaining viable wetland-bluff ecosystems in southern California." This viewpoint was echoed by conservation biologists over twenty years later: "...Bolsa Chica is one of the last remaining areas in coastal southern California with a reasonably intact upland-wetland gradient, which is of high ecological importance and generally lacking in representation in reserves in the region." In nearly all other coastal marsh ecosystems in southern California, the upland components have succumbed to urban development. Uplands provide pollinators for wetland plants, nesting and denning sites for avian and mammalian predators that forage in wetlands, important alternative prey populations for many of those predators, and critical habitat for primarily upland species. Many species have life-stages that rely on both wetland and upland habitats ... [citations omitted]

Dr. Dixon's memo can be found in its entirety as Exhibit 20 to this staff report and is incorporated herein by reference, including adoption of the ESHA designations and the buffer recommendations shown in Figure 1 of Exhibit 20, as explained below. Due to the special communities of the Bolsa Chica Mesa, many areas of the mesa have previously been determined to constitute environmentally sensitive habitat areas, as defined by and protected by the Coastal Act, or, if not previously so recognized, nevertheless qualify as such. The Coastal Act defines environmentally sensitive habitat areas or environmentally sensitive areas as:

<u>*Section 30107.5*</u>

> *"Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

Further, Section 30240 of the Coastal Act requires that land resources that constitute environmentally sensitive areas or environmentally sensitive habitat areas as defined by Section 30107.5 be protected by allowing only resource dependent uses within those areas. Additionally, development adjacent to environmentally sensitive areas and parks and recreation areas must be sited and designed such that the adjacent development will not degrade the habitat or recreation values of the sensitive resource. Finally, uses

adjacent to environmentally sensitive land resources and park and recreation areas must be compatible with the continuance of the resource area. Coastal Act Section 30240 states:

Section 30240

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

In the November 2, 2000 Commission staff report concerning a proposed amendment to the Bolsa Chica Local Coastal Program the following Environmentally Sensitive Habitat Areas (ESHA) were identified: (1) the Eucalyptus grove on and along the edge of both the upper and lower bench of the Bolsa Chica Mesa; (2) Warner Pond, located on the lower bench, a marine habitat connected by culvert to Huntington Harbor; (3) the natural habitats within the California Department of Fish and Game Ecological Reserve along the western edge of the lower bench of the Bolsa Chica Mesa; (4) the coastal sage scrub community; (5) habitat of the southern tarplant throughout the mesa; and, (6) the degraded wetlands in the lowlands that are part of a restoration plan. The Eucalyptus trees, Warner Pond, and the Ecological Reserve were generally depicted, the locations of the other ESHA types were not mapped.

Dr. Dixon notes that there has been no change in circumstances in the intervening four years that would cause the removal any of these habitats from the recommended list of environmentally sensitive habitat areas on or adjacent to the Bolsa Chica mesa. Thus, for the reasons stated in Dr. Dixon's' July 15, 2004 memo, the Commission finds these areas to constitute ESHA. In addition to the abovementioned habitats, the upper bench of the Bolsa Chica Mesa contains two small but functioning wetlands: the 0.2 acre Los Patos seasonal wetland (referred to as "seasonal pond" by the applicant), located near Los Patos Avenue and the 0.06 acre "pocket wetland" located in the central slope/bluff edge area (Exhibit 4). The Los Patos wetland is a seasonally ponded depression, dominated by herbaceous vegetation, including the rare Southern Tarplant. The "pocket wetland" is a small borrow pit dominated by a stand of willows and mulefat with very little understory vegetation. These wetlands are protected under Section 30233 of the Coastal Act and only certain enumerated uses are allowed if no less environmentally damaging feasible alternative exists, and if feasible mitigation measures are provided. However, these freshwater wetlands do not constitute ESHA as defined above. The proposed Brightwater development project however does not propose to fill these wetlands but will retain them in place with a 100-foot wetland buffer. This wetland buffer is consistent with numerous past

Commission actions to protect wetlands from the effects of adjacent development. However, care must be taken during grading and construction to assure that impacts to the wetlands are avoided.

Another habitat of the Bolsa Chica Mesa that was not identified as ESHA in the Commission's previous actions on the Bolsa Chica LCP is that of the burrowing owl. The burrowing owl is considered a California Species of Special Concern by the Department of Fish and Game. Burrowing owls use the Bolsa Chica grassland and ruderal habitats as well as abandoned burrows of rodents or other small mammals. In the winters of 2001-2002 and 2002-2003, the applicant's biologist documented use of specific areas of the mesa by this owl (Exhibit 17a). The characteristics of the burrowing owl habitat, its ESHA status on the Bolsa Chica Mesa, and the proposed project impacts are detailed below.

The residential and park facilities of the proposed Brightwater development project, as currently proposed, will significantly impair the biological productivity of the upper bench of the Bolsa Chica Mesa, and indirectly impact the adjacent lowland wetlands. Adverse impacts from residential development and park facilities include: disturbances to wildlife, including nesting, from human activity and disruptive noise and lights due to the inadequate buffer adjacent to the Eucalyptus grove ESHA; loss of terrestrial habitat, including the protected Southern Tarplant ESHA and burrowing owl ESHA foraging area and coastal sage scrub due to residential fuel modification encroachment into the ESHA and ESHA buffer, recreation center facility construction impacts on the Tarplant ESHA and the encroachment of residential fuel modification and the installation of the proposed detention basin into the burrowing owl area; loss of foraging habitat caused by the development footprint and associated elimination of 75 acres of non-native grasslands and ruderal vegetation that is utilized by several California Species of Special Concern (CSC); loss of wildlife movement corridors; adverse impacts to native plants and animals from domestic pets, especially cats, and the introduction of pollutants through residential landscaping and irrigation runoff, and human activities. The Brightwater development project features and their impacts to the various sensitive land resources of the upper bench of the Bolsa Chica Mesa are detailed below.

1. Eucalyptus Grove ESHA and ESHA Buffer

In 1982, the Department of Fish and Game (DFG) designated the Bolsa Chica Mesa Eucalyptus grove as an environmentally sensitive habitat area (ESHA) based on its value for nesting and roosting for a variety of raptors. In their 1982 report, "Environmentally Sensitive Habitat Areas at Bolsa Chica", DFG noted the presence of eleven raptor species. Raptors found to be using the grove included the white tailed kite, marsh hawk, sharp-shinned hawk, Cooper's hawk, and osprey. Many of these species are dependent on both the Bolsa Chica wetlands and the upland areas of the Bolsa Chica Mesa for their food. Other raptor biologists who have studied the Bolsa Chica Mesa have also found it to

be particularly significant to a large number of birds of prey, including the Northern Harrier, prairie falcon, burrowing owl and the loggerhead shrike. The grove has also been recognized by the Coastal Commission as an "environmentally sensitive area" or environmentally sensitive habitat area (ESHA) as defined by Section 30107.5 of the Coastal Act in previous Commission actions. The Commission first recognized the ESHA status of the grove many years ago, and the California appellate court in 1999 did not question the designation of the Eucalyptus grove as an ESHA protected by the Coastal Act when, in 1995, the County of Orange, on behalf of the predecessor applicant, Koll Real Estate Group, attempted to relocate the Eucalyptus grove, through the LCP process, to the Huntington Mesa, in order to make room for full development of the upper and lower benches of the Bolsa Chica Mesa.

The Eucalyptus grove along the southern bluff edge of the mesa is considered an ESHA because of the important ecosystem function it provides for birds of prey. However, the adjacent grassland, ruderal vegetation and coastal sage scrub function as foraging habitat and some significant portion of these must also be preserved in order for the ESHA to function. According to Dr. Dixon, some of the raptors that use the Eucalyptus trees forage in the wetlands, some forage in the mesa grasslands, and some forage within the coastal sage scrub along the bluff edge, and many of the raptors forage in more than one habitat. The need for hunting perches and roosting or nesting sites cannot be separated from the need for an effective hunting area. It is believed that the Eucalyptus grove would cease to function as ESHA were there not adequate foraging habitat nearby. The Commission found in November 2000 during its deliberations over the Bolsa Chica LCP, that the ESHA along with the adjacent non-ESHA areas are interdependent and constitute an ecological system. The Department of Fish and Game stated in its 1982 report that "habitat diversity is further enhanced by associations of eucalyptus-grasslands, eucalyptus-coastal sage scrub eucalyptus (snags)-wetland communities". This important point was also made by the U. S. Fish and Wildlife Service in its 1979 report on the Bolsa Chica Area, reiterated in the 1996 EIR for the Bolsa Chica LCP, and by LSA Associates in 2001 in the subsequent EIR for the subject Brightwater development project. The Commission hereby arrives at the same conclusion again today.

The upland mesa area adjacent to the Eucalyptus grove is important to the functioning of the ecosystem because: (1) many of the species that are dependent on the Eucalyptus trees or on burrows near the pocket wetland on the central slope area forage over the entire Mesa, (2) habitat areas need to be large enough to avoid habitat fragmentation and to provide connectivity to other habitat areas, and (3) habitat areas must be large enough to promote and maintain habitat and species diversity. Development must be separated from ESHAs by buffers in order to prevent impacts that would significantly degrade those areas. DFG and the USFWS previously recommended the establishment of a 100-meter buffer on the Bolsa Chica Mesa in the 1980's. Dr. Findlay, of the University of Ottawa, in a letter to the Coastal Commission dated February 9, 2000, recommended a 150-meter buffer for the Eucalyptus grove. The Coastal Commission staff ecologist recommends a

minimum 100-meter (328 ft.) buffer around the Eucalyptus grove ESHA. In further studying the appropriate buffer for the Eucalyptus grove ESHA, Dr Dixon states:

> The buffer around the Eucalyptus tree ESHA is particularly important if those trees are to continue to function as nesting habitat for a variety of raptors. The California Department of Fish and Game and the U.S. Fish and Wildlife Service recommended a 100-m buffer. A literature review found that raptor biologists recommended buffers for various species of nesting raptors from 200 m to 1500 m in width, with the exception of 50-m buffers from visual disturbance for kestrels and prairie falcons. . . .In an independent review concerning a prior development proposal at Bolsa Chica with 100-foot (30-m) buffers, raptor expert Brian Walton opined that developers "...often rely on buffers that I find largely ineffective for reducing raptor fright/flight response." [and] "[t]hey describe unusual tolerance, habituated individuals or exceptions to normal raptor behavior rather than the more common behavior of wild birds."

Dr. Dixon concluded, after evaluating the various case studies and independent reviews specifically of the raptor behavior of the Bolsa Chica Mesa, that a minimum 100-meter buffer is necessary if the Eucalyptus trees are going to function as nesting sites in the future. He further opined that larger buffers are necessary during the extraordinary disturbance that takes place during construction. If raptors are nesting, a 152-m (500-ft) buffer should be established around the nest during construction activities. The sensitive habitat areas of the project site on the upper bench of the Bola Chica Mesa, including the recommended buffers, are shown in Figure 1 of Dr. Dixon's July 15, 2004 memo on the subject project (Exhibit 20).

As discussed above, the Brightwater development project proposal of a 100-foot buffer around the Eucalyptus grove ESHA is inadequate to protect the ESHA from myriad human and domestic pet activities that occur when residential development is adjacent to a sensitive area. Dr. Dixon notes that buffers serve several important functions: they allow for some error in assigning boundaries (for example, extent of wetlands or southern tarplant habitat), they keep disturbance at a distance, they provide important auxiliary habitat (e.g., foraging or pollinator habitat), and they provide water quality functions around wetlands. Buffers should not be used for activities that have negative effects on the resources that are being protected.

The proposed Brightwater development project includes a 100-foot buffer between the proposed single-family residential lots and the Eucalyptus ESHA. Based on Dr. Dixon's evaluation, such a narrow buffer is adequately protective of the ESHA. In addition, several types of development are proposed within the buffer that would cause adverse impacts to the adjacent ESHA.

The development proposed between the residential lots and the Eucalyptus grove ESHA includes: (1) park amenities including a 12 foot wide, paved pedestrian/bicycle trail, 30

public parking spaces, bicycle racks, and the extension of Bolsa Chica Street (32 ft. wide public road) (Exhibit 4), (2) significant grading activity including a fill slope up to 30 feet in height and 2 acres in size (Exhibit 15), (3) a water quality treatment facility for the residential community including five created wetlands and a 1.3 ac detention basin (Exhibit 4 and 15), and (4) 100% of the fuel modification requirements, including irrigation of the ESHA buffer for the lots that abut the ESHA buffer (Exhibit 14). Incompatible development within the ESHA buffer compromises the goal of the buffer. The impacts on the ESHA resources of the site due to the proposed fuel modification activities, park amenities, public access facilities, water quality BMPs and "restoration" grading activities are discussed later in this section. below.

Therefore, for reasons detailed above, the Brightwater development project as currently proposed is inconsistent with the Coastal Act requirements for the protection of environmentally sensitive habitat areas, namely the Eucalyptus grove ESHA on the upper bench of the Bolsa Chica Mesa. The Commission therefore denies the proposed project as submitted.

2. Southern Tarplant ESHA

The Southern Tarplant is a Federal "Species of Concern" and listed as a 1B (Rare, Threatened, or Endangered in California and Elsewhere) plant by the California Native Plant Society (CNPS), and it also meets the CEQA Guidelines' definition of rare (threatened) and endangered species. Southern Tarplant is an annual plant that favors damp, disturbed areas and is generally restricted to grasslands, wetland edges, vernal pools, and alkaline flats in the coastal counties of southern California and has been greatly reduced and populations have been fragmented by development. According to Dr. Dixon, Southern Tarplant has become rare in California and its remaining habitat is particularly valuable due to the loss of its natural habitat. The Department of Fish and Game further noted in their January 16, 2002 EIR comments on the proposed project, that one of the characteristics of the Southern Tarplant is that, as an annual (life cycle is completed within one year), the number of detectable (above-ground flowering) plants visible in any one year vary sharply depending on factors such as soil moisture. Because of this characteristic of the plant, quantifying populations and determining the impacts of a development project on existing tarplant communities can be problematic (Exhibit 9). Therefore, the long-term health of the tarplant population depends on an extensive seed bank.

The applicant's consultant conducted tarplant surveys of both the upper and lower benches in 1999, 2000, 2001 and 2002. The largest concentration of tarplant by far is on the lower bench; however, the upper bench also contains several sizeable patches of the sensitive plant (Exhibit 16). Dr. Dixon notes that based on the applicant's recent surveys, the tarplant tends to be much more widely distributed among the habitats on the lower

bench than on the upper bench where it is almost entirely confined to the area surrounding the seasonal pond adjacent to the Los Patos wetland. There may be habitat differences between the upper and lower benches that account for this phenomenon. Southern Tarplant is most abundant near trails and other open disturbed areas. Scattered individual plants on the upper bench do not constitute ESHA because over the four-year survey period these plant populations have remained only a few scattered individuals. However, the significant Tarplant populations around the Los Patos wetland on the upper bench should be considered ESHA under the Coastal Act definition because Southern Tarplant has become rare in California due to the loss of its native habitat and therefore its remaining habitat is particularly valuable. As stated above, Southern Tarplant is a Federal "Species of Concern" as well as a California Native Plant Society "1B species" (rare, threatened, or endangered in California and elsewhere). Similarly, the patches of tarplant near the western edge of the development area are part of the extensive population on the lower bench and are part of the ESHA. The southern tarplant at Bolsa Chica is one of the more significant populations in terms of numbers in southern California, according to Dr. Dixon. As environmentally sensitive habitat areas, the tarplant populations must be preserved in place and cannot be eliminated or translocated in order to use their existing locations for residential use.

The Brightwater development proposal would eliminate two of the existing ESHA populations of Tarplant within the proposed 28-acre Upland Habitat Park, and a third tarplant population located in the area of the proposed 2.5-acre private recreation center surrounding the existing Los Patos seasonal wetland would also be eliminated (Figure 1 of Exhibit 20). The current Tarplant translocation proposal is now to translocate each of the three identified ESHA populations either to other existing nearby ESHA populations, as in the case of the tarplant adjacent to the Los Patos wetland, or translocate the tarplant ESHA population immediately adjacent to its present location,as in the case of the population near Warner Avenue, or to translocate the tarplant to a nearby location to avoid the, such as with the tarplant populations that are located within the footprint of the created wetlands portion of the water quality BMPs (Exhibits 6b and 22, pages 1-4). The proposed On-Site Preservation/Translocation Plan for the relocation of the three Southern Tarplant ESHAs to outside of the proposed development footprint is inconsistent with section 30240(a) of the Coastal Act. Section 30240(a) of the Coastal Act does not allow impacts to existing ESHA, even to move or translocate it adjacent to its current location, as opposed to an off-site location, as was initially proposed. Further, as explained above, the Tarplant exists where it is currently located because the soil conditions and other factors and there is no guarantee that the plants will survive in a new location. Habitat that qualifies as ESHA under the Coastal Act must be protected in place, except under limited situations not applicable here, pursuant to Section 30240 of the Coastal Act. Only resource dependent uses are allowed within areas designated as ESHA and only if there is no other less environmentally damaging feasible alternative.

Therefore, the proposed Southern Tarplant translocation is not permissible under the Coastal Act since it would be done for residential purposes. The courts have already

clarified this limitation, in the 1999 appellate ruling- concerning the Bolsa Chica site when the Commission approved the translocation of the existing Eucalyptus grove ESHA over to the Huntington Mesa to make way for residential development.

The Southern Tarplant populations that constitute ESHA must also be protected from adjacent development with an adequately sized buffer. The Commission's staff ecologist recommends that a 50-foot buffer be established adjacent to the ESHA boundaries defined by the presence of tarplant, as illustrated in Figure 1 of his memo (Exhibit 20). The Commission has used such a buffer to protect sensitive vegetation in past actions, consistent with Section 30240(b) of the Coastal Act.

The recently submitted "On-Site Preservation/Translocation Southern Tarplant Plan" provides for a 50-foot buffer around the translocated Tarplant. However, there are significant encroachments proposed within the Tarplant (and wetland) buffers. As shown in Exhibit 22, pages 1 and 2, a decomposed granite maintenance road and an elevated boardwalk for wetland viewing are located between immediately adjacent (and above for the elevated boardwalk) to within approximately 25 ft. from the wetland. The exhibit does not delineate the Los Patos wetland. However, there does not appear to be a 100 ft. buffer beyond the existing wetland. Both structures are within the 50 ft. Tarplant ESHA buffer. These encroachments are inconsistent with Sections 30240(b) and 30233 of the Coastal Act as the structures, and the people and maintenance vehicles they will accommodate, are too close to the ESHA and wetland area they are supposed to be protecting. Bird use of the wetland will be decreased if people are placed above the wetland on the proposed elevated boardwalk. Additionally, the proposed 2 million gallon underground water reservoir is proposed adjacent to the Los Patos wetland and the Tarplant ESHA, between Los Patos Avenue and the wetland and the tarplant. Although the utility is not located directly beneath the wetland, excavation for the structure will occur within several feet of the wetland and will cause the removal of some of the Tarplant ESHA located to the west of the wetlands (Exhibit 22, pages 1 and 2).

Additionally, the 2.5-acre recreation center adjacent to the Southern Tarplant ESHA and Los Patos wetland includes a tot lot-, picnic areas on decomposed granite, a boardwalk and gazebo, several swimming pools and a 1,300 square foot clubhouse. There could certainly be a redesign of the private recreation center and the underground water reservoir to allow the necessary preservation of the Tarplant ESHA and the Los Patos wetland. Therefore, for reasons detailed above, the Brightwater development project as currently proposed is inconsistent with the Coastal Act requirements for the protection of environmentally sensitive habitat areas, namely the Southern Tarplant ESHA populations on the upper bench of the Bolsa Chica Mesa and the protection of the Los Patos wetland as required by Section 30233 of the Coastal Act. The Commission therefore denies the proposed project as submitted.

3. Burrowing Owl ESHA

One of the sensitive raptor species that uses the Bolsa Chica mesa is the burrowing owl. The Department of Fish and Game (DFG) considers the burrowing owl (Athene cunicularia) a California Species of Special Concern. It hunts for prey in open grasslands and areas of ruderal vegetation. The upper bench of the Bolsa Chica Mesa contains 75 acres of such habitat. In addition to foraging over the grasslands, the burrowing owl uses the abandoned burrows of the California ground squirrel and other small rodents as shelter during the nesting and wintering seasons. The burrowing owl is in decline in most areas of California, especially in the coastal zone due to the loss of habitat as a result of development and rodent control activities. The rapid decline of this species in Orange County has been chronicled in the latter half of the 20th century.[8]

The Brightwater development site contains many burrows that have probably been used by the burrowing owl. One or two wintering birds are thought to use the Bolsa Chica Mesa, as evidenced by repeated observations of a one owl or two owls in the winters of 2001-2002 and 2002-2003 by the applicant's biologists (Exhibit 17a). However, it is believed that the Bolsa Chica Mesa is used by an unknown number of migrant burrowing owls as a stop-over foraging area, according to Dr. Dixon's communications with other raptor biologists. It is raptor biologist Peter Bloom's professional opinion that migrant and wintering burrowing owls use the Bolsa Chica Mesa during most years. The Bolsa Chica Mesa is one of the few areas in the region that still has the potential for nesting by this species in the future. Additionally, the burrowing owl is one of three species of raptors at Bolsa Chica that DFG biologist Ron Jurek thinks is most in need of habitat protection. Based on this information, Dr. Dixon has determined that the area on the Bolsa Chica Mesa as mapped by the applicant's biologist as burrowing owl habitat constitute an ESHA as defined by the Coastal Act, and therefore also should be protected as required by the Coastal Act. The Commission agrees. Additionally, the DFG, in its January 16, 2002 comments on the project EIR, recommended that the burrowing owl habitat on the upper bench be retained, if feasible.

Upon receipt of the applicant's mapping showing the burrowing owl habitat location, at the request of Commission technical staff, planning staff suggested that the applicant again review the submittal of the mapped burrowing owl use area. It appeared to staff that the area might have been drawn overly broad. The applicant however did not alter the map of burrowing owl primary roosting areas. However, several months later, the applicant did survey the project area for for potential burrow habitat. On June 15, 2004, the applicant's consultant, LSA, submitted the results of a survey taken on June 2, 2004 (Exhibit 17). The applicant's June 2004 survey of ground squirrel activity found approximately 130

[8] Hamilton and Willick (1996) and Gallagher and Bloom (1997), according to Draft Subsequent Environmental Impact Report, Volume I, Brightwater Development Project, Orange County, California, SCH #1993071064, LSA, November 17, 2001, page 4.9-21.

ground squirrel burrow locations, providing a rough approximation of how squirrels and their burrows are distributed on the site, as explained by the consultant. The highest use areas were areas where there is a break in topography; at the edge of the slope of the upper mesa on the west and at the bluff edge on the south and on the bluff edge of the lower bench overlooking Outer Bolsa Bay and the lowlands on the southeastern bluff edge of the lower bench. LSA concluded that, "the best way to offset potential impacts to burrowing owl habitat would be to enhance owl habitat suitability somewhere on the lower mesa where human disturbance could be managed".

However, Dr. Dixon recommends that the Commission use a similar approach in identifying the burrowing owl ESHA on the Bolsa Chica as it did in a recent project in the South Central Coast District, the Arco Dos Pueblos Golf Links (December 11, 2002 Commission Hearing). In that case, the Commission designated only trees known to have been used by white-tailed kites for nesting or perching and adjacent trees as ESHA. In the present instance, LSA Associates has identified the area containing burrows known to be used by wintering burrowing owls. Burrowing owls tend to reuse burrows year after year and an area should be considered occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years, according to the California Burrowing Owl Consortium and the Department of Fish and Game. Therefore, the LSA field observations are good evidence of occupied habitat, and Dr. Dixon recommends that the Commission designate as ESHA the area mapped by LSA as the "Primary roosting areas used by wintering burrowing owls". This designation would be made in recognition of its important role in the ecosystem of providing support to a species of special concern that has nearly been extirpated from the coastal zone by conversion of habitat to urban uses. This LSA mapping is shown in Exhibit 17a and is reflected in Figure 1 of Dr. Dixon's July 15, 2004 memo (Exhibit 20). The Commission agrees and hereby designates those areas as ESHA.

Again, once an area is designated as ESHA, the Commission cannot sacrifice it in exchange for another (except in limited circumstances not applicable here). Thus, the existing burrowing owl habitat, as provided by the applicant's biologist and shown on Figure 1 of Dr. Dixon's July 15, 2004, memo, must remain intact, given the evidence of the previous use of the area by the burrowing owl. Although enhanced owl habitat suitability "somewhere on the lower mesa where human disturbance could be managed," as recommended by LSA may be beneficial, it cannot be used to justify removal of existing habitat.

Instead of retaining the burrowing owl habitat, the County of Orange in its approval of the project required the applicant (in Project Design Feature (PDF) 9-5) to conduct surveys for the burrowing owl prior to grading and construction, but ultimately will allow the existing burrow to be eliminated, with mitigation. If the burrow is found to be in active use, the bird(s) is (are) required to be passively relocated to enhanced or created alternative burrows, at a 1:1 ratio. DFG requested that the applicant conduct a formal burrowing owl survey and perform all activities concerning the burrowing owl using the 1993 "Burrowing

Owl Survey Protocol and Mitigation Guidelines", prepared by the California Burrowing Owl Consortium following the DFG "Staff Report on Burrowing Owl Mitigation", dated September 25, 1995. Further, DFG requested that "when destruction of occupied burrows is unavoidable," enhanced or new burrows be provided on a 2:1 ratio on permanently protected lands adjacent to the occupied burrowing owl habitat, if possible. As approved by the County, the applicant only has to provide mitigation at a ratio of 1:1 as opposed to the 2:1 suggested by DFG.

Therefore, for reasons detailed above, the Brightwater development project as currently proposed is inconsistent with the Coastal Act requirements for the protection of environmentally sensitive habitat areas, namely the burrowing owl ESHA on the upper bench of the Bolsa Chica Mesa. The Commission therefore denies the proposed project as submitted.

4. Annual Grassland and Ruderal Foraging Habitat

The vegetation type on the project site is predominantly non-native annual grasslands and ruderal vegetation. Of the 105.3-acre development area, 82.6 acres of open vegetated areas are dominated by annual grasslands (55.9 acres) and ruderal grassland/forb (26.7 acres), according to the project EIR. Although annual grasslands and ruderal vegetation are generally not considered to be sensitive resources because of the exotic character of the dominant species, these habitats nevertheless provide important support for many native species of plants and animals. This habitat type is particularly important as foraging habit for many species of birds of prey and it is being rapidly replaced by development in much of coastal southern California. At the Bolsa Chica mesa, the annual grassland and ruderal vegetation provides critical support for the many species of birds that use the Eucalyptus and palms trees along the bluff edge for perching, roosting and nesting. Without adequate foraging habitat nearby, the existing Eucalyptus grove of the Bolsa Chica Mesa would not continue to function as ESHA.

In the past, little concern has been expressed nor any actions taken about the loss of annual grasslands and ruderal vegetation given their status as non-native habitat. However, in recent years, with the increasing loss of native prairies, it has come to the attention of Department of Fish and Game and other raptor biologists that the remaining non-native annual grassland and ruderal vegetation are becoming a critical food source which is essential to the health of populations of many birds of prey and other native species. For this reason, DFG has recommended mitigation under the California Environmental Quality Act for the loss of such non-native habitat. In over 60 recent actions, DFG has required preservation of foraging habitat at a ratio of 0.5 acres preserved to each acre lost to development. At Bolsa Chica, the foraging habitat on the mesa is absolutely necessary for the continued presence of many of the raptors that utilize the Eucalyptus ESHA. Furthermore, concerning the interconnectedness of the foraging

habitat and the Eucalyptus ESHA, DFG biologist Ron Jurek wrote, in an October 2000 independent review of the potential effects of development on raptors of the Bolsa Chica Mesa, that the Eucalyptus ESHA "...is a zone of trees with good perching and nesting conditions within raptor habitat. It is not the raptor habitat itself. In my professional opinion, for most of the raptor species known to use the ESHA, raptor use depends primarily on the availability of the food resources of the surrounding lands...." .

As proposed, the Brightwater development project would eliminate 75.2 acres of annual grassland and ruderal habitat, combined. In approving the development, the County of Orange also adopted the project's subsequent EIR. The EIR states that the proposed loss of foraging habitat will not be significant considering the existence of the remaining habitat on the mesa and in the region. The Commission notes that of the existing grassland and ruderal habitat on the upper bench of the Bolsa Chica Mesa, the Brightwater development project eliminates all but 1.5 acres of grassland and all but 6 acres of ruderal vegetation. Therefore the EIR statement must be referring to the grassland and ruderal habitats remaining on the lower bench of Bolsa Chica Mesa. However, the Commission notes that the lower bench is not before the Commission given that the applicant has refused to include it in this or the original Brightwater application. There is no guarantee that the lower bench will be sold for conservation purposes.

Moreover, even if the lower bench were to be preserved, the Commission believes that the loss of more than 75 acres of annual grassland and ruderal habitat directly adjacent to the eucalyptus ESHA would still be a significant loss. For the reasons stated in the extended quotation listed below, the impacts on the raptors is likely to be directly related and proportional to the size of the vegetation removed, regardless of the presence of similar vegetative communities nearby. In fact, if anything, the ratio should be higher here, due to the particular significance of the Bolsa Chica Mesa to a great variety of raptors. The special importance of the Eucalyptus trees and adjacent foraging habitats to many species of nesting and wintering raptor species has been recognized by the wildlife agencies for over 20 years.

The project EIR also suggested that the loss of foraging habitat would not be significant based on a statement of another October 2000 independent reviewer of the Bolsa Chica Mesa, Brian Walton, that concluded that the overall population status would not be changed for any species of raptor at Bolsa Chica. Although this statement is true, Dr. Dixon points out that this standard is not adequate in the context of resource conservation and states, "it would be a very low standard that ignores the local or regional significance of a species' presence. It simply means that the viability of the species in California is unlikely to be measurably decreased by local losses. Similar claims can be made of impacts even to many endangered species where the loss of a few individuals is unlikely to push the species to extinction. That fact is, however, not a compelling argument for additional impacts". In fact, Mr. Walton did not intend to suggest that the raptor habitat at Bolsa Chica was unimportant. This is obvious in the following excerpts from Mr. Walton's letters to the Department of Fish and Game and to the Coastal Commission:

> Pete [Bloom] and I have studied raptors in coastal California for the last 25+ years. No one else can say that. We still feel that the raptors and the Bolsa Chica habitat are important. That has been a consistent opinion for nearly 20 years from the only two people who have been continuously focused on these species in these locations.
>
> During that period ... the rest of Orange County has largely been paved over and upland grasslands near coastal wetlands are almost non-existent. Hence, it would be likely that the opinions we had in 1982 on the importance of this habitat are even more relevant in 2000. I have difficulty in understanding why any development is allowed to occur in this area.

and:

> The clearest case where development is impacting raptors and their prey species but where the Commission still is uncertain of the real impact on raptor populations, is in Orange County. There, most raptor species have been completely eliminated from the coastal zone as breeders and most of the region has vastly reduced wintering population range. Even still, the last bit of available open space (Bolsa Chica) is being considered for some development, with the idea that the remaining raptors will move elsewhere or not be impacted, or live in remnant open space within the developed area.
>
> It is not accurate, in fact, that individual raptors when impacted by development simply move elsewhere and everyone survives. If that were true, there would be areas of incredible density in non-developed areas, where the impacted raptors have moved and are now living with pre-existing birds. This philosophy would be analogous to thinking that if you tore down one of two adjacent apartment buildings, that all the residents would simply move into the remaining building and live two families to an apartment. The density of raptors is dependent on a variety of things, so birds cannot actually just get denser in adjacent areas by moving off development sites.

Given the above facts concerning the importance of grasslands and ruderal habitats for the proper functioning of the adjacent Eucalyptus ESHA for the many raptors that use the Bolsa Chica Mesa, a decision has to be made as to whether these vegetative communities themselves constitutes ESHA as defined by the Coastal Act. Dr. Dixon outlines the issues that have to be factored when making such a determination. Although the raptor foraging habitat at Bolsa Chica is clearly of high ecological value because of its context in maintaining the raptors, including the burrowing owl, the non-native habitat alone does not constitute ESHA. However, its loss as contemplated in the prop~~osed~~ Brightwater development project would clearly be inconsistent with Section 30240(b) of the Coastal Act, which prohibits development adjacent to ESHA that would significantly degrade the ESHA. As discussed herein, the importance of foraging habitat is clearly such that the loss of a large amount at Bolsa Chica would result in "impacts which would significantly degrade" the adjacent Eucalyptus tree ESHA such that it would no longer be especially

valuable to birds of prey. Therefore, to be in compliance with Section 30240(b) of the Coastal Act, development must be sited such that this does not occur.

Because of the significant adverse effects of development on raptor foraging habitat, Dr. Dixon suggests that the Commission should follow the recommendation of the Department of Fish and Game and seek mitigation for the destruction of annual grassland and ruderal foraging habitat on the Bolsa Chica Mesa by preserving 0.5 acres of such habitat for each acre lost to development. Preservation preferably should be on the project site adjacent to the Eucalyptus tree ESHA and could reasonably include the recommended buffer areas for the Eucalyptus trees and for the burrowing owl habitat described above.

However, the current proposal does not offer any mitigation for the loss of the annual grasslands and ruderal vegetation. Moreover, providing the level of mitigation the Commission finds appropriate (0.5:1) on the project site would reduce the developable area by a third, necessitating a significant redesign of the project. This magnitude of redesign more than is appropriate for the Commission to do through conditioning the project. Therefore, for reasons detailed above, the Brightwater development project as currently proposed is inconsistent with the Coastal Act requirements that development in areas adjacent to ESHA shall be sited to prevent impacts that would seriously degrade the ESHA and must be denied. The proposed development would remove the annual grasslands and ruderal habitat on the upper bench of the Bolsa Chica Mesa that are necessary for the continued functioning of the Eucalyptus tree ESHA. The Commission therefore denies the proposed project as submitted.

5. Biological Impacts of the Proposed Bluff Edge Grading and its Associated Recreation Support Development

The proposed Brightwater project includes the construction of a 30 ft. high, 2-acre fill slope at the current edge of the southern bluff overlooking the Bolsa Chica Lowlands. This proposed grading constitutes significant landform alteration as discussed later in this staff report. The proposed bluff edge grading is also inconsistent with Section 30240(b) of the Coastal Act in that the proposed fill will be located immediately adjacent to the existing Eucalyptus grove ESHA (within the already reduced 100 ft. wide ESHA buffer), causing significant adverse impacts to the threatened and endangered species that use the ESHA. As discussed in Section F, Visual and Scenic Resources and Section E, Public Access and Recreation of this staff report, the proposed fill not only results in a significant visual impact and further significant alteration of the natural landform of the Bolsa Chica Mesa, but also includes the placement of a 32 ft. wide paved vehicular road, a 30-space paved parking lot, and a trailhead on the proposed fill slope for recreation support purposes.

The fill slope will be located at an elevation that would place parked cars, and their horns and lights, at roughly the same elevation as the tops of the Eucalyptus trees of the ESHA that are located on the face of the adjacent slope. The impacts of the people and noise within such close proximity to the raptors and other animals and that use the Eucalyptus

grove ESHA is directly counter to the purpose of ESHA buffers. This parking location and design creates the potential for significant adverse impacts to the raptors that use the Eucalyptus trees for nesting and perching. The Commission's staff ecologist is recommending a 100-meter buffer between the proposed park support and residential development and the Eucalyptus grove ESHA. The proposed fill slope and its associated development would be located immediately adjacent to the Eucalyptus grove ESHA, inconsistent with section 30240(b) of the Coastal Act. Therefore the Commission is denying the proposed Brightwater project as currently designed.

Finally, the proposed park design is further inconsistent with the ESHA protection policies of the Coastal Act due to the location of the proposed multi-use pedestrian/bicycle trail, with respect to the Eucalyptus ESHA. The proposed trail alignment has been modified so that it is no closer than 75 ft to the Eucalyptus ESHA. The Commission staff ecologist is recommending a 100-meter buffer between the ESHA and the proposed development however allowing the proposed park trail within the 5-meter area closest to the residential development. As proposed, approximately one-third of the trail length is too close to the Eucalyptus grove ESHA. Similarly, the trail alignment in other locations is proposed within the burrowing owl and Tarplant ESHA buffers. The proposed subdivision design seeks to use virtually all of the existing upper bench mesa top land area for private residential development and locates the public recreation and recreation support facilities on the proposed fill slope or within ESHA buffer areas. As a cross-section of the proposed park indicates, the public trail is located on the face of the slope that separates the upper and lower mesas and not on the bluff top, as far away from the Eucalyptus, burrowing owl habitat and Southern Tarplant ESHAs as possible. Facilities within the upland habitat park for public park purposes must also be sited and designed so that the do not adversely impact the existing ESHAs. As proposed, the park design creates the potential for significant human disturbance of the endangered and threatened species that use the Eucalyptus grove ESHA. Therefore, the proposed park design unnecessarily conflicts with the Coastal Act policies promoting protection of environmentally sensitive habitat areas under the auspices of promoting public access.

As detailed above, the proposed project as designed causes the public access and public recreation facilities to have significant adverse impacts on sensitive land resources. There are feasible design alternatives available that can provide appropriate public access and passive recreational opportunities while protecting the adjacent environmentally sensitive resources as required by the Coastal Act. However, the proposed project must be significantly redesigned in order to bring it into conformance with the public access, recreation and land resources protection policies of the Coastal Act. Therefore, the project currently before the Commission must be denied.

6. Biological Impacts of Fuel Modification on the Eucalyptus Grove ESHA

Although the proposed project is not located within a high fire danger area, the Orange County Fire Authority (OCFA) is still requiring that the applicant prepare a fuel modification plan to reduce the potential for fire damage to property and life. OCFA Fuel Modification Guidelines are as follows:

> **Zone A** – provide a minimum 20 feet wide level graded area at the top or base of slope and immediately adjacent to the protected development, no combustible structures, fully irrigated with automatic irrigation system, all vegetation shall be highly fire resistant and shall not include undesirable combustible vegetation.
>
> **Zone B** – provide a minimum 50 feet wide irrigated area and must be planted with plants from the approved OCFA Plant List. No combustible construction is allowed.
>
> **Zone C and D** – are considered the non-irrigated, thinning zones. Zone C is 50 feet in width and requires 50% thinning with removal of all dead and dying undesirable species. Zone D is 50 feet in width and requires 30% thinning with removal of all dead and dying growth and undesirable species. Specific requirements for these zones include: all fuels be reduced to a maximum of 8-12 inches in height and native grasses, when used, shall be cut after annual seeding and shall not exceed 8 inches in height. All plants within these zones must be chosen from the approved OCFA plant list. Trees which are being retained with the approval of the agency having jurisdiction shall be pruned to provide clearance of three times the height of the under story plant material or 10 feet, whichever is higher. Dead and twiggy growth shall also be removed. All existing plants or plant grouping except cacti, succulents, trees and tree-form shrubs shall be separated by a distance of three times the height of the plant material or 20 feet, whichever is the greater.
>
> The Guidelines do however allow special consideration for rare and endangered species, geologic hazards, tree ordinances, or other conflicting restrictions as identified in the environmental documents.

The applicant has chosen to design the proposed subdivision such that the residential lots are within approximately 100 feet of the existing Eucalyptus grove ESHA in order to maximize ocean and wetland views of the homes owners and to maximize the use the upper bench for residential development. Eucalyptus trees are highly flammable and are not allowed by OCFA to be planted or retained within 170 feet of habitable structures. However, the existing Eucalyptus grove on the upper and lower bench of the Bolsa Chica Mesa has been designated and environmentally sensitive habitat area by DFG, the Coastal Commission and is recognized as such by the Court. Therefore the Eucalyptus trees must be retained in place.

In August 2002 the applicant sought conceptual approval of their required Fuel Modification Plan from OCFA. OCFA responded that that the applicant could move the proposed houses back 50 feet to meet the Zone D fuel modification requirements due to the presence of the Eucalyptus trees within 170 from the proposed residential lots[9]. OCFA also stated that the applicant could propose alternate construction for the structures that would be adjacent to the Eucalyptus trees. The applicant applied for approval of Alternate Means and Methods to the above fuel modification guidelines instead of moving the homes an additional 50 ft. away from the ESHA as suggested by OCFA. In addition to use of alternative construction methods for the 16 homes whose Zone D fuel modification requirements overlap with the Eucalyptus ESHA (installing automatic sprinklers in the homes, and Class A construction of all roofs of the affected buildings), the applicant is proposing modifications to both Zones C and D, in lieu of moving the structures back 50 feet. Those changes to the above OCFA guidelines include the irrigation of both zones where they are adjacent to the overlap of Zone D and the Eucalyptus ESHA (Exhibit 14). According to the applicant's biological consultant, the irrigation of this area increases its equivalent width, when compared to non-irrigated zones. The applicant received approval of their Conceptual Fuel Modification Plan from OCFA in August 2002. However, OCFA approval of the Precise Fuel Modification Plan is still necessary. The Conceptual Fuel Modification approval also requires that some plants normally associated with coastal sage scrub communities not be allowed to be planted or retained within the fuel modification area. Those plant species are California Sagebrush (Artemisia Californica) and Black Sage (Salvia Melllifera), as listed in Exhibit 14a.

The alternate means and methods application was also for the proposed planting of wetland and coastal prairie habitats within the fuel modification plan area as well as the retention of the Eucalyptus trees. The plans for the upland habitat park also show coastal bluff scrub vegetation, not normally allowed within 170 ft. of habitable structures, being used in the northwestern portion of the park near Warner Avenue, but not in the southeastern portion near the Eucalyptus grove ESHA where it currently exists(Exhibit 14).

The proposed public upland habitat park, located on the slope between the upper and lower benches, serves the dual role of providing the full 170 foot wide (Zones A – D) required fuel modification area for the 57 residential lots that are proposed on the slope and bluff edges of the upper bench of the mesa (Exhibit 14a). The upland habitat park is 28 acres in size, including the existing 5-acre Eucalyptus grove ESHA. Based on the current design of the subdivision, 731,000 sq. ft. or 17 of the 28 acres of the upland habitat park is required fuel modification area. Therefore, nearly three-quarters of the public park must be planted, irrigated and maintained in a manner that provides fire protection for the adjacent private residential use. The required fuel modification area also includes 33,500 sq. ft. or 0.8 acres of the 5-acre Eucalyptus grove ESHA, according to

[9] OCFA SR# 68164 (1.9 Conceptual Fuel Modification), Brightwater Tentative Tract #15460, Unincorporated Huntington Beach, Bret Anderson of OCFA to FORMA, April 26, 2002, page 2, item 8. This letter is attached as Exhibit 14.

OCFA figures.[10] Of the total 57 lots that abut the public park, 25 residential lots abut the proposed 100 ft. wide Eucalyptus grove ESHA buffer. However, it is the fuel modification requirements for 16 of the lots that encroach into the ESHA, affecting 0.8 acres of the ESHA (Exhibit 14).

The Department of Fish and Game (DFG) in their review of the proposed fuel modification program, expressed concerns over the non-compatible goals of habitat protection and fire protection for adjacent habitable structures. DFG noted in its April 24, 2003 review of several documents associate with the Brightwater development approval that, a modified plant palette has been prepared to avoid native coastal sage or coastal bluff scrub species prohibited by the County's list of undesirable species including California sagebrush (Artemisia californica) and other common coastal sage scrub species. Also cited by DFG is the irrigation of coastal sage scrub (css) that is being protected in place and the normal requirement that css vegetation be thinned and removed as stated above in the Zones C and D requirements. Concern was also expressed over the limited list of species proposed for the coastal prairie plant community, especially given the abundance of non-native grasses and forbs that will compete with this new habitat. DFG suggested that additional local native species be added to the coastal prairie palette in order to increase native diversity and include native coastal grassland species that are more disturbance adapted for use in the detention basin. Finally, DFG commented on the likely results of the introduction of irrigation, mowing, thinning and other habitat disturbance that will be created by using the upland habitat park, including the Eucalyptus ESHA buffer, for fuel modification purposes. Specifically cited examples are the negative alterations of native arthropod communities and vegetation thinning requirements requiring the removal of species such as California sagebrush.

In response to the DFG concerns noted above, the applicant stated that they will work with OCFA in the required Precise Fuel Modification Plan approval process to avoid or minimize any thinning of existing coastal sage scrub that is being retained and to keep its irrigation to a minimum. The applicant's biological consultant further noted that they were allowed by OCFA to retain existing css in another coastal project without any thinning requirements after requiring the homes to implement similar alternate construction methods. The applicant further stated that irrigation is expected to be infrequent and minimal, and applied only when needed during the dry summer period and that many native species, including the species identified in the coastal bluff scrub palette for the project, can tolerate occasional summer irrigation, although they do not need it. DGF ultimately concurred with the applicant that the Eucalyptus ESHA will not be affected by the proposed project if all of the specific construction and management activities of the conceptually approved fuel modification plan are followed. Nonetheless, DFG also stated that they "do not consider fuel modification zones, regardless of their native species content, to be considered acceptable as mitigation for biological impacts."

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[10] These figures were obtained from the applicant on Attachment A of their 8/12/02 correspondence to Brett Anderson of OCFA concerning the Brightwater Conceptual Fuel Modification Plan, OCFA Service Request No. 68164, page 2 of 2.

Coastal Commission staff ecologist, Dr. Dixon recommends against the proposed use of the Eucalyptus ESHA buffer as a fuel modification zones to protect the proposed adjacent residential development from fire damage. This use would be inconsistent with section 30240(b) of the Coastal Act. The purpose of an ESHA buffer is to surround environmentally sensitive habitat areas in order to maintain the integrity and protect the resource values of the habitat areas. Buffers allow for some error in assigning boundaries, and also keep disturbances at a distance. The proposed project has already reduced the ESHA buffer by more than two-thirds of its necessary width to adequately protect the Eucalyptus ESHA, as detailed above. Buffers are also supposed to provide important auxiliary habitat (e.g. foraging or pollinator habitat) for the adjacent ESHA. The fuel modification guidelines as shown above are not consistent with the goals of protecting adjacent habitat. Buffers should be planted with appropriate native vegetation (drought-tolerant) and allowed to grow naturally after some initial irrigation, if necessary. However, as approved in the conceptual fuel modification plan, the entire width of the ESHA buffer would be irrigated, thinned and trimmed to meet fire suppression requirements and certain native coastal sage scrub species would not be allowed. Therefore ESHA buffers should not be used as fuel modification zones to protect adjacent development. The proposed use of the already reduced Eucalyptus ESHA buffer for fuel modification practices is inconsistent with section 30240(b) of the Coastal Act. Therefore the Commission must deny the proposed Brightwater project as currently designed.

E. PUBLIC ACCESS AND RECREATION

The provision of public access in new development proposals is one of the main tenants of the Coastal Act, especially in conjunction with new development located between the sea and the first public road, such as the subject project. The 225-acre Bolsa Chica Mesa is located between the first public road and the mean high tide of the sea. At nearly 50 ft. above mean sea level, spectacular views of the wetlands and the associated wildlife and uninterrupted views of the Pacific Ocean are available from the upper bench of the Bolsa Chica Mesa. The Bolsa Chica Wetlands at approximately 1,000 acres is the largest remaining wetland in Southern California. Following the 1997 State acquisition of most of the remaining wetlands that were under private ownership, a comprehensive Bolsa Chica wetlands restoration effort is now underway. Given the prominence of the adjacent Bolsa Chica wetlands, appropriate public access and passive recreational opportunities must be conspicuously posted and provided. Further, the Coastal Act gives priority to land uses that provide opportunities for enhanced public access, public recreation and lower cost visitor recreational uses.

Section 30210 Access; recreational opportunities; posting

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the

people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

(Amended by Ch. 1075, Stats. 1978.)

Section 30211 Development not to interfere with access

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30212 New development projects

(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) Adequate access exists nearby, or, (3) Agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

(b) For purposes of this section, "new development" does not include:

(1) Replacement of any structure pursuant to the provisions of subdivision (g) of Section 30610.

(2) The demolition and reconstruction of a single-family residence; provided, that the reconstructed residence shall not exceed either the floor area, height or bulk of the former structure by more than 10 percent, and that the reconstructed residence shall be sited in the same location on the affected property as the former structure.

(3) Improvements to any structure which do not change the intensity of its use, which do not increase either the floor area, height, or bulk of the structure by more than 10 percent, which do not block or impede public access, and which do not result in a seaward encroachment by the structure.

(4) The reconstruction or repair of any seawall; provided, however, that the reconstructed or repaired seawall is not a seaward of the location of the former structure.

(5) Any repair or maintenance activity for which the commission has determined, pursuant to Section 30610, that a coastal development permit will be required unless the commission determines that the activity will have an adverse impact on lateral public access along the beach.

As used in this subdivision "bulk" means total interior cubic volume as measured from the exterior surface of the structure.

(c) Nothing in this division shall restrict public access nor shall it excuse the performance of duties and responsibilities of public agencies which are required by Sections 66478.1 to 66478.14, inclusive, of the Government Code and by Section 4 of Article X of the California Constitution.

(Amended by: Ch. 1075, Stats. 1978; Ch. 919, Stats. 1979; Ch. 744, Stats. 1983.)

Section 30212.5 Public facilities; distribution

Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Section 30213 Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals

Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.

The commission shall not: (1) require that overnight room rentals be fixed at an amount certain for any privately owned and operated hotel, motel, or other similar visitor-serving facility located on either public or private lands; or (2) establish or approve any method for the identification of low or moderate income persons for the purpose of determining eligibility for overnight room rentals in any such facilities.

(Amended by: Ch. 1191, Stats. 1979; Ch. 1087, Stats. 1980; Ch. 1007, Stats. 1981; Ch. 285, Stats. 1991.)

The proposed project does not provide for maximum public access to and along the bluff edge where views of the coast are available, as required by the Coastal Act. While the proposed project includes a 28-acre upland habitat park at the slope and bluff edge, public access to the proposed public recreational amenity is limited by the uninviting guard-gated community design and the fact that general public vehicular access is not allowed within the residential community. The extension of separate public road on the eastern project boundary (Bolsa Chica Street) is the only public entry into the entire 105-acre site. Notice to the public of the availability of the proposed recreational amenity is inadequate. The public park is also being used to place facilities and uses to support the adjacent private residential community. As further discussed in the Biological Resources and Landform Alteration sections of this staff report, as currently designed, the proposed park entry road and public parking spaces, supported by a 30 ft. high, 2 acre fill slope, are all located within the already reduced Eucalyptus grove ESHA buffer and the fill slope on which they are located represents significant landform alteration. Further, the trail alignment is too close to the Eucalyptus grove ESHA and should be moved closer to the houses within the landward most 5 meters of the 100-meter wide buffer instead of the proposed 100-foot wide ESHA buffer.

The Brightwater development portion of the site is 105.3 acres and the proposed residual parcel is another 11.8 acres for a total project site of 117.1 acres. The applicant is proposing a 28-acre upland habitat park along the slope between the upper and lower benches of the Bolsa Chica Mesa and the southern bluff edge of the upper bench of the mesa (Exhibit 4). Therefore, 24% of the project area is devoted to public access and

recreation land use along bluff and 76% of the site is used for residential and unspecified purposes. The proposed public park provides public passive recreational uses, including wildlife viewing opportunities of the adjacent wetlands, and scenic views of Bolsa Chica State Beach and the Pacific Ocean beyond. Seating areas, up to 20 bike racks and interpretive information will also be provided along the 0.6 mile long paved pedestrian/Class I bike trail. The entire park will be dedicated to the County of Orange Department of Harbors, Beaches and Parks for recreation and conservation purposes upon completion of construction.

However, it must be noted that the proposed upland habitat park is being used for more than public park purposes. Of the 28 acres making up the proposed upland habitat park, 5 of those acres are the existing Eucalyptus grove ESHA, which must be preserved in place and must be adequately protected by a buffer separating it from the proposed residential development. 100% of the Orange County Fire Authority (OCFA) required 17 acre fuel modification plan area, to protect future homes that abut the park, is located in the public park. Additionally, a vegetated treatment system, the major part of the water quality management plan to treat low flow and storm runoff from the private community development, is also located in the public park Finally, the park acreage also includes the extension of Bolsa Chica Street, the only vehicular access to the park, and 30 public parking spaces at the end of this new road.

To determine whether a development meets the Coastal Act goal of providing maximum public access and recreational opportunities at a level appropriate for a particular site, the ease with which the public can use the amenities and not just the acreage devoted to such use must also be considered. The Coastal Act requires that public access opportunities be conspicuously posted to inform the public of the on-site amenities. The applicant is proposing a guard-gated, private residential community between the public road (Los Patos Avenue) and the proposed public upland habitat park along the slope and bluff of the upper mesa, at the opposite end of the 105-acre site. Pubic vehicular access within or through the community are prohibited. The general public is not allowed to drive into the residential community and park on its streets, to get to the three proposed resident only interior vertical accessways that lead to the various segments of the more than half mile long park and trail. Public vehicular access to the park is available only from Bolsa Chica Street on the inland most (eastern) boundary of the project site, farthest away from PCH, the route most visitors to the area travel. There is no signage concerning the proposed park or vehicular access thereto at the project site on Warner Avenue nor visible from PCH. The vehicular park entry location is not known to individuals who do not reside in this particular area of Huntington Beach.

The off-site signage informing the public of the availability of the proposed park is located at Warner Avenue and Bolsa Chica Street. The signage program includes no signage on Warner Avenue at Pacific Coast Highway. The existing publicly owned Bolsa Chica Ecological Reserve parking lot is located at Warner and Pacific Coast Highway. Many visitors from outside of the local area use this parking lot to enjoy the wetlands. This

would be a much better location for signage to inform the public of the proposed upland habitat park. The applicant should seek permission from the Department of Fish and Game, managers of the Ecological Reserve, to place public signage concerning the upland habitat park in the Ecological Reserve parking lot.

Private, guard-gated communities are not publicly inviting and are therefore not encouraged between the sea and the first public road. A visitor-friendly signage program that informs the public of the on-site public access and recreational amenities, including parking, may help to overcome the psychological public access barriers created by private communities. However, the proposed public signage program is also inadequate, further exacerbating the inadequacies of the overall public access and recreation provisions of the development. Therefore, although the proposed project includes a 28-acre upland habitat park, to be dedicated to the public, public access to the park is made difficult and therefore public access is actually discouraged. These design elements render the proposed project inconsistent with the public access and public recreation provisions of the Coastal Act.

Section 30212.5 of the Coastal Act advocates the distribution of recreation support facilities, such as parking, throughout an area as opposed to a single location in order to prevent overuse of any one area. This is especially significant given the sensitive land resources of the project site. The location of the only on-site public parking to support public use of the park is not approvable, as detailed in the Biological Resources section of this staff report, because it is proposed within the Eucalyptus grove ESHA buffer and would be located on a proposed 30 foot high fill slope, placing people and cars at about the same level of the tree tops (Exhibit 4 and 15). No public parking is proposed within the subdivision, providing more direct access to the park and outside of sensitive resource areas.. Therefore, the proposed project is inconsistent with Sections 30212.5 of the Coastal Act. By simply allowing the general public to drive into the subdivision, park along the streets of the community aong with the use of three vertical accessways, and by providing adequate signage to alert the public to these options, the proposal could meet the Coastal Act goal of maximizing public access and public recreational opportunities.

On September 14, 2004 the applicant made revisions to the propsed public access plan. The applicant will now allow public pedestrian and bicycle access through the community to access the proposed upland habitat park, including the use of the three paseos located throughout the residential community. To make the 114 off-site parking spaces viable the applicant has also added a gated entry from Los Patos Avenue allowing the public to park off-site and more easily get to the park through the residential community, by foot or bicycle. While this is an improvement, without any on-site public parking, the proposed project does not provide maximum feasible public access as required by the Coastal Act.

F. SCENIC AND VISUAL RESOURCES

The Coastal Act seeks to minimize the alteration of natural bluffs and cliffs in the coastal zone in order to protect the scenic views to and along the coast and throughout coastal areas generally. Section 30251 of the Coastal Act states:

Section 30251 Scenic and visual qualities

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

1. Existing Geomorphology and Past Development Activities

The Brightwater residential project site is located on the upper bench of the Bolsa Chica Mesa and the slope between the upper and lower benches. The proposed residual parcel is located on the lower bench, at the toe of the slope separating the two benches (Exhibit 15). Existing ground elevations on the upper bench range from 30-50 ft. above mean sea level (MSL). The surface elevation of the lower bench is 10-30 ft. above MSL. The two benches are separated by a slope approx. 25 ft high with an average gradient of 10-15%. Also at the toe of the slope, running parallel to it, lies the surface trace of the Newport-Inglewood fault, suggesting that the slope is a "fault line scarp", created by differential movement across the fault. According to the Commission's staff geologist, Dr. Mark Johnsson, the Bolsa Chica Mesa is one of the few places in Orange County where a fault line scarp can be observed, and is often the site of college level geology class site visits to see this feature first hand (Exhibit 13). Grading and urbanization have destroyed most fault line scarps associated with the Newport-Inglewood fault zone.

The southeastern bluff edge of the project site has a steeper gradient than the slope separating the upper and lower benches. The bluff face averages 45% slope with some areas being near vertical. At the toe of the southeastern bluff edge is the Isolated Pocket Lowland and the EGGW Flood Control Channel. The southeastern bluff was formed by fluvial erosion by the Santa Ana River when its alignment flowed in this part of the lowlands. The natural topography of the Bolsa Chica Mesa has been modified over the past 100 years. Previous activity includes agricultural use, the grading of access roads for the construction of oil wells and oil/gas pipelines, construction (in the early 1940's) and demolition (in the 1990's) of two World War II gun emplacements or concrete bunkers, archaeological investigation, and excavation of portions of the bluff and slope edges to be used for fill for development in the City of Huntington Beach (Exhibit 19). All of the past development, with the exception of the demolition of the WW II bunkers and the later archaeological investigations, was done prior to the Coastal Act.

Development on the Bolsa Chica Mesa pursuant to coastal development permits approved by the Coastal Commission include, the demolition of the WW II bunkers in the early 1990's and several archaeological investigation (two meters square hand excavation units, trenches, auger holes and controlled grading) and data recovery has also occurred on the Bolsa Chica Mesa pursuant to coastal development permits issued between 1983 and 1990.[11]

2. Bluff/Slope Edge Delineation

Commission staff and the applicant spent several conversations and written correspondence dealing with the location of the bluff edge of the upper bench of the Bolsa Chica Mesa. The applicant contends that because of the prior activity on the mesa, including alterations to the slope and bluff edges, that they do not constitute natural landforms. The Commission staff geologist disagreed with this assessment and continued to ask for a delineation of the top-of-slope. In addition, identification of the top-of-slope is relevant to an evaluation of the safety of the proposal irrespective of whether or not the slope constitutes a natural landform. The applicant also argues that the slope separating the upper and lower benches of the Bolsa Chica Mesa is not a bluff. Commission staff geologist concurs in the determination that the slope separating the upper and lower benches is probably not a bluff, given the gradual nature of the slope separating the two benches (Exhibit 13). However, again Commission staff continues to believe that a delineation of the top-of-slope for the western edge of the project site is necessary because of its usefulness in evaluating various aspects of the project.

The applicant finally produced a map showing the top-of-slope between the upper and lower benches to be a line drawn part way down the slope. Apparently this line was chosen because it corresponds to an interpolated line that is the top of a steep road cut on the slope. Although staff does not agree that the applicant's line conforms to the top of the actual altered slope, we do agree that the determination of top-of-slope is made difficult by the previous alteration that has resulted in the gradual rounding of the slope. Given the circumstances, Commission staff geologist indicated that, "it is probably best to determine the slope face on the basis of its measured gradient, which is markedly steeper than the very gentle gradient of the mesas above and below".

The applicant also produced a map containing a delineation of the edge of the river bluff on the southern edge of the upper mesa, overlooking the Lowlands. The applicant drew the line using the guidelines of the California Code of Regulations, Section 13577(h)(2). Commission staff geologist review of the applicant's bluff edge delineation found that while there are some small areas of disagreement, there is one major discrepancy. The discrepancy is the area of the large borrow pit where the applicant is proposing a 30 ft. high fill slope, approximately two acres in size (Exhibit 15). The applicant places the top of

[11] Several coastal development permits have been issued for archaeological investigation/salvage activities. The previous permits are discussed in Section ___, Cultural Resources, of this staff report.

bluff at the outer edge of the cut. However, Section 13577(h)(2) states, that in cases where there is a step like feature that, ". . . the landward edge of the topmost riser shall be taken to be the cliff edge". Following the above-cited Regulations, Commission staff geologist draws the bluff edge considerably inland of the applicant's line (Exhibit 13).

3. Proposed Grading

As currently designed, the 105.3-acre upper bench portion of the Brightwater project includes 630,000 cubic yards (cy) of balanced grading. No grading is proposed on the lower bench residual parcel. A breakdown of the grading reveals 330,000 cy of cut, 300,000 cy of fill and 30,000 cy of overexcavation or expected shrinkage of cut material due to compaction of the fill material. The grading plan retains the existing grade differential between the upper and lower benches and also aims to restore the transitional slope to a natural appearance along the proposed public park area, according to the application submittal. No grading is proposed within the existing Eucalyptus grove ESHA or two freshwater wetlands. However, the area adjacent to the 0.2 ac pocket wetland on the central slope area will be contour-graded to construct a series of interconnected wetlands and a detention basis to treat the residential low flow and storm water run off of the project as a part of the Water Quality Management Plan (WQMP) (Exhibit 9). The grading for the proposed 1.3-acre detention basin will also result in impacts to the habitat of the burrowing owl which has been determined to constitutes environmentally sensitive habitat protected by the Coastal Act.

The majority of the site work is to smooth out high points and the fill of low points including areas where roads, archaeological investigations and similar ground disturbances have occurred over the years. With the exception of the fill of the previous borrow area and the removal of the mound containing the crushed concrete from the WW II bunkers, the proposed grading plan shows that a majority of the cut areas will be 0 to 5 feet. The area nearest the project entry at Warner and Los Patos will receive the greatest cut, 10 to 20 feet and then 5 to 10 feet further into the site (Exhibit 15). The majority of the fill areas are 0 to 5 feet in depth but 5 to 10 feet along Los Patos and through the center of the site. Along the area abutting the upland habitat park, approximately 12 lots will receive 10 to 20 feet of fill. Additionally, approximately nine lots located at the current southeastern bluff edge where the 30 foot high fill slope is proposed will receive up to 30 ft. of fill on some portion of the lots. Significant landform alteration should not be allowed to occur at the bluff edge in order to extend the development footprint. The Commission has approved significant landform alteration (such as the construction of large fill slopes) in scenic areas, following such events as massive landslides. However, the Commission has allowed these large fill slopes where this method of stabilization was necessary to protect existing structures from further geologic danger and there was no other feasible alternative method that would have less of an impact on the scenic values of the area. However, this is not the case with the proposed project. There are no structures that are in danger. The applicant simply wishes to expand the development area of the site instead of locating the

proposed public improvements (the park entry road extension and public parking to serve visitors to the proposed upland habitat park) landward of the existing bluff edge.

The area where there will be the most significant amount of earthwork and landform alteration is the borrow site on the south edge of the bluff overlooking the Isolated Pocket Lowland. The application proposes a 30-foot high, two-acre fill slope at the southeastern edge of the bluff. The applicant states that there are two purposes for the fill: to restore the bluff to its 1939 contours and to allow the placement of the extension of Bolsa Chica Street and 30 public parking spaces for public use of the proposed 28-acre upland habitat park. However, a review of the grading plan shows that the fill also extends the rear yards of approximately nine lots that abut the park. As explained in the preceding section of this staff report, Scenic and Visual Resources, the proposed 2 acre, 30 ft. high fill slope on the bluff edge constitutes significant landform alteration and results in adverse visual impacts to visitors using the public trails in the Bolsa Chica Lowlands, below the project site as well as creating an adverse impact to views along the coast as viewed from PCH. The grading and proposed uses on the fill slope also are detrimental to the viability of the raptors that use the Eucalyptus grove ESHA as detailed in the Biological Resources section of this staff report. The paved road and cars, people, and noise will be placed at approximately the same elevation as the tops of the trees that are on the bluff face. The proposed "restoration" grading therefore cannot be found consistent with section 30251 of the Coastal Act. However, the remainder of the site grading does not raise an issue of consistency with Section 30253 of the Coastal Act.

The applicant proposes grading at the current southerly edge of the bluff overlooking the Isolated Pocket Lowland, now owned by the State of California. The new fill would be located within the applicant's proposed 100 ft wide Eucalyptus grove ESHA buffer. According to the applicant, the upper bench bluff edge grading is proposed in order to "restore" the bluff edge to its 1939 configuration. The bluff was altered in the early 1940's with the construction of two World War II gun embankments and in 1971 with the removal of material from along the slope overlooking the lower bench and the bluff above the Isolated Pocket Lowland. The applicant further states that the proposed fill is to support public access; the extension of Bolsa Chica Street, the only public road into the project site, and 30 public parking spaces, are to be located on the proposed fill slope area.

The proposed 30-foot high fill slope, approximately 2 acres in size, constitutes significant landform alteration in the opinion of Commission staff geologist, Dr. Mark Johnsson (Exhibit 13). Whether or not the proposed work qualifies as "restorative", it is nevertheless true that the land form in its existing condition still retains its essential natural shape, thus, Dr. Johnsson states, "The relative merits of such a "restoration" are debatable, but in my opinion it is clear that the proposed grading represents significant alteration of a natural landform." The proposed grading represents significant landform alteration in an area that currently contains scenic views and whose multi-million dollar wetlands restoration efforts will also restore and enhance the visual quality of the overall area by removing the existing extensive oil and gas facilities from the Lowlands. The proposed bluff edge grading would be visible from the Bolsa Chica Lowlands wetland trails

below and the manufactured slope would adversely impact scenic views from the Lowland trails. Some of the cars that would be parked on the new fill slope would be visible from below. Finally, the residential development on the upper bench will be located closer to the existing bluff edge due to the proposed two-acre fill slope at the current bluff edge. With the proposed Brightwater project, views of the upper mesa from Pacific Coast Highway and from the Bolsa Chica State Ecological Reserve Overlook on the lower bench will be changed from an open space area to an urban area. The closer the homes are to the bluff edge the greater this adverse visual impact on views from PCH looking toward this natural landform. This grading is therefore inconsistent with Section 30251 of the Coastal Act.

The proposed fill slope would also be located within the proposed 100 ft. wide Eucalyptus grove ESHA buffer, immediately landward of the ESHA itself. Although the applicant has stated that the proposed bluff edge fill is to support public access and recreation, review of the project grading plans shows that this statement is not completely accurate. The proposed 2-acre fill slope will contain a portion of the extension of Bolsa Chica Street, but it also contains and supports the rear yards of approximately nine residential lots (lots 13 - 21) under the proposed subdivision designHowever, the subdivision design could easily be reconfigured to move this access road and public parking to a location that would not require the proposed fill. In addition, greater public access could be achieved by removing the prohibition on public vehicular access into the guard-gated residential subdivision where on-street parking is available. Thus, this fill is by no means necessary to satisfy the public access provisions of the Coastal Act. The fill slope, 32 ft. wide road and 30-space parking area will be at the bluff edge, immediately adjacent to the Eucalyptus trees on the face of the slope beneath an existing dirt road and at roughly the same elevation as the tops of the Eucalyptus trees. Commission staff ecologist, Dr. John Dixon, recommends against this development adjacent to the ESHA, citing significant disturbance to the raptors that perch and nest in the treetops, as detailed in the Biological Resources section of this staff report. .

The proposed bluff edge grading constitutes significant landform alteration. The proposed landform alteration and subsequent parking lot and residential development of the fill slope is significant in that it will adversely impact scenic views from the Lowland trails within the now primarily publicly owned Bolsa Chica Lowlands, views from the Bolsa Chica State Ecological Reserve Overlook located on the lower bench and views from Pacific Coast Highway. The visual impact of the grading should also be considered in light of the Bolsa Chica Wetlands Restoration Program that has as one of its goals the enhancement and restoration of the visual qualities of this important coastal area by removing the extensive oil and gas facilities . The project EIR confirms that one of the unavoidable significant adverse impacts of the proposed project from converting the upper bench of the Bolsa Chica Mesa from an open space area to one of an urban area.

It is indisputable that the numerous past activities on the Bolsa Chica Mesa have resulted in alterations to the natural landform of the Mesa, including the slope and bluff edge of the

upper bench. The slope that the applicant is proposing to "restore" was further graded in the early 1970's, prior to the Coastal Act to support development in adjacent Huntington Beach. Despite this previous grading, the Bolsa Chica Mesa remains a distinctive natural coastal landform that together with the Bolsa Chica Lowlands and wetlands, form an important ecosystem. Most areas of southern California have sustained a certain amount of alteration; however, it is also appropriate to consider areas, such as the project site, that have been left alone subsequently for almost 30 years, as natural landforms warranting protection. Indeed, when the Commission acted on the Bolsa Chica LCP in 2000 one of the suggested modifications was to delete the policy that proposed this very same "remedial" grading at the southern bluff edge, as discussed in Section C of this staff report. Moreover, the Commission notes that most of the bluffs throughout the coastal zone have been altered, to some extent. This situation does not change the fact that coastal bluffs, including the bluffs at the project site, are natural landforms, which pursuant to Section 30251 of the Costal Act, should not be further significantly altered. This bluff area is visible from the public wetland trails below the project site. Therefore the proposed fill represents significant landform alteration, in an area whose scenic value is being further restored through the Bolsa Chica Wetlands Restoration project. Finally, the landform alteration is also has significant adverse impacts on the adjacent Eucalyptus grove ESHA as discussed in Section D, Biological Resources, of this staff report.

The applicant proposes to extend Bolsa Chica Street, with 30 public parking spaces at the new street end, into the proposed public park as the only public vehicular access to the entire site. The proposed fill is also used to add land area to and/or stabilize approximately nine of the proposed residential lots along the bluff edge. The elimination of the proposed bluff edge fill will therefore necessitate redesign of the proposed subdivision layout. The Commission is denying the proposed project as submitted. However, as detailed in the Alternatives section of this staff report, there are feasible less environmentally damaging alternatives to development of the upper bench of the Bolsa Chica Mesa with residential and public recreation land uses while avoiding significant landform alteration of the Bolsa Chica.

G. HAZARDS

Section 30253 Minimization of adverse impacts

New development shall:

(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

(3) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development.

(4) Minimize energy consumption and vehicle miles traveled.

(5) Where appropriate, protect special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses.

Section 30253 of the Coastal Act requires that new development minimize risks to life and property in areas of high geologic, flood and fire hazard. The proposed Brightwater development includes approval of a subdivision to create 379 single-family home lots in a guard-gated community, a 2.5-acre private community park for the residents of the development, and a 28-acre public upland habitat park with 30 parking spaces. The active Newport-Inglewood Fault runs along the slope between the upper and lower benches of the Bolsa Chica Mesa (Exhibit 15). In addition, there are many constructed fill and cut slopes on the proposed grading plan

1. Slope Stability Analysis

Commission staff geologist, Dr. Mark Johnsson reviewed the proposed grading plan and requested geotechnical information of the applicant in order to determine if the proposed project assures stability and structural integrity, will not contribute to erosion or geologic instability or destruction of the site or surrounding property or require the construction of protective devices that would substantially alter the natural landforms along the bluffs. The applicant's geotechnical consultant prepared direct shear tests on relatively undisturbed site samples in order to derive soil strength parameters for use in the slope stability analyses of the proposed slopes in the project based on the latest grading plan[12].

Commission staff geologist concurs with the applicant's geotechnical slope stability analyses demonstrating that all proposed slopes would be stable. However, due to the potential for surficial instability, Dr. Johnsson recommends that the applicant abide by the consultant's recommendations contained in one of the submitted reports regarding drainage and landscaping of the slopes.[13]

The applicant has submitted geotechnical evidence, with which the Commission staff geologist concurs, that all proposed slopes are stable. Nevertheless, one proposed slope,

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[12] Originally the County of Orange approved a grading plan that required 220,000 cubic yards of export and a 40-ft high fill slope on the southeast bluff edge instead of the current 30-foot high slope. The applicant planned to export the material to the adjacent Parkside Estates site in the City of Huntington Beach. When staff requested evidence of approval for the export, the applicant modified the grading plan to balance cut and fill operations on-site.

[13] AMEC Earth and Environmental, Inc. 1997, "Geotechnical evaluation report, Phase I rough grading plans, Vesting Tentative Tract 15460, Bolsa Chica Mesa, South of Warner/Los Patos Avenues, Orange County, California:, 60 p. geotechnical report submitted to the Koll Real Estate Group dated 1 December 1997 and signed by D. Dahncke (GE 2279) and S.T. Kerwin (CEG 1267).

30 ft. high, 2 acres in size, is inconsistent with the preservation of scenic views due to its significant landform alteration. As designed, the back yards of approximately nine of the proposed subdivision are dependent upon this large fill slope.

Fifty-seven of the proposed 379 residential lots abut the proposed upland habitat park. As designed, 100% of the required fuel modification plan for the abutting residential lots is designed to occur within the public park. As detailed below, although the proposed residential lots are stable, the proposed development, as currently designed would require (1) a fire protection plan that is inconsistent with the ESHA protection policies of the Coastal Act, (2) the construction of a large fill slope, constituting significant landform alteration, on the bluff edge which is inconsistent with the visual resources protection policies of the Coastal Act, and (3) creates an irregularly shaped residual parcel on the lower bench, with an unspecified use, which contains, among other things, an active fault line running through a significant portion, calling the safety of any future development of the parcel into question.

2. Newport-Inlgewood Fault Zone

A portion of the proposed subdivision is traversed by the Newport-Inglewood fault zone, generally recognized as the source of the 6.25 magnitude Long Beach earthquake in 1933 that killed 120 people and resulted in the passage of the Field Act. The fault traverses the gentle slope between the upper and lower benches and the southeastern and northwestern portions of the proposed lower bench residual parcel (Exhibit 15). The fault has also been designated an Earthquake Fault Zone by the State Geologist under the Alquist-Priolo Act. However, the area has not been identified as one susceptible to earthquake-induced landslides or liquefaction hazard on the California Geological Survey Seismic Hazard Map under the Seismic Hazard Mapping Act, according to Dr. Johnsson (Exhibit 13). In sum, the area immediately surrounding the fault qualifies as an area of high geologic hazard for purposes of Coastal Act section 30253(1).

The applicant has prepared and submitted for Commission staff review the necessary reports, including trenching and mapping, pursuant to the Alquist-Priolo Act. The studies verify that the North Branch Fault (of the Newport-Inglewood Fault Zone) is considered active. The surface trace of the fault was identified through detailed trenching and mapping, and a 50-foot setback from all fault traces was identified in accordance with the Alquist-Priolo Act, that prohibits structures for human habitation to be built across an active fault. Commission staff geologist's review of the fault data shows that the fault seems to be well established at its present location. Dr. Johnsson concurs that the 50-foot setback is adequate for the proposed upper bench residential development given that no residential lots of the subdivision abut the mapped fault setback line.

However, the fault line traverses all five of the proposed created wetlands and the southern portion of the proposed 1.3-acre detention basin lies within the setback line of the active fault. According to Dr. Johnsson, these water quality treatment pools could be

damaged during an earthquake. However, flood damage would probably not be significant since the wetlands are excavated below grade and because there are no structures on the lower bench below the created wetlands. However, the location of earthquake fault could very well pose a danger to development of the proposed lower bench residual parcel.

As shown in Exhibit 15, the active earthquake fault traverses the southern 500 feet of the residual parcel and approximately 1,000 ft. of the northern portion of the irregularly shaped 11.8-acre lower bench residual parcel. Coastal Act section 30253(1) requires that new development minimize risks to life and property in areas of high geologic hazard. The creation of the residual parcel is new development that makes further, structural development possible on the site. For this reason, among others, staff recommends that the Commission deny the creation of this parcel given its seismic hazard constraints and the fact that the applicant has refused to identify the intended use of the proposed parcel nor demonstrate that the parcel can be developed consistent with the geologic hazard and all applicable Chapter 3 provisions of the Coastal Act.

H. MARINE RESOURCES – WATER QUALITY

New development can have significant adverse impacts on coastal water quality, and thus, biological productivity, during grading and construction if adequate erosion and runoff control measures are not properly designed and implemented. New development can also adversely affect water quality after construction if permanent pollution prevention, reduction and treatment measures are not provided and maintained, for the life of the development. Sections 30230 and 30231 of the Coastal Act require the protection of marine resources by protecting the quality of coastal waters. Specifically, these policies require:

Section 30230 Marine resources; maintenance

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 Biological productivity; water quality

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies

and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

The 105.3 acre Brightwater project site is to consist of 379 single family residences, a community recreation center with a swimming pool, a 2 million gallon underground drinking water reservoir and open spaces areas. The impervious surfaces and activities associated with this scale of residential development represents a potentially significant impact to coastal resources, including portions of the Bolsa Chica wetlands, Huntington Harbor and ocean waters. The County of Orange required the preparation of a hydrology/water quality study in the review of the project at the local level. The applicant also prepared a Master Drainage Plan, Storm Water Pollution Prevention Plan (SWPPP), and Water Quality Management Plan (WQMP). These documents were submitted to Commission staff and reviewed by the Commission's Water Quality Unit.

The Brightwater development site is currently undeveloped and no off-site drainage flows onto the site. The mesa is vegetated with primarily non-native grassland, ruderal vegetation and several vegetated ESHA areas. There are also approximately 17 acres of dirt roads or other non-vegetated areas on the site. The hydrology study evaluates the existing hydrologic condition and divides the site into several drainage areas (Exhibit 7, Existing Hydrology). The majority of the project area drains to the south under existing conditions. The existing flows that drain to the south first drain to depressional areas that act as detention basins. The flows ultimately discharge to the Isolated Pocket Lowland via an existing 24 inch corrugated metal pipe (CMP) southeast of the project site. The Isolated Pocket Lowland area is located between the EGGW Flood Control Channel (EGGW FCC) and the project site and currently has no direct connection to the ocean. The area now belongs to the State and will be restored as part of the Bolsa Chica Wetlands Restoration Project. Through the wetland restoration program, the Isolated Pocket Wetland will be connected to the EGGW Flood Control Channel through a culvert that allows salt water to enter the Pocket Wetland on a regular basis, but with a reduced (muted) tidal range.

In recognition of Huntington Harbor's listing as a Clean Water Act section 303(d) impaired water body (for copper, nickel, Dieldrin, PCBs and pathogens) and flooding problems in Bolsa Chica Street, the project will divert most of the existing flows away from Huntington Harbor to Drainage Area B (Exhibit 8, Proposed Hydrology). Drainage area B currently drains to the stormwater wetland [is that right? yes] and ultimately to the EGGW FCC as described above [But above it says it goes to the Isolated Pocket Lowland. Is that the same? yes]. In the developed condition, Drainage Area A will be reduced from 5.03 to 2.76 acres and Drainage Areas F and G will be reduced from 21.19 to 3.63 acres for a total decrease of roughly 20 acres from the Huntington Harbor watershed. The areas diverted away from Huntington Harbor will be added to Drainage Area B. Most of the developed portion of Drainage Areas C and D will also be diverted to Drainage Area B. The remaining areas in these watersheds will be only the areas of the proposed 28-acre upland habitat park and undisturbed areas. The developed portion of Drainage Area E will also be diverted to Drainage Area B and the slope area below the public park will drain to

Drainage Area D. Only natural slope areas will continue to drain toward the Shea Homes property [is that different from draining to the south or to the harbor? Is this a third direction? I think that they talk about this flow separately, because it does not go through the storm drains to either area A or B, so it is a third direction.]. A total of 6.39 acres (Area A: 2.76 plus Areas F & G: 3.63 acres) will flow to Huntington Harbor, the only 303(d) listed receiving water. The discharge to the harbor will be treated by catch basin inserts with media filters designed to minimize the discharge of suspended solids; oil and grease; and pollutants associated with these materials..

Although the total area that flows to Drainage Areas A, C, D, E, F and G will be decreased, runoff rates in Drainage Areas A and D, will be increased due to the addition of impervious surfaces. Also, the passive nature park will contain impervious surfaces including a 12 ft. wide, approximately 3,500 ft. long pedestrian/bicycle trail and Bolsa Chica Street at 32 ft. in width and 30 parking spaces. These features represent a significant increase in the amount of impervious surface area. Drainage Area B will include the majority of the developed area and receive all of the runoff from the diverted areas increasing the tributary area from 45.4 to 80.9 acres. The applicant proposes to consolidate the runoff to this single drainage area and provide a water quality treatment system to treat the runoff. Moreover, all developed areas of the project will have standard structural and non-structural best management practices (BMPs) as indicated in the Brightwater water quality management plan (WQMP).

The non-structural BMPs include education for property owners, tenants and occupants; activity restrictions (e.g., no auto repairs or oil changing on site, no discharge of landscaping debris to storm drains, no clean up from painting in paved areas, no washwater from construction activities into stormdrains); common area landscaping maintenance; BMP maintenance requirements; common area litter control; catch basin inspections; and requirements for regular sweeping on private streets and parking lots. Structural BMPs include a Vegetated Treatment System[14] (referred to as a constructed wetland in the WQMP), Continuous Deflection Separators, catch basin inserts with media filters (on the portion of the site draining to Huntington Harbor), common area efficient irrigation, common area runoff minimizing landscape design, energy dissipating riprap at new stormdrain outlets and inlet trash racks.

The Brightwater development proposes to retain the majority of dry season low flows on site by diverting runoff to a Vegetated Treatment System (VTS) consisting of series of five freshwater ponds located within the proposed upland habitat park on the slope separating the upper and lower benches (Exhibit 9). Dry weather flows, and runoff from storms that

[14] The CCC water quality staff and non-point source staff from other state agencies prefer to call these BMPs Vegetated Treatment Systems to make it clear that the primary purpose is treatment of water quality and that any habitat benefits are secondary. This is to distinguish VTS BMPs from constructed wetlands where the primary purpose is habitat creation.

are smaller than 0.80 inches in 24 hours (the design storm[15]) will be diverted to the VTS after passing through Continuous Deflection Separator (CDS) structural BMPs. The CDS units are designed to remove trash and coarse particulate matter, as well as the pollutants and pathogens that are attached to these materials. The freshwater ponds will be constructed at varying depths with the goal of providing various habitat opportunities for wildlife and native plants. During wet weather storm events, runoff from the design storm will be released from the VTS over a 24 to 40 hour period into the adjacent 0.2-acre existing pocket wetland. The VTS and the overflow system are designed so that the amount of water flowing into the existing on-site pocket wetland is the same as that under existing conditions. In turn, when the existing on-site pocket wetland reaches capacity it will flow into a 1.3-acre detention basin. If the VTS reaches capacity during large storms (greater than the 0.8 inch design storm) the additional runoff will be diverted directly to the detention basin.

The detention basin will be located at the southern bluff edge in an existing depressional area and riprap will be placed at the outlet in order to avoid erosion of the off-site lowland area. It will be designed primarily to detain the peak flows during large storms for a few hours to improve flood control so that the maximum rate of flow to the Isolated Pocket Lowland is not significantly increased above the existing flow rate. It will detain the peak flow by routing the discharge through an existing 24-inch corrugated metal pipe prior to discharge to the pocket lowland. It is not considered to be part of the water quality treatment program, however discharge from small storm events may be partially treated by evapotranspiration, infiltration or adsorption.

The Water Quality staff of the Coastal Commission reviewed and evaluated the WQMP to determine whether it met its stated goals and whether it was in conformity with the marine resources protection policies of the Coastal Act (Exhibit 10). The Water Quality Unit concluded that the WQMP, which treats the majority of the project runoff through the proposed Vegetated Treatment System, could significantly reduce the discharge of polluted runoff from the development if certain necessary and feasible modifications were made to the overall treatment program. However, as proposed in the October 22, 2002 version of the WQMP, there were several inconsistencies with Sections 30230 and 30231 of the Coastal Act. A new version of the WQMP was submitted on September 14, 2004 and the modifications are detailed below.

First, if a Vegetated Treatment System (VTS) is used as a part of the WQMP it must be built following the guidelines of the California Stormwater Quality Association (CASQA). The California Stormwater Quality Association (CASQA) BMP handbook recommends that the permanent pool of water for a constructed wetland BMP be 2 times the water quality volume (the volume of runoff from the design storm event). The design provided by the applicant in the October 22, 2002 version of the WQMP had only 1.2 times the water quality volume in the permanent pool and thus did not meet the CASQA guidelines. The

[15] This design storm is slightly larger than the standard 85th percentile storm event for the project area, which is 0.75 inches.

applicant submitted a revised WQMP on September 14, 2004 with a design for the VTS that meets the 2 times water quality volume guidelines of CASQA. If this VTS is properly built, operated and maintained it is expected to adequately treat runoff during dry weather and from storms less than or equal to the 85th percentile design storm, in combination with the other aspects of the WQMP.

Second, the design provided by the applicant in the October 22, 2002 version of the WQMP did not provide any pretreatment upstream of the created wetlands and detention basin. Vortex separation BMPs would add to the overall reliability and effectiveness of the WQMP by removing coarse particulates and trash, as well as associated pollutants and pathogens upstream of the VTS and helping to maintain the aesthetic and habitat values of the constructed wetlands and detention basin. The September 14, 2004 version of the WQMP includes Continuous Deflection Separators (a brand of vortex separation BMP) that addresses this deficiency and will add to the overall reliability and effectiveness of the WQMP.

Another concern is the structural BMP indicated in the WQMP to treat water from Drainage Area A before discharge to Huntington Harbor. Due to the small area and steep slopes of this drainage area, the applicant selected catch basin inserts, with media filters designed to minimize the discharge of suspended solids; oil and grease; and pollutants associated with these materials for this area. However, there is a range in the quality of filters, types of filter media and level of maintenance The WQMP does not indicate the specific design of the product to be used. In order to protect water quality, the chosen catch basin inserts and media filter units must be adequately sized, use the proper media for the pollutants of concern and must be properly maintained for optimum performance. These issues were not yet satisfactorily addressed by the September 14, 2004 version of the WQMP.

Additional efforts to reduce impervious surfaces should also be included in the WQMP given the size of the development and the sensitivity of the adjacent coastal resources. For example, as proposed the upland habitat park will contain a 12 ft. wide trail, 32 ft. wide road extension and 30-space public parking lot, all of which is to be paved. These impervious surfaces are within the proposed native habitat park, within close proximity to the existing Eucalyptus grove ESHA. The 12 ft. wide trail is proposed to be located as close as 10 -12 feet away from the Eucalyptus grove ESHA (Exhibit 4)[16]. BMPs that reduce the amount of runoff can feasibly be added to the WQMP. For example the project could incorporate Low Impact Development features such as permeable pavement (in driveways, roads and parking areas) and discharge of roof runoff to landscaping areas (instead of allowing the potential for direct runoff to the streets and stormdrains). The WQMP should implement any other feasible BMPs that reduce site runoff.

[16] However, as detailed in Section II.D (Biological Resources) of this report, the proposed placement of these public access and recreation features is inconsistent with Section 30240 of the Coastal Act.

Various individuals, organizations and agencies have expressed concerns over the Brightwater WQMP. Those concerns include: potential adverse impacts to the Isolated Pocket Lowland wetlands due to the volume of the project (freshwater flows) and the remaining pollutants in the discharge (including a recommendation that post-development monitoring of the Isolated Pocket Lowlands be done in order to assess project effects on vegetation); adverse impacts to the mud flats of Outer Bolsa Bay; the adequacy of the proposed fossil filter catch basin inserts in removing pollutants, especially coliform bacteria and nutrients and the long term performance of the filters; given that the created wetlands are bypassed during larger storms, the treatment of the detention basin alone will not remove a considerable proportion of pollutants before their discharge into the Isolated Lowlands; the WQMP does not provide information on total loading; potential adverse cumulative impact caused by use of pesticides, fertilizers and other chemicals by individual homeowners, along with animal waste; low flows and first flush flows should be diverted to the OC Sanitation District treatment plant, consistent with the Coastal Commission's action in November 2000; long-term maintenance of the water quality system and annual monitoring is needed; project applicant should prepare water quality studies for receiving waters (including TMDLs for the Bolsa Chica Bay) prior to Brightwater development; the adequacy of the project erosion control plan; and, that the project's Santa Ana Regional Water Quality Control Board approval from 1998 may no longer be valid.

Considerable concern has been expressed about potential impacts of stormwater runoff may have in reducing halophytic plants and encouraging brackish or fresh water plants in the adjacent State-owned Isolated Pocket Lowlands, especially given the extensive 1,100-acre Bolsa Chica Wetlands Restoration Project (Restoration Project). When the applicant sold the Isolated Pocket Lowlands area to the State the applicant retained a drainage easement to accommodate the flows from the proposed development (Exhibit 12). However, the discharge must be done in a way that it does not adversely impact water quality or the biological productivity of the wetlands. Staff discussed these concerns with personnel from two of the eight State and Federal agencies that make up the Bolsa Chica Steering Committee charged with the restoration of the Bolsa Chica Wetlands[17]. Their response was that they are aware of the Brightwater plans for the Bolsa Chica Mesa and that the consensus of the Steering Committee is that they do not object to the proposed discharge to the Isolated Pocket Wetland area. Further, the Steering Committee feels that the low freshwater volumes into what will be muted tidal habitats would create very localized, but beneficial, biological diversity and are not likely to contribute contamination. Based on the current description of the wetland restoration project, it appears that during large storm events, runoff from the EGGW Flood Control Channel would backup into the Pocket Wetland, overwhelming any water quality impacts of the Brightwater Project. The restoration project is being designed so that the muted tidal flow would return the Pocket Wetland to saline conditions within a short time after the storm dissipates. During dry weather no fresh water will be discharged to EGGW Flood Control Channel and during

[17] Personal communication between Teresa Henry, Coastal Commission staff, Jack Fancher of USFWS and Bob Hoffman of NMFS in February and March 2004.

rainfall events smaller than the design storm freshwater will be released slowly over several tidal cycles.

Concerns about the need for a monitoring program or a quantitative estimate of the total loading of pollutants to the waters downstream are related in that they presume that the quality of runoff is regulated by quantitative regulatory standards, such as a waste load allocation. In fact, at this time, the control of polluted runoff nationwide and in California is primarily regulated by requiring dischargers to use nonstructural and structural Best Management Practices (BMPs) to reduce the discharge of pollutants to the maximum extent practicable. Few municipal stormwater permits contain numeric effluent standards or require site-specific monitoring and few TMDLs have been developed. Thus, the Regional Water Boards have not developed easily implementable, quantitative standards for the Commission to apply. In addition, the WQMP does indicate that there will be a basic performance monitoring program to test the water quality entering and leaving the Vegetated Treatment System for three storms per year over a three-year period. Nevertheless, if the state water quality agency finds that the discharges from this development may be causing receiving waters to fail state standards, that agency can require additional monitoring at any time and initiate an enforcement process, as needed to address the problem.

The strategy of requiring structural and nonstructural BMPs is a significant first step towards dealing with polluted runoff; a water quality problem that is widespread, caused by the actions of many people and where responsibility cannot be readily assigned to specific parties. A large variety of BMPs have been approved by federal and state agencies for their ability to reduce the pollutants that are found in polluted runoff. The suite of BMPs considered appropriate for California are found in the California Stormwater Quality Association (CASQA) BMP handbook. While the Coastal Commission has, on occasion, required monitoring of discharge from specific developments, this has been in response to the proposed use of management practices that are not designed to the specifications in the CASQA BMP handbook due to site-specific conditions or innovative methods in need of additional information to document effectiveness.

Concerns about potential adverse cumulative impact caused by use of pesticides, fertilizers and other chemicals by individual homeowners and the potential effects of animal wastes are valid and these pollutants are a potential problem throughout our coastal communities. In response to these concerns, the WQMP includes both non-structural and structural BMPs such as education for property owners, tenants and occupants; common area landscaping maintenance; common area litter control; catch basin inspections; requirements for regular sweeping on private streets and parking lots to deal with these issues; and the Vegetated Treatment System. The homeowner education BMP is intended to make individuals aware that misuse of water and household chemicals can have harmful impacts on the nearby wetlands, harbor and ocean. The Vegetated Treatment System, in combination with the recommendations above, can be an effective BMP for minimizing the impacts of irrigation runoff, pesticides, fertilizer and pet wastes,

especially in combination with source control of these pollutants through best management practices in the common areas and private areas of the development.

Another concern that has been expressed is the adequacy of dry season runoff to sustain the vegetation of the VTS and maintain its intended function of cleansing the nuisance flows. The potential for wetland plant growth to be affected by dry conditions is legitimate since source control efforts will work to reduce or eliminate dry season runoff thereby minimizing the transport of sediment, pesticides and fertilizer to surface waters and replicating natural runoff conditions in the Southern California environment. Nevertheless, the ability of the VTS to remove pollutants is only partly due to the active growth of wetland plants. Other removal mechanisms include adsorption of pollutants to soils and living or dead plant materials, infiltration of water into the soil, gravitational settling, physical filtration and microbial decomposition and evapotranspiration. Evidence from the constructed wetlands at Playa Vista indicates that pollutant removal does not significantly decrease during the dry season[18].

There has been some discussion of the possibility of diverting all of the dry weather flow and first flush runoff to a conventional sewage treatment system. While diversion has occurred for several major residential developments in Southern California over the past few years, it is not generally required by the water quality agencies or by the Commission. In some cases, diversion can be a quick fix to beach water quality problems, but it is an end-of-pipe solution that tends to de-emphasize the responsibility of upstream landowners to control sources of pollution, maintain site hydrology near natural conditions and minimize or eliminate dry weather runoff (e.g. runoff from poorly controlled irrigation systems). In addition, diversion of runoff to a sewage treatment plant would require the governing board for the plant to find that there is adequate capacity to treat the additional water. As sewage treatment plants approach their design capacity, governing boards can be expected to refuse to treat urban runoff if that would reduce their capacity to treat residential wastewater. In this case, the combination of source control and treatment control BMPs avoids the need for diversion to a sewage treatment plant.

In conclusion, Commission Water Quality Unit staff has reviewed the WQMP dated September 14, 2004 and supporting documents as listed above. Based on those documents, the Commission concludes that with additional assurances that the catch basin insert BMPs to be used are adequately sized, the proper media is chosen for the expected pollutants of concern and the units are properly maintained, the water quality aspects of this project would appear to be consistent with Sections 30230 and 30231 of the Coastal Act. Unfortunately, the proposed detention basin encroaches into the habitat of the burrowing owl and two of the five ponds that make up the proposed Vegetated Treatment System (VTS) encroach into the Southern Tarplant ESHA that have both been determined to be Coastal Act protected ESHAs (Figure 1 of Exhibit 20). This encroachment is inconsistent with Section 30240, as detailed in Section II.D (Biological Resources) of this report. Therefore, there may be restrictions on the size and shape of

[18] Personal communication, Xavier Swamikannu, Los Angeles Regional Water Quality Control Board.

the VTS due to this site constraint and other site requirements. These site constraints may make it difficult to design and build a VTS that will substantially conform to the CASQA guidelines. While this should not necessarily preclude the use of a VTS, it may indicate that additional source control and/or treatment control BMPs are needed in order to properly protect water quality. Alternatively, the applicant could move the VTS to a location where it would not be so constrained. Any efforts to reduce site runoff during storm events would help to maintain natural site hydrology and minimize impacts to the off-site resources. At this time, however, the applicant has not proposed a water quality treatment system that is at once approvable under the non-water quality-related Chapter 3 policies and also adequate to protect water quality and marine resources pursuant to sections 30230 and 30231.

I. CULTURAL RESOURCES

Section 30244 of the Coastal Act protects cultural resources in the coastal zone and states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

The environmental setting of the Bolsa Chica area lends itself to a rich cultural heritage. According to the project EIR, the Bolsa Chica Mesa was uplifted to its present elevation of about 50 ft. above sea level during the Pleistocene Period. The Bolsa Chica Gap was created by the Santa Ana River as it formed canyons during the end of this period, when sea level was much lower than it is today. During the Holocene Period, the river migrated between the Alamitos, Sunset, Bolsa, and Santa Ana gaps in the coastal area between Long Beach and Newport Bay. Between about 15,000 and 5,000 years ago the Bolsa Gap Lowland was gradually flooded as sea level rose to roughly its current position. Between 8,000 and 5,000 years ago, a shoreline was created about 2.5 miles southwest of the present location and the Bolsa Chica Mesa may have been at the head of a long lagoon at that time.

The prehistoric and historic natural resources of the area would have been ideal for human habitation. From the Bolsa Chica Mesa there are clear views of Anaheim Bay, the Pacific Ocean and Bolsa Bay. Santa Catalina Island is also visible from the mesa. According to the applicant's archaeological consultant, Dr. Nancy Desautels (Scientific Resource Surveys, Inc.), this geographic position offered three distinct marine zones that could provide year-round, unlimited marine animal and saltwater plant resources. The Bolsa Chica Mesa also lies within the Orange County "Artesian Basin" containing extensive ground water resources with numerous springs and freshwater seeps. Freshwater was essential for human habitation. Freshwater also attracted terrestrial

animals to the site and supported land and marsh vegetation. The open ocean, protected outer coast, and bay biological habitats existed during the Holocene Period. There is evidence of Native American presences on and adjacent to the Brightwater project site beginning in the Millingstone Horizon or Encinitas Period (6,000 to 1,000 BC), according to the project EIR. The EIR states that at the time the Spanish arrived, the Bolsa Chica area was shared by the Gabrielino (Tongva) and Juaneno (Acjachemen) Native American tribal groups. However, other archaeologist note that the Luiseno and the Descendants of the Southern Channel Islanders also consider the Bolsa Chica Mesa to be the resting place of their ancestors, exemplified by the burials that have been retrieved from the site.

Although numerous development activities have occurred on the Bolsa Chica Mesa over the last century, including agriculture, oil and gas development, the construction and demolition of military bunkers and grading (borrow) activities, the Bolsa Chica area, including the 105.3 acre Brightwater project site, has remained basically undeveloped and is still rich in cultural resources. Evidence of the rich cultural heritage is the fact that there are 17 identified archaeological sites within the greater Bolsa Chica area. Four of these archaeological sites are located on the Brightwater project site and two additional archaeological sites are adjacent to the project site. Investigations of the archaeological sites within the project vicinity began in the 1920's with extensive work occurring over the last 40 years. Due to the number of researchers and the length of time during which the investigations have been carried out, there are some discrepancies over the archaeological site descriptions and their boundaries. The six known archaeological sites on or adjacent to the Brightwater project site are ORA-83, -84, -85, -86, -144 and -288. ORA-86 and -144[19] are not located on the project site. Two of the archaeological sites, ORA-84 and -288 were destroyed in the 1970's when borrow material was removed from the central portion of the upper bench. ORA-83, known as the Cogged Stone Site and ORA-85, known as the Eberhart Site, are the two cultural sites located within the footprint of the Brightwater project.

Coastal Act Section 30244 states that reasonable mitigation measures shall be required where development would adversely impact identified archaeological resources. The applicant contends that the Brightwater development project will not adversely impact either of the two on-site identified archaeological sites due to the fact that a series of measures to mitigate the impacts of future development have been implemented completely in the case of ORA-85, and 97% complete in the case of ORA-83 [20]as approved by the County of Orange, and the Coastal Commission. The coastal development permits and other actions that have been taken by the Coastal Commission for ORA-83 and ORA-85 are reviewed below. Despite the fact that approvals were

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[19]ORA-144 is located on the Goodell property, east of and immediately adjacent to ORA-83, the "Cogged Stone Site. The two sites are divided by the dirt road that extends south of Bolsa Chica Street.
[20] "Archaeological Site CA-ORA-83: The Cogged Stone Site, Synopsis: A History of Archaeological Investigations, Nancy Anastasia Desautels, Ph.D, Scientific Resources Surveys, Inc., Project No. 926, April 28, 2003.. "Archaeological Site CA-ORA-85: The Eberhart Site, Synopsis: A History of Archaeological Investigations, Nancy Anastasia Desautels, Ph.D, Scientific Resources Surveys, Inc., Project No. 926, September 2003.

obtained from the County and the Commission for complete recovery of cultural resources, as proposed by the applicant, and archaeological testing and recovery work has been on-going since the mid-1980's, there still remains considerable opposition to removal of the cultural resources of ORA-83.

Commission staff has received several letters from archaeologists, including university professors, and several letters from environmental groups, Native Americans, and individuals calling for the preservation of ORA-83, even though they are aware that a full recovery program for the site has long since been approved. Staff received a copy of a 1999 letter form the head of the archaeology division of the Smithsonian National Musuem of Natural History supporting the preservation of what remains at ORA-83 and a 2001 letter from Congresswoman Loretta Sanchez supporting the listing of ORA-83 in the Federal Register as a National Historic Site. Some request that the site be capped and left as open space after the data has been recovered, instead of allowing residential development at the site of an identified prehistoric and historic cultural resource. While others suggest that further destruction of ORA-83 be avoided, relocation of proposed development away from ORA-83.. Yet others assert that recent mechanical excavations at ORA-83 have revealed the presence of numerous semi-subterranean house pit features at the base of the site and that this feature represents a new, significant area of needed research.

The July 10, 2003 brief update statement by the applicant's archaeological consultant, signed by the three current peer reviewers stated that , "The Peer Review Committee members, over the last several years, have overseen the nature of the ongoing phases of the Ora-83 site investigation and had made recommendations on strategies appropriate to address the unusual breadth of the emergent field discoveries." The update further states that the special new topics occurring at Ora-83 are the "describing and evaluating the patterns of the multitude of semi-subterranean 'house pit' features revealed." Professor Pat Matz, a past member of the California State Historical Resources Commission states in revisions to her 2001 nomination of ORA-83 for listing on the National Register of Historic Places to the State Historic Preservation Officer, that house pit structural features are rarely found in southern California and are extremely rare since the site was occupied during the Early Holocene/Millingstone Horizon of California prehistory. Semi-subterranean house pits are large circular depressions that were excavated below the surface a few feet and framed with poles and then thatched. Under normal climatic conditions (not consistently dry, or consistently wet) organic materials would not preserve. It is likely that the house pit structures would have a hard packed floor, post-holes and a hearth. Professor Martz feels that these house pit features are probably still present at the base of the site and that these semi-subterranean house pits have the potential to address important questions regarding village structure, social organization, settlement patterns, gender activities, and demographics, as well as relationship of the structures to astronomical features.

Additionally, staff received a request by a Native American from the Band of Luiseno Mission Indians, representing the Maritime Shoshone, Inc, a not-for-profit Native corporation, requesting that a 7.4acre portion of ORA-83 be preserved for its archaoeastronomical value. Ms. Louise Jeffredo-Warden has also in May of this year submitted a nomination of the ORA-83 site to the State Historic Perservation Officerfor listing of the site on the National Register of Historic Places. In Ms. Jeffredo-Warden's nomination submittal she states that the archaeological and archaeoastronomical data obtained at the CA-ORA-83 site, dated to from 8,660 to 1,098 RYBP, evidently constitutes, in addition to the earliest reliably dated observatory site in North America, one of the earliest fixed astronomical observation points in the world. Ms. Jeffredo-Warden is also requesting that the Coastal Commission preserve a 7.4 acre portion of ORA-83 in order to do further research on the site as well as the preservation of the existing site contours. In support of Ms. Jeffredo-Warden's efforts staff has received a letter from the Native American Heritage Commission (NAHC) Executive Secretary, requesting that the Commission ensure that mitigation measures are in place to preserve the features associated with the Cogged Stone Site's winter and summer solstice alignments. The letter goes on to say that destroying know alignments and others yet to be identified at the site could result in destroying critical information concerning America's most ancient naturally occurring astronomical observation site. A letter was also received from Senator Dian Feinstein, dated August 4, 2004 urging the Commission to fully consider the concerns raised by Ms. Jeffredo-Warden regarding appropriate mitigation for cultural resources of ORA-83. Several letters of support of the archaeoastronomical resources preservation were received from professors, the director of the Griffith Observatory and the International Indian Treaty Coucil (these letters are attached as exhibits as well as the public portion of Ms. Jeffredo-Warden's nomination of the site to the State Historic Resources Commission. Ms. Jeffredo-Warden's nomination is currently pending with the State Historic Preservation Commission. According to the staff her nomination is scheduled to be heard at the Commission's November 2004 meeting.

The applicant has submitted several letters in rebuttal to the statements of archaeoastronomical significance of the site. The applicant contends that several studies, over a period of years, were done and no archaeoastronomical significance was found to exist on the site The applicant also intends to object to and decline any listing of the site should the State Historic Resources Commission find in favor of the pending nomination.

Pursuant to Section 30244 of the Coastal Act, the Commission must be able to make a finding that the Brightwater development project will not adversely impact identified cultural sites In doing, so the Commission must also take into account the past Coastal Development Permits that have been issued to the applicant for investigation and full recovery of the cultural resources of the two known archaeological site on the project site.

Description and Status of ORA-83

ORA-83 is 11.8 acres in size and is located at the southeastern bluff edge of the Brightwater. ORA-83 is commonly known as the Cogged Stone Site, and consists of a shell midden. Cogged Stones are unusual artifacts that are manufactured and used in ceremonial practices. More Cogged Stones, over 400 or roughly half of the total found, have been found on ORA-83 than any other site and are thought to have been distributed thoughout coastal and near-coastal California. Similar stones have also been found on the coast of northern Chile. It is also believed that the Cogged Stone site served as a ceremonial center and a center for the manufacture of the Cogged Stones. ORA-83 has been twice found by the State Historical Resources Commission to be eligible for listing in the National Register of Historic Places. However, the listing has been declined by the property owner.

According to the applicant's archaeological consultant, the site has been 97% recovered at this point.. .

Description and Status of ORA-85

ORA-85, the Eberhart Site is described by Dr. Desautels of Scientific Resource Surveys, Inc. (SRS), as a shell midden located on the western edge of the Bolsa Chica Mesa. Knowledge of the Eberhart site has existed since the 1920's. Based on the numerous investigations of the site carried out by other researchers beginning in the mid-1960's and by SRS beginning in the 1980's, the Eberhart site was determined to be a residential base or village and was not a limited special-purpose shellfish gather and processing station. No evidence of ceremonial or other structures were found. Other than four quartz crystals, which may be evidence of ceremonial utensil manufacture, no obvious objects associated with religious ceremonies were recovered. Finally, no evidence of human remains in the form of burials or cremations was found. However, over 2,000 artifacts, more than 1,500 fire affected rock, and thousands of faunal remains have been recorded at the site. Although analysis of the recovered material had not been completed as of September 2003, the applicant states that the approved testing and data recovery program approved by the Coastal Commission concerning ORA-85 in 1989 was completed in 1991. .

Past Coastal Commission Action Concerning Archaeological Resources on or Adjacent to the Brightwater Project Site

The Coastal Commission reviewed and approved several coastal development permits and permit amendments for archaeological activity on and adjacent to the project site beginning in the early 1980's. The Commission and the Executive Director have also acted on a revocation request of one of the coastal development permits for activities within ORA-83 in 1999 undertook an investigation and report to the Commission in 1994 at the request of the City of Huntington Beach concerning ORA-83, respectively. The Coastal Development Permits action are reviewed below:

5-83-984.

The first coastal development permit for archaeological activity on the project site was permit 5-83-984, granted to Signal Landmark on April 11, 1984 for Phase I of "Final Research and Data Recovery Program" on ORA-83, known as the Cogged Stone Site. . The archaeological testing program was a five-step program approved under the coastal permit involved (1) an extensive survey and evaluation of all recorded prehistoric sites (done in 1970); (2) a series of archaeological test excavations; (3) an evaluative report based on a synthesized data from all test excavations (prepared in 1975; (4) an archival research focused on understanding the nature and extent of man's historic disturbances of the site with particular emphasis on delineating portions of the site likely to be least disturbed and worthy of further archaeological work (undertaken in 1981 and 1982); and (5) a final research and salvage program to define the remaining remnants of archaeological midden which still existed on the subject site. This permit was to allow was to allow the applicant to do further testing in order to determine the nature of the relationship between the surface concentration of cogged stones (that had been long since collected) and the underlying midden deposit (that had been heavily disturbed). The permit, which dealt with two main areas within ORA-83: the plowed field and the area around the eucalyptus grove because it was determined that the greatest amount of cultural material (which consists mostly of shell) is located within the eucalyptus grove since the presence of trees discouraged grading and plowing over the years. The narrow strip of land directly adjacent and north of the trees and a small area east of the grove contain shallow deposits of basal midden.

Prior to the issuance of this permit in 1984 the Research Design for the first phase of the project came under much scrutiny and opposition by the general public, several archaeologists and Native American groups as well.

5-83-702-A3[21].

The first coastal development permit for archaeological activity at ORA-85 the Eberhart Site, and ORA-289. The Signal landmark permit amendment for a testing and evaluation program for the two archaeological sites became effective on August 23, 1988, after no

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Coastal development permit application 5-83-702 and permit amendments 702-A and 702-A2 did not involve activity within any archaeological site. They were approved between September, 1983 and September, 1987 authorizing geotechnical trenching and soil borings to determine the location of faults and to gather other geotechnical information on the Bolsa Chica Mesa and the Lowlands. The original 1983 permit was granted to Signal Landmark and the Huntington Beach Company. The first permit amendment was granted to Signal Landmark and the permittee of the second amendment was Signal Landmark Inc. On behalf of Signal Bolsa Corporation.

objection was received of the Executive Director's determination that the permit amendment was consistent with the Coastal Act.

5-89-772

This coastal development permit application, granted to Signal landmark Inc. on December 14,1989 approved Phase II of the Final Research and Salvage Program for ORA-83, the Cogged Stone Site. This work represented the second half of the last stage of the five step archaeological program for ORA-83 that began with the work approved under permit 5-83-984 in 1984. One key element of the program was to ensure that it contributes to the understanding of history or prehistory through a carefully thought out research design. By the time of this application, ORA-83 had been nominated for inclusion in the National Register of Historic Places and was recommended for this designation by the State Historic Resources Commission on November 4, 1982 based on the significance of the archaeological artifacts the site has produced.
. The coastal development permit approved the excavation of 17 two-meter by two-meter hand units in six areas with the eucalyptus grove of the upper bench of the Bolsa Chica Mesa. However, if features or in-place cogged stones were found during the approved excavations, the excavation of additional intervening units would be allowed if needed in order to fully expose, document and remove those resources. The excavation of up to 12 additional units (for a total of 25 excavation units) was authorized by the permit. The Commission imposed one special condition on the permit requiring the submittal of written evidence that the applicant has retained a County certified archaeologist to monitor the work approved by the permit and the submittal of evidence that a copy of the report on literature and records search and field survey for the site had been reviewed and approved by the Orange County manager of Harbors, Beaches and Parks. Further, the applicant was required to demonstrate that the proposed project has been review from the above designated County official, from members of the Pacific Coast Archaeological Society (PCAS), and from the Native American Groups (more particularly those who belong to the Juaneno and Gabrielino tribes).

In an attempt avoid the controversy that surrounded permit 5-84-984, Commission staff met with representatives of the Juaneno and Gabrielino Indian tribal groups and the applicant's consulting archaeologist to determine who would represent both tribal groups in monitoring the proposed excavations. The applicant also published a notice in a local newspaper of general circulation of its application for a coastal permit for the proposed project. However, the Commission also required the applicant to provide copies of its research design to the PCAS for their review and recommendations.

5-89-772-A1.

This amendment was a request by the applicant to delete the requirement of review by the State Office of Historic Preservation from one of the special conditions. The applicant requested this change because there was a significant delay in getting the State Office of Historic Preservation to review and comment on the project. Ultimately the agency sent a letter stating that due to staffing shortages that they would not be able to review and comment on the project.

5-89-772-A2.
The amendment request was to allow the applicant to complete work on the 26 open test units tha had received review and approval from the Office of Historic Preservation. Upon completion of the testing, the units were to be backfilled.

R5-89-772.
Although Commission staff held meetings between the applicant and the affected Native American groups and required the review of the proposed work by PCAS, the controversy surrounding ORA-83 did not end. On November 3, 1999 the Bolsa Chica Land Trust filed a request with the Commission to revoke the Phase II approval of the final research and data recovery program permit. The contentions raised in the revocation request were: that further archaeological work, not in the immediate vicinity of the eucalyptus grove, and therefore beyond the approved scope of work was occurring; that the permitted work has been completed in its entirety for over five years, that the permit is also ten years old and therefore should be revoked or suspended; that the work under the permit was not pursued with due diligence as required by the standard conditions of the permit; the additional scraping and clearing The Commission denied the revocation request finding that it did not establish the grounds required to do so pursuant to Section 13105 of the Commissions' Regulations.

In conclusion, the Commission finds that significant questions have been raised with regards to whether the ORA-83 archaeological site still contains any cultural resource value that should be retained or appropriately mitigated in some other manner. This is an issue the Commission cannot resolve at this point. Therefore the protection of cultural resources is another unresolved issue of the proposed application. The Commission however notes that a portion of the area in contention, ORA-83, is located at the southeastern bluff edge of the project site. Under the staff's recommendation of a 100-meter buffer, a portion of ORA-83 would be kept in open space and planted with native vegetation.

J. ALTERNATIVES

As detailed in the preceding sections of this staff report, the proposed project is inconsistent with the public access, recreation, marine resources, land resources including environmentally sensitive and cultural resources, and the visual resources protection

policies of the Coastal Act. However, none of these inconsistencies is a direct result of the fundamental nature of this proposed project as a residential subdivision and habitat park. Thus, these inconsistencies do not necessarily mean that a fundamentally similar project cannot be built. Moreover, the Brightwater development site, including the 16-acre residual parcel being created by the proposed subdivision, is 121 acres in size and is relatively flat. Therefore, the redesign of the subdivision and the development of the site consistent with the policies in Chapter 3 of the Coastal Act are eminently feasible. However, a substantial redesign of the proposed subdivision including the road layout and physical development of the project site is necessary in order to avoid significant adverse impacts to the ESHA and other significant land, visual and marine resources of the site and to provide meaningful public access and passive recreational opportunities, as required by the Coastal Act.

In order to bring the development into conformity with the public access and recreation provisions of the Coastal Act, the subdivision streets must be open to public vehicular, use. The streets of the 70-acre residential community must be available for public parking in order to distribute public access and recreational use of the passive park throughout the entire park area and avoid overusing any one area, especially where it might focus on any protected ESHA.

The applicant has revised the proposed project to connect the 114 parking spaces along Los Patos Avenue to the bluff park by providing a pedestrian gate along Los Patos Avenue to allow those who park in these off-site spaces a more direct route to the park. However, on-site public parking still must be provided in order to maximize public recreation and public access. The public access signage program must also be improved to include signage at locations other than the intersection of Warner Avenue and Bolsa Chica Street to inform more members of the public of the location and the accessibility of the nature park and scenic trail.

In order to bring the project into conformance with the land resources protection policies of the Coastal Act, the following changes to the project would have to occur: (1) elimination of the proposed landform alteration at the southeastern bluff edge; (2) provision of a 100-meter Eucalyptus grove ESHA buffer and elimination of roads, parking lots, recreational facilities (with the exception of trails[22]) and all fuel modification within the ESHA and ESHA buffer; (3) elimination of the proposed impacts to the burrowing owl ESHA and the provision of a 50-meter burrowing owl ESHA buffer; (4) mitigation for the loss of raptor foraging habitat (annual grasslands and ruderal vegetation) at a ratio of 0.5 (preservation):1 (displacement), to be located adjacent to (and potentially including) the Eucalyptus tree ESHA buffer and burrowing owl buffer areas; and (5) elimination of the proposed translocation of the three populations of Southern Tarplant that have been determined to be ESHA, retain them in place and provide a 50-foot Tarplant ESHA buffer around each ESHA population; (6) elimination of impacts to coastal sage scrub and the

[22] A paved pedestrian/bicycle trail may be allowed in the Eucalyptus grove ESHA buffer provided it is located in the uppermost five meters of the 100-meter buffer.

provision of a 50 foot buffer; and (7) elimination of the creation of the proposed 16 acre residual parcel or the applicant must propose a specific use for the parcel and demonstrate that the parcel can be developed for that use consistent with all applicable Chapter 3 policies of the Coastal Act, including, but not limited to, the geologic hazards and land resources protection policies.

There are other project features that must be modified in order to bring the development into conformity with the applicable Chapter 3 policies of the Coastal Act. They include, but are not limited to, changes to the proposed water quality management plan to include filtering devices on the storm drains before the runoff flows into the proposed created wetlands or discharges to the storm drain system that ultimately discharges into Huntington Harbor; and the relocation or redesign of the proposed vegetative treatment system (created wetlands and detention basin) due to their impacts to the burrowing owl habitat ESHA or Tarplant ESHA, as currently designed.

As currently designed, approximately 55 of the proposed 379 residential lots along the bluff/slope edge, the detention basin and two of the proposed five created water quality treatment wetlands would be sited such that they would impact the existing Eucalyptus grove ESHA or the burrowing owl or Southern Tarplant ESHAs. The impacts are caused by their proposed locations or their fuel modification requirements. Further, approximately four additional residential lots and approximately two-thirds of the proposed 2.5 acre private recreation center near Los Patos Avenue would impact the Southern Tarplant ESHA that surrounds the Los Patos seasonal wetland.

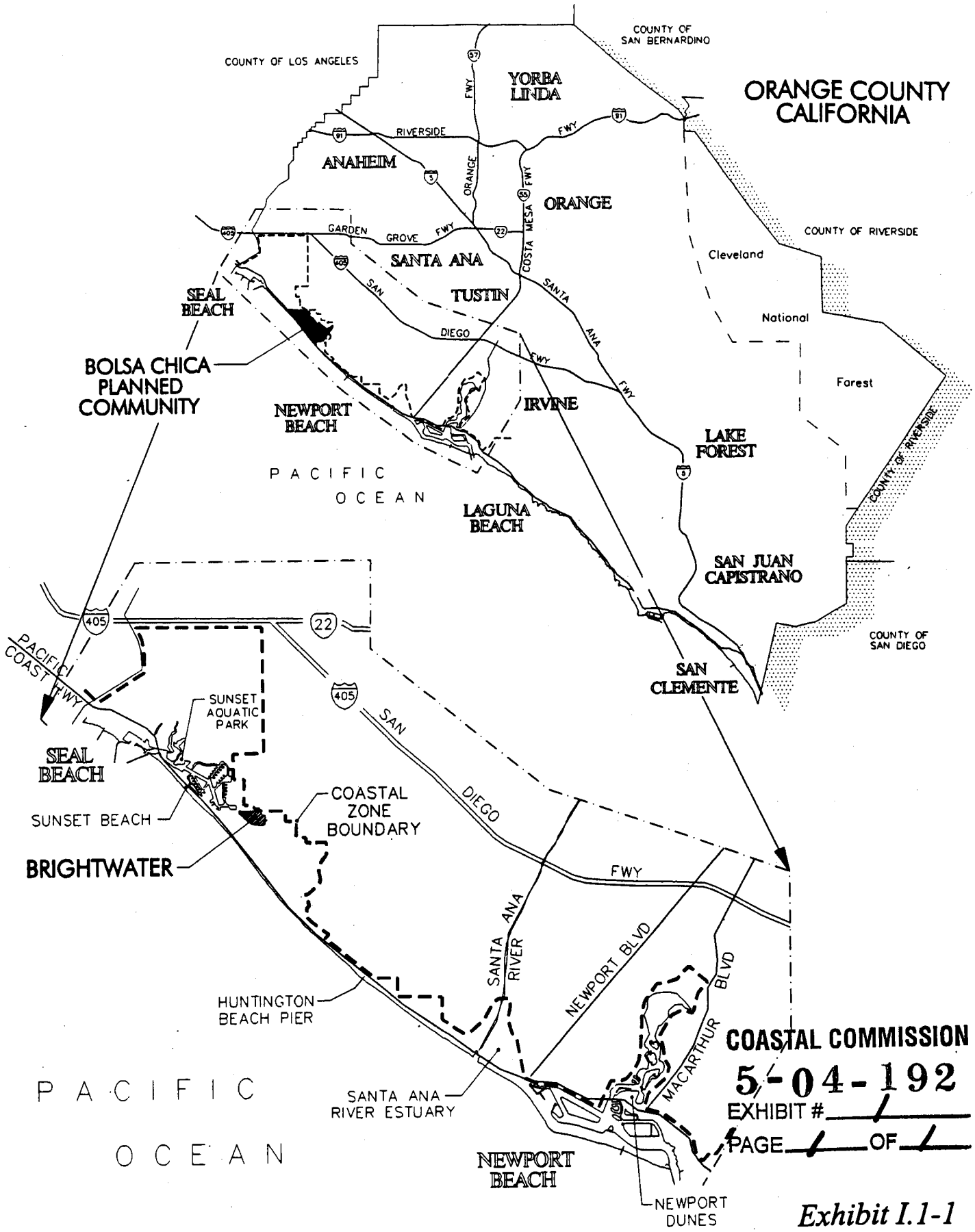
In summary, approximately 60 residential lots out of the proposed 379 lots would cause significant adverse impacts to environmentally sensitive habitat areas and other sensitive land resources. This represents 16% of the proposed residential lots. Additionally, the buffers around the Eucalyptus grove ESHA, the burrowing owl ESHA and the Tarplant ESHAs must be increased to adequately protect the viability of the habitat. The applicant may choose however to redesign the subdivision by also changing the internal road layout given the changes that would be necessary to the proposed alignment of the Bolsa Chica Street extension to avoid encroachment into the larger Eucalyptus and coastal sage scrub ESHA buffers. The developer could avoid all of these impacts, minimize changes to the structure of the subdivision, and still build literally hundreds of residential units, consistent with the Coastal Act, on what is currently two legal lots.

The Commission also notes that the total number of residential units would not necessarily have to be reduced at all. The subdivision could be redesigned to eliminate the proposed fill at the southeastern bluff edge and remove inappropriately sited development from its currently proposed location within ESHAs or ESHA buffers without reducing the number of units. Redesign of the proposed subdivision can be accomplished by several means and still allow 379 residential units or substantial development on a highly constrained site. Residential design alternatives include, but are not limited to: decreasing the size of the lots; increasing the density of development on the lots (by building duplexes, for example);

clustering some of the residential units on fewer lots (multi-family units); and deletion or significant reduction of the proposed 2.5-acre private recreation center given the passive recreation opportunity at the on-site nature park and the nearby Bolsa Chica State Beach; etc. The applicant ha specifically chosen a lower density, detached home product for marketing reasons as opposed to a higher density, multi-family option. The Commission has specifically supported and encouraged additional housing in an acceptable development footprint that both protects coastal resources and provides necessary public amenities.

At this point, the Commission cannot definitively state what alternative configurations would be possible. It would be necessary to have a specific development proposal available for review before any final analysis could be performed. The Commission also retains significant discretion in evaluating complex development proposals and deciding whether they can be found to be consistent with Chapter 3 policies or how they could be modified to become consistent with those policies. In certain cases, development that is inconsistent with one or more Chapter 3 policies may even be approvable, by invoking the balancing approach authorized by Section 30007.5 of the Coastal Act or the prohibition against takings in Section 30010. However, it is clear that a substantial residential subdivision, similar in its fundamental respects to the current proposal, is possible on this site.

Of course, there are other alternatives to developing this site as well, which do not necessarily involve maintaining the fundamental character of the current proposal (that the site be developed as a residential subdivision with a habitat park) at all. There are far too many options for developing this site to attempt to list them here, nor is it the job of this Commission to generate ideas for a private developer's development of its lot, but it is important to point out this fundamental reality about the development of the site.



COASTAL COMMISSION
5-04-192
EXHIBIT # 1
PAGE 1 OF 1

Exhibit I.1-1

Location Maps

BRIGHTWATER

HEARTHSIDE HOMES

NOT TO SCALE

FORMA
MAY 2002

sys1/bolsa/cdp/01-03/exhibits/location.dwg

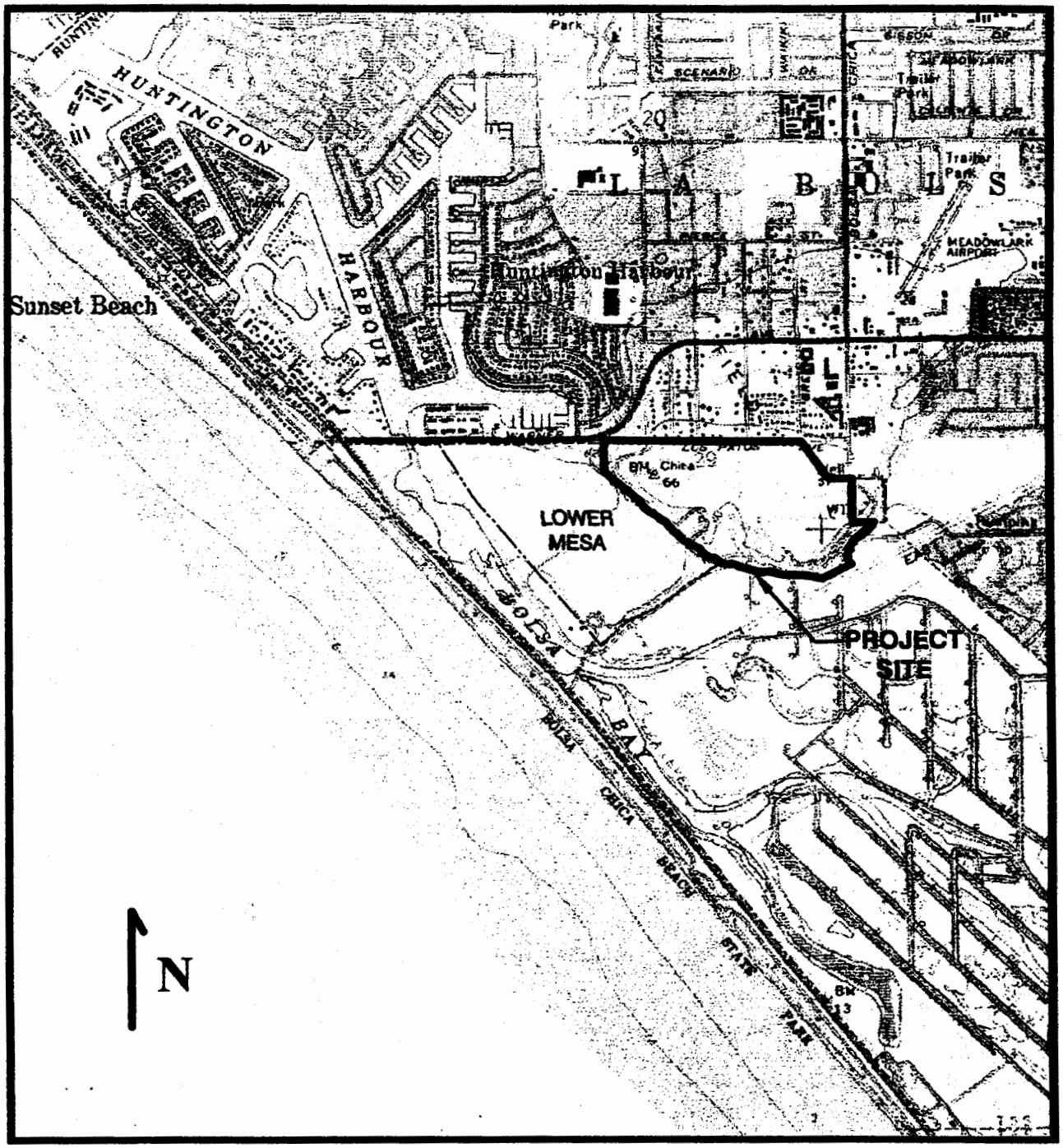


Figure 1. Map of Tentative Tract No. 15460 property. Scale 1:22,600.

height of 55 feet on the mesa to a low of about 10 feet above mean sea level.

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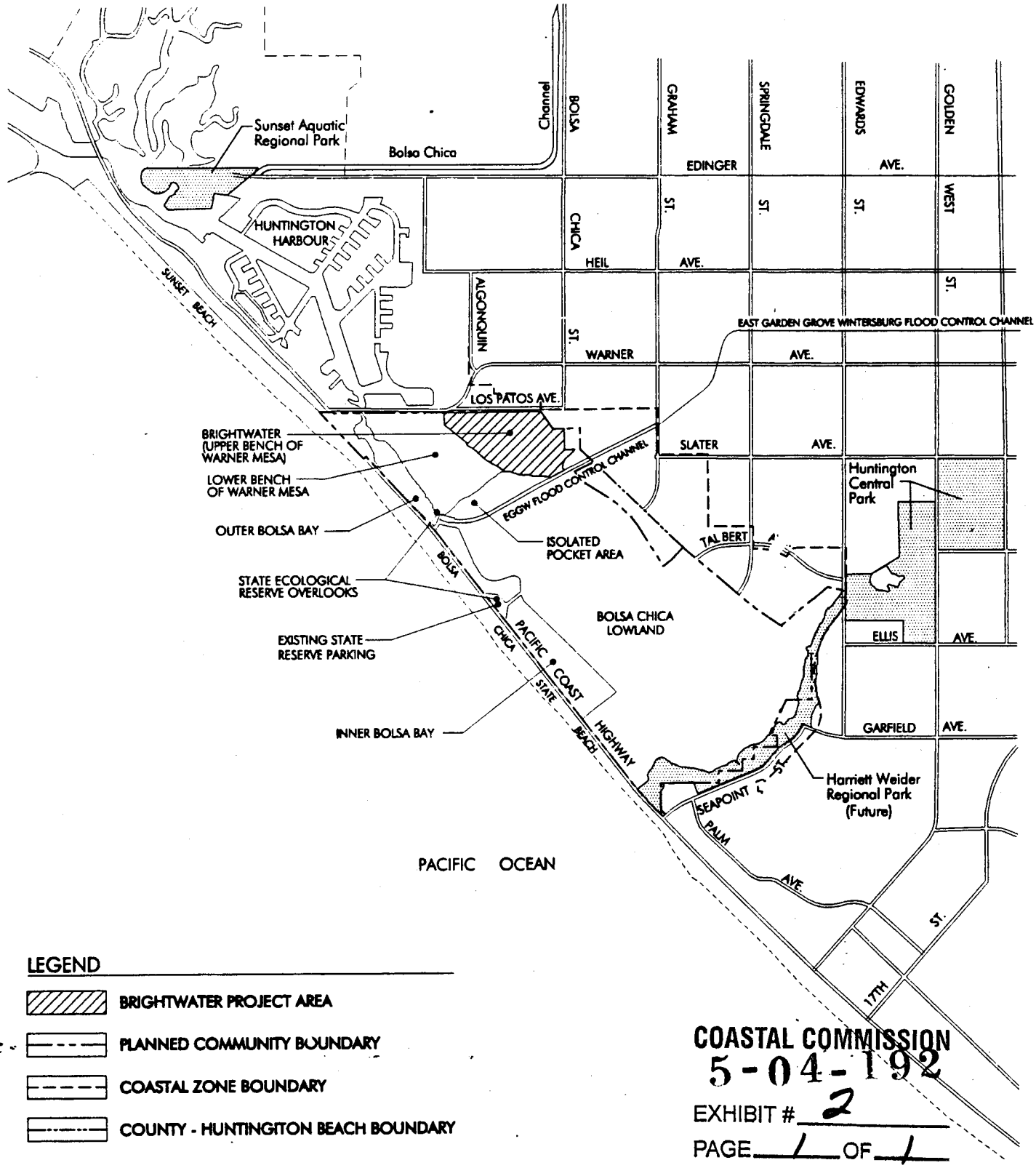

COASTAL COMMISSION
5-04-192
EXHIBIT # 2
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Exhibit I.1-2
Vicinity Map

BRIGHTWATER

HEARTHSIDE HOMES

0 600 1200

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MAY 2002

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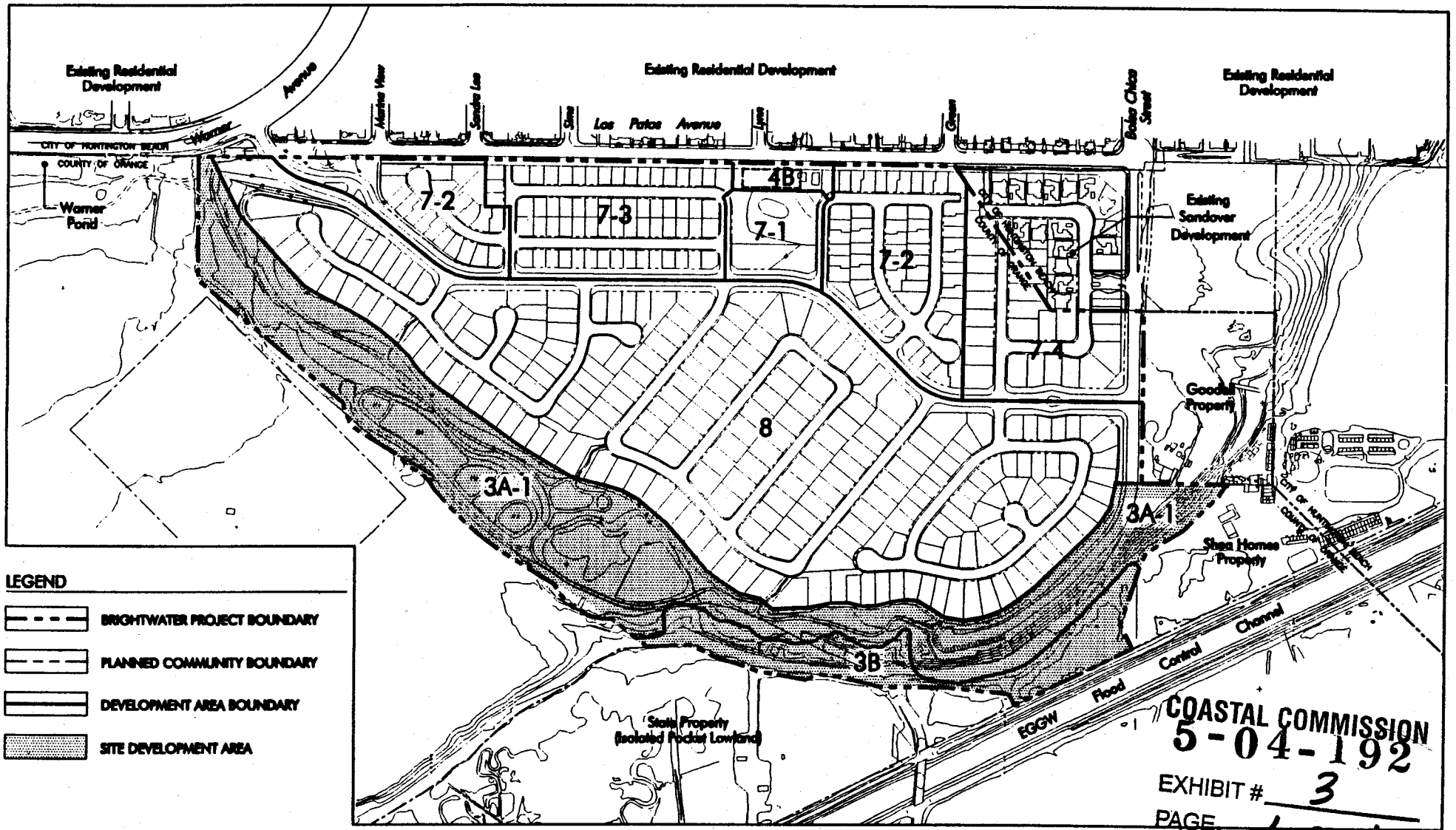

COASTAL COMMISSION
5-04-192
EXHIBIT # 3
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Exhibit III.1-1

Location Map

AREA 3A-1 AND 3B SITE PLAN

BRIGHTWATER

HEARTHSIDE HOMES

0 250 500

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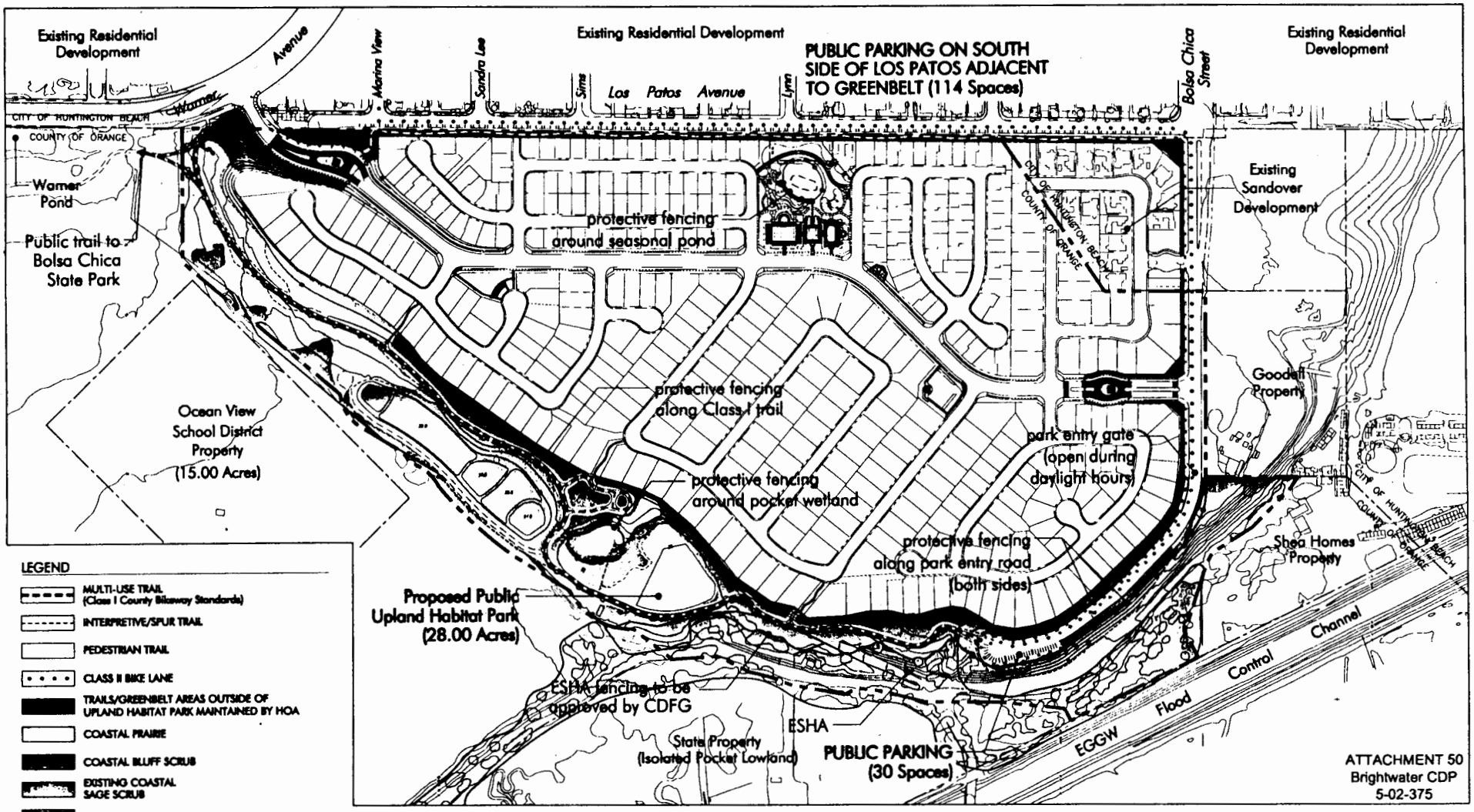


Public Parking, Trails, and Habitat Protection Plan

UPLAND HABITAT PARK

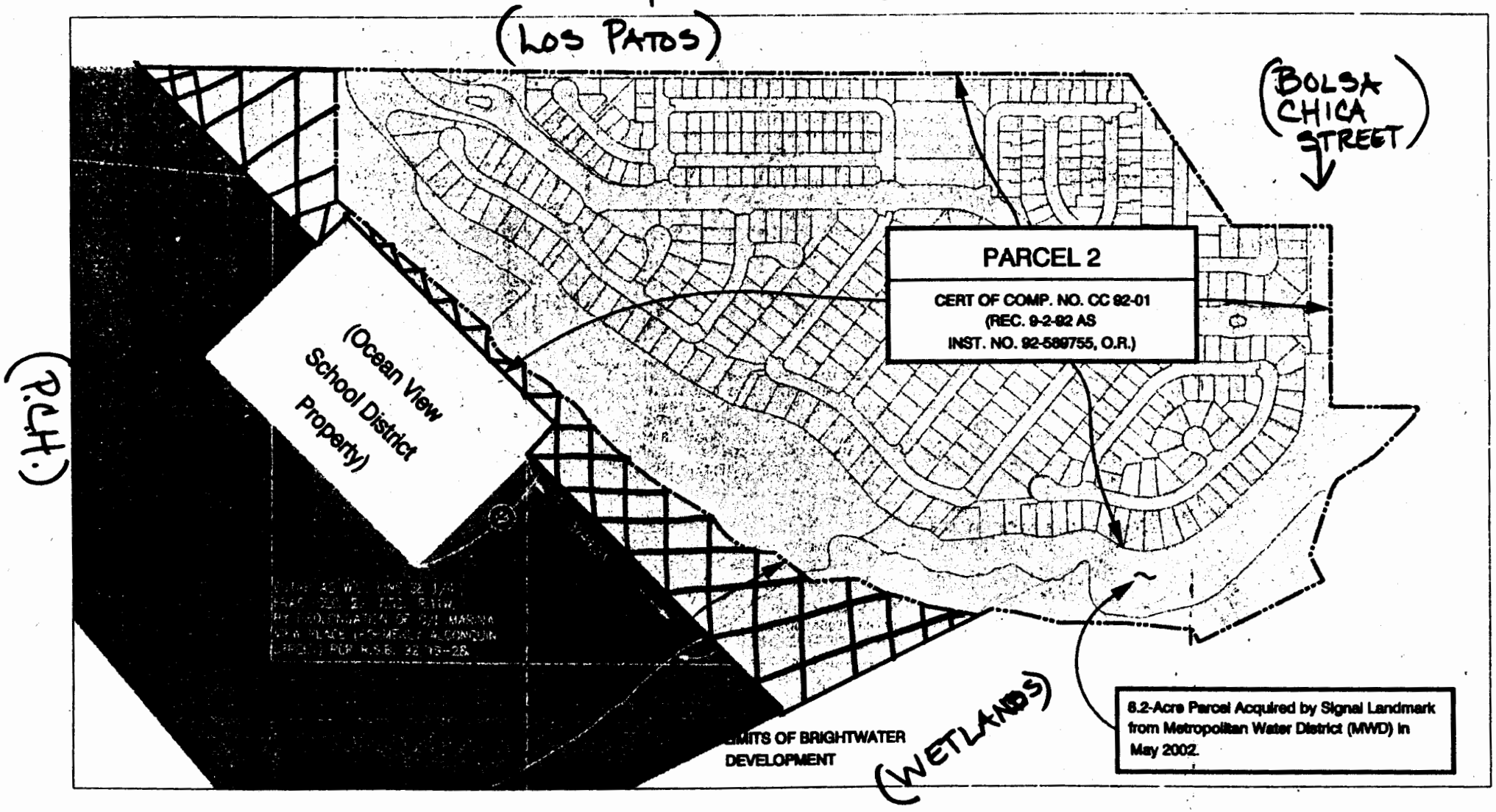
BRIGHTWATER PROJECT

COASTAL COMMISSION
5-04-192

EXHIBIT # 4

PAGE 1 OF 1

Portion of existing Parcel 2 that is not included in the proposed subdivision. The applicant stated that this residual lot is not a part of this application. Because no grading or construction is proposed, this does not constitute development. Staff disagrees.



BRIGHTWATER

HEARTHSIDE HOMES

COASTAL COMMISSION
5-04-192
EXHIBIT # 5
PAGE 1 OF 1

Parcel 2 and Parcel Acquired from MWD
Attachment to Brightwater CDP Application

HEARTHSIDE HOMES

RECEIVED
South Coast Region

JUL 13 2004

CALIFORNIA
COASTAL COMMISSION

July 12, 2004

Teresa Henry, District Manager
California Coastal Commission
200 Oceangate, 10th floor
Long Beach, CA 90802-4416

Re: Coastal Development Permit Application No. 5-04-192 (Brightwater, Bolsa Chica)

Dear Teresa:

Pursuant to your request for information regarding the Lower Bench of Bolsa Chica Mesa, enclosed please find a copy of the draft Purchase and Sale Agreement and Escrow Instructions between Signal Landmark and the State of California for the acquisition of 103 acres on Bolsa Chica Mesa referred to as the Lower Bench. Upon approval of the acquisition by the State Wildlife Conservation Board (a copy of the Wildlife Conservation Board's August 12, 2004 Agenda is enclosed), the shareholders of Signal Landmark and satisfaction of all other conditions to the close of escrow, these 103 acres would be acquired by the State for conservation purposes.

As we have discussed during the pendency of our application for the Brightwater project, most of the Lower Bench is a separate legal parcel which is not a part of our Brightwater application. During our discussions regarding the Brightwater application, the Coastal Commission staff has indicated great interest in the future use and disposition of the Lower Bench. I trust that the enclosed document provides you with the information you need with respect to the future use and disposition of the Lower Bench.

You have also requested that we amend our current application to address the future use and disposition of the 11.8-acre remainder parcel which was included in our application. When the application was originally filed and deemed complete, no land uses for the remainder parcel were identified. It was simply identified in the proposed tentative tract map as being "Not a Part" of the proposed subdivision, and no uses for that remainder parcel were proposed. The remainder parcel, however, is part of the 103 acres that is proposed for acquisition by the State and upon the close of escrow will be transferred to the State for conservation purposes. Therefore, we respectfully request that the project description for Coastal Development Permit Application No. 5-04-192 be amended to reflect that the remainder parcel is within the 103 acres covered by the Purchase and Sale Agreement and Escrow Instructions, and is proposed to be sold to the State of California for conservation purposes.

We trust that the enclosed agreement and our proposed modification to our project description respond to your request.

COASTAL COMMISSION
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EXHIBIT # 6
PAGE 1 OF 1

Very truly yours,

Ed Mountford

Ed Mountford, Sr. Vice President

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HEARTHSIDE HOMES

September 13, 2004

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South Coast Region

SEP 17 2004

CALIFORNIA
COASTAL COMMISSION

Teresa Henry, District Manager
California Coastal Commission
South Coast Area Office
200 Oceangate, Suite 1000
Long Beach, Ca. 90802-4302

Re: Disposition of the Lower Bench of the Bolsa Chica Mesa

Dear Teresa:

As a follow up to our conversation last week, I am writing to suggest a couple of alternative solutions to the concerns you have raised regarding the Commission's need for assurances that Hearthside Homes's affiliate, Signal Landmark will complete the sale of the Lower Bench of the mesa to the State if a Coastal Development Permit (CDP) is approved for our Brightwater project on the Upper Bench of the mesa. First, let me take this opportunity to reiterate the company's position regarding the Lower Bench.

Hearthside Homes has worked for the last four years to accomplish the land use goals for Bolsa Chica proposed by the Coastal Commission in November 2000 – concentrate residential development on the Upper Bench and preserve the Lower Bench as open space. We believe Signal Landmark's agreement with the Wildlife Conservation Board ("WCB") to sell the Lower Bench to the State so it can be added to the existing Bolsa Chica Ecological Reserve, coupled with a scaled down residential development on the Upper Bench, is entirely consistent with the Commission's November 2000 proposed land use plan for Bolsa Chica.

A conservation easement over the Lower Bench, as suggested by the Commission in 2000, is one means of ensuring the property remains as open space in perpetuity. However, it is limited in its ability to effectively protect habitat and provide public access. We believe that State ownership of the property achieves greater compliance with the Coastal Act and is more protective of coastal resources than having the property remain in private ownership. For example, incorporating the Lower Bench into the State Ecological Reserve would allow the California Department of Fish and Game ("DFG") to properly manage the property, undertake upland habitat restoration and more efficiently patrol and monitor the area (since DFG is already present on a portion of the mesa where the overlook is located) to enforce State resource protection regulations. DFG may also allow some limited public access to the property. None of these opportunities would exist if the property remains in private hands.

As we have discussed on several occasions, Hearthside Homes believes that amending our Brightwater application to include the Lower Bench of the mesa would violate the terms of the Purchase and Sale Agreement between Signal Landmark and the Wildlife Conservation Board. Article 4.6 of the Purchase and Sale Agreement states that Signal Landmark promises not to "...permit any lien, encumbrance, mortgage, deed of trust, right, restriction or

5-04-192
EXHIBIT # 6a
PAGE 1 OF 2

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easement to be placed upon or created with respect to the Lower Bench". Amending our application to include the Lower Bench would expose Hearthside to the possibility of a Commission decision imposing a conservation easement and jeopardize the agreement between Signal Landmark and WCB.

You have asked what assurances there are that, in the event the Commission approves the Brightwater project, Signal Landmark will complete the sale of the Lower Bench to the WCB. This is a valid concern. We have given this considerable thought and can offer two alternative solutions for the Commission's consideration.

1) CDP is Issued, but Not "Effective" Until Close of Escrow.

The simplest solution is for the Commission to add a special condition to the Brightwater CDP providing for the issuance of the CDP upon satisfaction of all "Prior to Issuance" special conditions, but limiting the "effectiveness" of the CDP until the sale of the Lower Bench is completed (escrow closes). In other words, the CDP would be issued once all of the relevant project conditions of approval have been satisfied – save the close of escrow condition -- but would not become effective (i.e., no physical development would occur) until the permittee and Commission receive confirmation that escrow closed. Hearthside will not agree to a special condition that requires escrow to close prior to the issuance of the CDP.

2) CDP is Released From Escrow Upon Close of Escrow.

The second solution is more cumbersome because it would necessitate amending the Purchase and Sale Agreement. The Purchase and Sale Agreement (Article 6 - Conditions Precedent to Closing) obligates Signal Landmark to deliver into escrow the deed to the Lower Bench. WCB is obligated to deliver into escrow the funds to be used to pay the purchase price. At the close of escrow WCB receives the deed to the Lower Bench and Signal Landmark receives the purchase price. The Commission could add a special condition to the Brightwater CDP requiring that the escrow instructions in the Purchase and Sale Agreement be amended to include an additional Condition Precedent to Closing that would require the Commission's Executive Director to deliver the CDP into escrow once all of the "Prior to Issuance" conditions of approval for the Brightwater CDP have been satisfied. At the close of escrow the WCB receives the deed to the property and Signal Landmark and Hearthside receive the purchase price and the CDP for the Brightwater project.

If either of these alternatives appear feasible from your perspective, we should meet to discuss them in more detail. If you have any questions please call me.

Sincerely,

Ed Mountford

Ed Mountford: Sr. Vice President

5-04-192

COASTAL COMMISSION

EXHIBIT # 6a
PAGE 2 OF 2

HEARTHSIDE HOMES, INC.

September 14, 2004

Ms. Teresa Henry,
District Manager/Project Analyst
South Coast Area Office
CALIFORNIA COASTAL COMMISSION
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302

RE: Four Amendments to Project Description
Brightwater CDP Application 5-04-192 (Hearthside Homes)

Dear Ms. Henry:

As we discussed during the meeting in your office on September 2, 2004, Hearthside Homes is revising the Brightwater project to address some of the issues raised in your July 24, 2004 staff report.

This letter transmits four (4) revisions that Hearthside Homes has made to the Brightwater site plan. These revisions are depicted on a series of text and graphic attachments to this letter. Hearthside Homes is formally requesting that the project description for Coastal Development Permit Application (CDP) 5-04-192 be amended to reflect these changes, which are summarized below.

Attachment 1 is the *Revised Southern Tarplant On-Site Preservation and Translocation Plan*, prepared by LSA Associates and dated September, 2004. The previous translocation plan, which would have translocated some Tarplant from the upper to the lower bench of the Bolsa Chica Mesa, has been modified by LSA to retain on the upper bench all of the Tarplant that currently exists in three (relatively small) areas on the upper bench. The modified plan preserves Tarplant located within the footprint of the seasonal pond near Los Patos Avenue. Nearby Tarplant that is located outside the footprint of the seasonal pond will be translocated to a contiguous area around the seasonal pond that will be fenced. The protected Tarplant area will, in turn, be surrounded by a 50-foot-deep buffer of native plantings. The plant palette for this buffer was approved by the California Department of Fish and Game for the Upland Habitat Park. The remaining two small areas of Tarplant on the upper bench are located within the Upland Habitat Park. These will be preserved and translocated within the same two areas of this nature park. They too will be surrounded by native plantings per the plant palette approved by CDFG for the park.

5-04-192
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PAGE 1 OF 2

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Attachment 2 is the *Revised Public Access Plan* prepared by FORMA Design, dated September 13, 2004. The previous public access plan has been modified to allow the general public – both pedestrians and bicyclists – to access into and through the residential area of the Brightwater project from six (6) different locations around the perimeter, including the two (2) primary resident entries (at Bolsa Chica Street and Warner Avenue) and three (3) pedestrian paseos that connect the residential area to the Upland Habitat Park. The sixth entry was added from Los Patos Avenue – through the Homeowners Recreation Area – to improve public convenience from the 144 new parking spaces that will be located along this roadway when it is fully widened and improved.

The CC&Rs for the Brightwater Community Maintenance District have been revised to ensure that the public pedestrian/bicycle access points will remain unlocked and open to the public during daylight hours. The revised public access plan retains all previously proposed components, including a public park road, 30 public parking spaces, interpretive trails, and a Class I pedestrian and bicycle trail through the length of the Upland Habitat Park.

Attachment 3 is the *Revised Water Quality Management Plan* prepared by The Keith Companies and dated September 9, 2004. This revised plan incorporates the additional measures suggested by Commission Staff, in particular, the addition of Continuous Deflection Separator (CDS) Units into the design of the storm water infrastructure system. This change is illustrated on a revised Figure 3, Storm Water Flow with Constructed Wetland Areas. Also, the constructed wetland (vegetated treatment system) has been updated to reflect 13 years of rainfall records instead of 8 years, and the entire system has been upgraded to meet all current agency standards. In all pages 12-16, 22-23, and 45 were revised by The Keith Companies to update the WQMP.

Attachment 4 is the *Revised Public Trails Plan* prepared by FORMA Design and dated September 13, 2004. This revised plan relocates the Public Class I Pedestrian/ Bicycle Trail within the Upland Habitat Park further away from the Eucalyptus ESHA as requested by Coastal Staff. As redesigned, the public trail is now located a minimum of 75 feet away from the ESHA.

In conclusion, if you have any questions regarding this request to amend our CDP Application 5-04-192 (Brightwater), to incorporate the four (4) changes described above, please call me at (949) 250-7760.

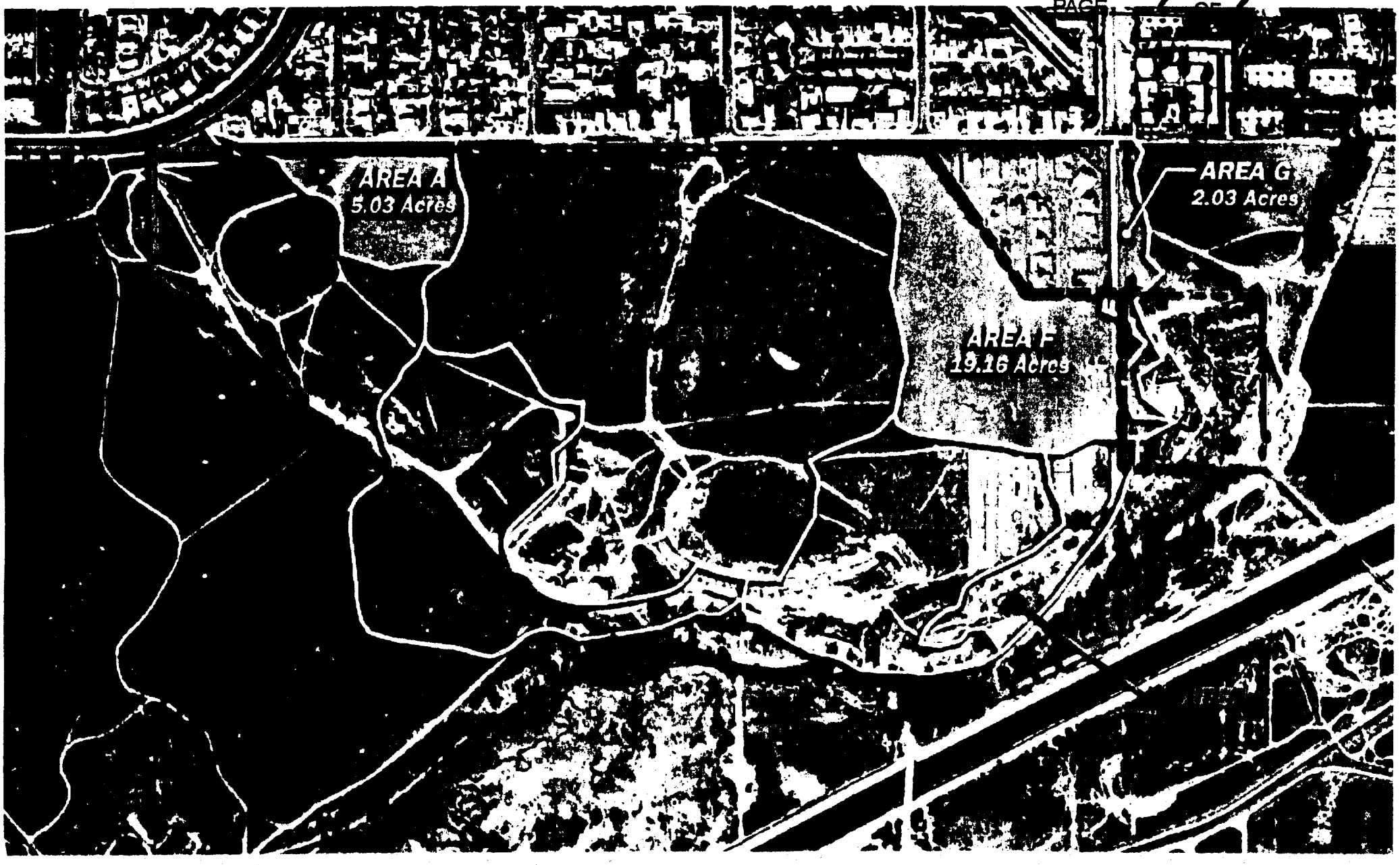
Sincerely,

HEARTHSIDE HOMES, INC.

Ed Mountford
Senior Vice-President

5-04-192
COASTAL COMMISSION

EXHIBIT # 6b
PAGE 2 OF 2



Existing Hydrology / Drainage Conditions

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5-04-192
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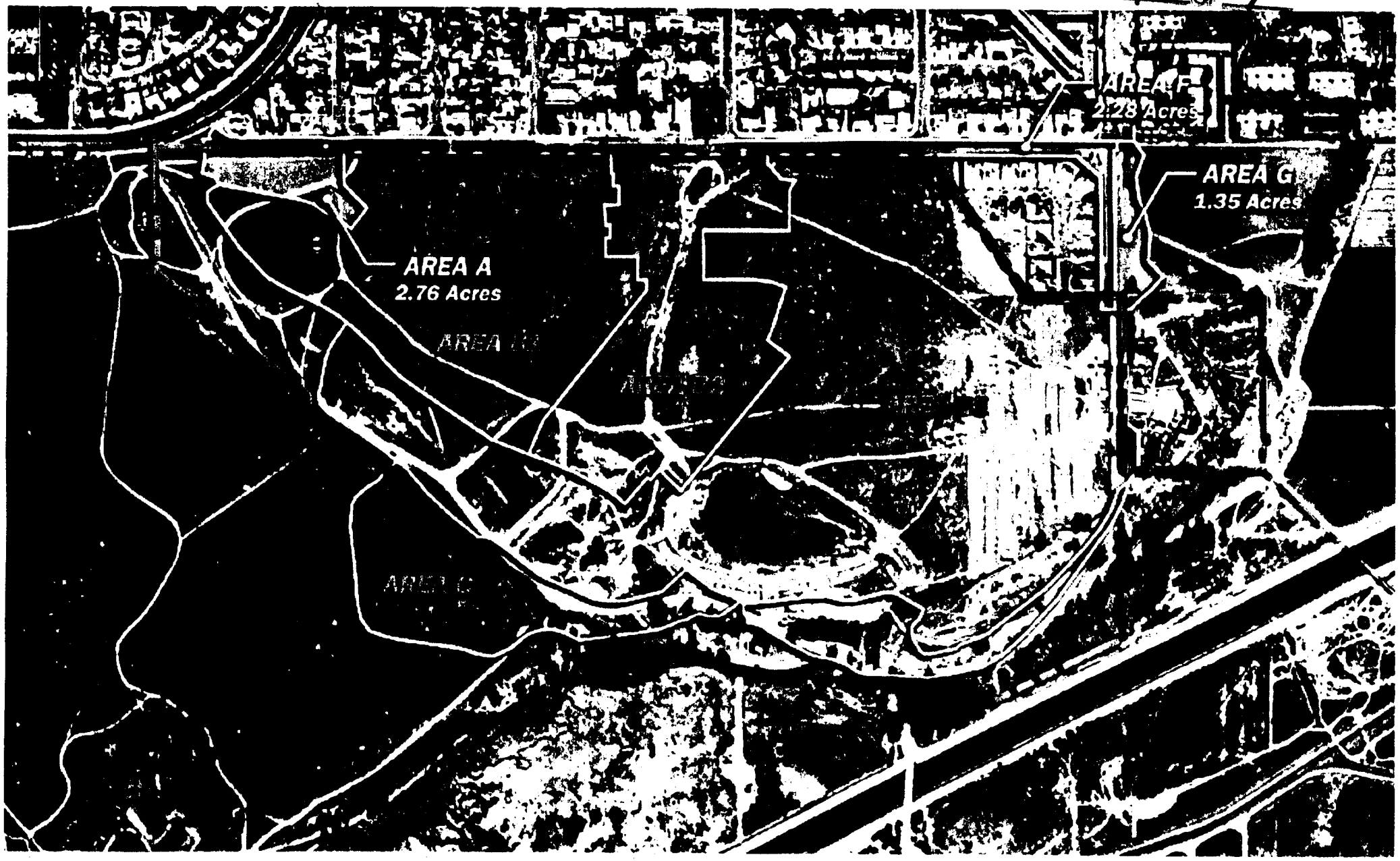
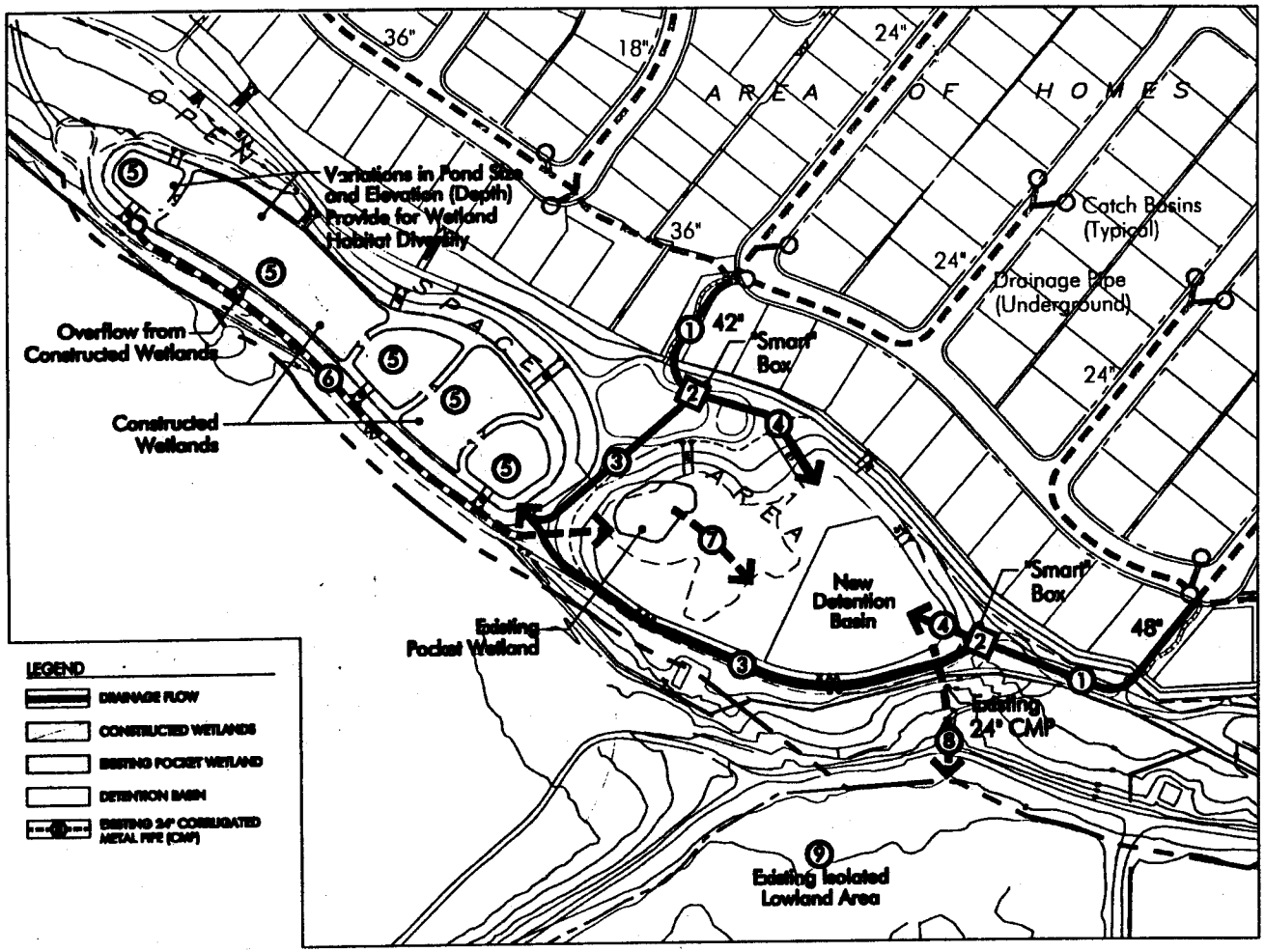
PAGE 1 OF 1



Proposed Hydrology / Drainage Conditions



1. Rainwater runoff is collected in streets, captured into catch basins, and conveyed by drainage pipes to the created wetland areas.
2. "Smart Boxes" sense the rate of drainage flow, and divert runoff to one of two water treatment areas.
3. Flows from the smallest 85% of storms (i.e., less than 3/4" in 24 hours) and from the "first flush" from major storms are diverted to the Constructed Wetlands.
4. Major storm flows are diverted directly to the Detention Basin, which is sized to accommodate a 100-year storm.
5. Water entering the Constructed Wetlands progressively fills a series of five freshwater wetland ponds. Pond bottoms vary in elevation, thus providing wetlands with different water depths, vegetation, and wildlife habitat opportunities.
6. When the Constructed Wetlands Area reaches capacity, the uppermost pond overflows into a pipe that outlets into an existing Pocket Wetland to the south.
7. When the Pocket Wetland reaches capacity, it overflows into the Detention Basin.
8. The Detention Basin drains – via an existing 24" diameter pipe – into the Isolated Wetland Area in the Lowland formed by the northerly embankment of the East Garden Grove Wintersburg Flood Control Channel and the southerly toe of Warner Mesa.
9. The Isolated Wetland Area in the Lowland is comparatively large and can contain any annual storm flow from the BrightWater Development, and has no hydrologic connection with Inner or Outer Bolsa Bay, or the Pacific Ocean.

BRIGHTWATER

Storm Water Flow within Constructed Wetland Areas

COASTAL COMMISSION
5-04-192
EXHIBIT # 9
PAGE 1 OF 1

Figure

STATE OF CALIFORNIA—THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

June 25, 2004

MEMORANDUM

To: Peter Douglas, Executive Director
Teresa Henry, Coastal Program Manager

From: Jack Gregg, Water Quality Supervisor

Re: Brightwater Water Quality Management Plan

The water quality aspects of this project were reviewed in detail over the last two years by Janna Shackeroff and Jeff Melby, formerly of the Commission's Water Quality Unit. I have reviewed the Water Quality Management Plan (WQMP) dated October 22, 2002 and the briefly scanned other water quality documents for the project. In addition, I have had several phone calls with Paul Carey of the Keith Companies, water quality consultants for the project.

Background

The project as described in the WQMP would consist of 387 single family residences, a community center with a pool, a 2 million gallon drinking water reservoir buried below grade, and open spaces. The impervious surfaces and activities associated with this scale of residential development represents a potentially significant impact to coastal resources, including portions of the Bolsa Chica wetlands, Huntington Harbor and Huntington Beach. The threat is heightened due to the proximity of the site to the Bolsa Chica wetlands. Huntington Harbor is listed by the state as impaired for copper, nickel, Dieldrin, PCBs and pathogens.

The project proponents propose to address the runoff generated by the development through a program of non-structural and structural BMPs that minimize reduce the impacts on coastal waters. Non-structural BMPs include education for property owners, tenants and occupants;

activity restrictions (e.g., no auto repairs or oil changing on site, no discharge of landscaping debris to storm drains, no clean up from painting in paved areas, no washwater from construction activities into stormdrains); common area landscaping maintenance; BMP maintenance requirements; common area litter control; catch basin inspections; and requirements for regular sweeping on private streets and parking lots. Structural BMPs include a constructed wetland, media filters for storm drain inlets (on a 5 acre portion of the site draining to Huntington Harbor), common area efficient irrigation, common area runoff minimizing landscape design, energy dissipating riprap at new stormdrain outlets and inlet trash racks. In addition, discharge from the constructed wetlands and other areas of the site passes through a detention basin to reduce peak flows during storm events.

The developer proposes to build a constructed wetland (also known as a Vegetated Treatment System[1] or VTS) to treat runoff from storms that generate up to 0.8 inches of rainfall in a 24 hour period (the design storm), which is slightly larger than the standard 85th percentile storm event for this area. The VTS will treat runoff by adsorption of pollutants to soil and plant materials, infiltration and evapotranspiration. Dry weather flow will entirely captured by the VTS during the summer months, eliminating any dry weather flow to coastal waters. During wet weather storm events, runoff from the design storm will be released from the VTS over a 24 to 48 hour draw down period into the "Pocket Wetland" and from there will flow to the detention basin. Runoff events greater than the design storm will be diverted to the detention basin.

While discharge from small storm events may be partially treated in the detention basin (by evapotranspiration, infiltration or adsorption), the detention basin is primarily designed to reduce peak flow rates for a few hours during large storm events. Discharge from the detention basin passes through a 24-inch outlet pipe into the "Pocket Lowland" area of Bolsa Chica, northwest of the East Garden Grove Flood Control Channel.

The developer claims that the combination of structural and non-structural BMPs will:

[1] The CCC water quality staff and nonpoint source staff from other state agencies prefer to call these BMPs Vegetated Treatment Systems to make it clear that the primary purpose is treatment of water quality and that any habitat benefits are secondary. This is to distinguish VTS BMPs from constructed wetlands where the primary purpose is habitat creation.

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- Reduce the stormwater and dry weather runoff from the site to the impaired waters of Huntington Harbor by 75%;
- Slow the discharge rate of runoff to the Bolsa Chica wetlands;
- Maintain the hydrologic conditions of the Pocket Wetland; and
- Treat the runoff from 85th percentile storm events.

Conclusions

The treatment of runoff from the project through a VTS should significantly reduce the discharge of polluted runoff from the development, if the VTS is built following the guidelines of the California Stormwater Quality Association (CASQA). The system would be improved by the addition of vortex separation BMPs upstream from the VTS and the detention basin. This would remove coarse particulates, trash and other debris and help to maintain the aesthetic and habitat values of those structural BMPs. These vortex separation BMPs would add to the overall reliability and effectiveness of the treatment system.

Even with the above improvement (vortex separation) there are still some uncertainties about the design, location and effectiveness of the VTS. The California Stormwater Quality Association (CASQA) BMP handbook recommends that the permanent pool of water for a constructed wetland BMP be 2 times the water quality volume (the volume of runoff from the design storm event) and the most recent design provided by the developer only has about 1.2 time the water quality volume in the permanent pool. In addition, possible restrictions on the size and shape of the wetland due to other site requirements (e.g., habitat protection) may make it difficult to design and build a VTS that will substantially conform to the CASQA guidelines. While this should not preclude the use of a VTS, it may indicate that additional source control and/or treatment control BMPs should be provided to properly protect water quality.

Given the sensitivity of the adjacent coastal resources and the benefits of moderating the effects of project's directly connected impermeable surfaces, this project would benefit from the incorporation of Low Impact Development features such as the use of permeable pavement (in driveways, roads and parking areas) and discharge of roof runoff to landscaping areas (instead of allowing the potential for runoff to the streets and stormdrains). The WQMP does not discuss

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consideration of rain gardens, restrictions of on-street parking or minimizing street widths to reduce site runoff[2] or use of permeable pavement in driveways or streets. Given the size of the development any efforts to reduce site runoff during storm events would help to maintain natural site hydrology and minimize impacts to the downstream resources (Pocket Lowland).

There has been some discussion of the possibility of diverting all of the dry weather flow and first flush runoff to a conventional sewage treatment system. While diversion has occurred for several major residential developments in Southern California over the past few years, it is not generally required by the water quality agencies or by the Commission. In some cases diversion can be a quick fix to beach water quality problems, but it is an end-of-pipe solution that tends to de-emphasize the responsibility of upstream landowners to control sources of pollution, maintain hydrologic conditions near natural conditions and minimize or eliminate dry weather runoff (e.g. runoff from poorly controlled irrigation systems). In addition, diversion of runoff to a sewage treatment plan would require the permission of the governing board for the plant. The governing board may find that treatment of urban runoff by a plant designed to treat sewage is not the best use of treatment capacity and may require high fees for the treatment. It would be preferable to modify the WQMP as indicated above, rather than diverting runoff to a sewage treatment plant.

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[2] In a phone conversation with Paul Carey of the Keith Companies, he indicated that the street widths were minimized as far as allowed by the local fire department, but the basis for the design street widths should be indicated in the WQMP.

Amigos de Bolsa Chica

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Phone / Fax 714 840 1575 info@amigosdebolsachica.org www.amigosdebolsachica.org

January 14, 2004

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South Coast Region

JAN 1 6 2004

CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802

Att: Teresa Henry, District Manager

RE: Bolsa Chica Mesa -- CDP Application No. 5-02-375

Dear Ms. Henry:

Amigos de Bolsa Chica has reviewed materials submitted by Hearthside Homes in support of their Application for Coastal Development Permit (5-02-375) for approval of Vesting Tentative Tract Map No. 15460 and the construction of 379 homes on the Bolsa Chica Mesa. We have serious concerns regarding the environmental impacts of the project as proposed and deficiencies in the information provided by Hearthside Homes to date.

We believe that, as proposed, the project violates several Coastal Act requirements. We are particularly concerned that it fails to protect environmentally sensitive habitat areas (ESHAs), as required by Section 30240 of the Coastal Act.

1. THE APPLICATION DOES NOT INCLUDE A COMPREHENSIVE REVIEW OF IMPACTS UPON THE ENTIRE BOLSA CHICA ECOSYSTEM

The project application and supporting documents address the proposed project on the "upper bench" of the Bolsa Chica mesa in isolation from and without sufficient consideration of the "lower bench" of the mesa, either in terms of the impacts on the lower mesa or the cumulative impacts of the currently proposed project and potential development on the lower mesa, which shares the same land owner as the upper bench.

The applicant has challenged the Coastal Commission's previous determination that the "lower bench" of the mesa should be preserved as open space. In any event, the impacts on the lower mesa and the cumulative impacts of the proposed project and potential development on the lower mesa need to be addressed.

A piecemeal planning approach for Bolsa Chica could result in numerous development projects which could cause severe environmental destruction to the fragile Bolsa Chica ecosystem.

As recognized by the Coastal Commission in its November 16, 2000 findings regarding the Orange County Bolsa Chica LCP application, the Bolsa Chica area, consisting of wetlands, lowlands and uplands, constitutes a significant and fragile integrated biological ecosystem which must be addressed and protected in its entirety.

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The findings of the Coastal Commission, based upon data presented by a team of three consultant biologists, including one selected by the current applicant, concluded that preservation of (ESHAs) and minimization of the environmental impacts of residential development **require** that residential development be consolidated and restricted to the upper bench of the mesa in order to allow sufficient buffer and upland foraging area to ensure the continued functioning of the integrated biological ecosystem.

The Coastal Commission unanimously concluded in 2000 that residential development on the Bolsa Chica Mesa could only comply with the Coastal Act if development was consolidated on 65 acres of the upper bench of the mesa and the lower bench of the mesa was preserved as open space conservation area.

In its present application, Hearthside Homes proposes a project including 379 housing units on 77 acres of area on the upper bench. The plan includes encroachment onto the bluff separating the upper and lower bench area for constructed wetlands, water treatment facilities, detention basins, a maintenance road and trails. Southern Tar Plant species are also slated for relocation to the lower bench. These features alone should bring the lower bench into the mandatory planning process for the proposed project.

Nonetheless, the applicant declines further discussion of the lower bench, arguing that inasmuch as it is a separately defined legal parcel, that it is separate and distinct and need not be addressed. The applicant further makes general statements indicating that there are no plans for the development of the lower mesa. Given the applicant's currently pending litigation at the appellate court level regarding its entitlement to develop the lower bench and it's failure to dedicate or otherwise define the lower bench as open space habitat area, it is clear that the applicant's intent is to secure development approval for its separate parcels in piecemeal fashion without reference to the environmental impacts of cumulative development of its adjacent parcels.

The Coastal Commission has previously agreed with its consulting experts, that the Bolsa Chica ecosystem requires careful protection of environmentally sensitive habitat areas and that any development on the upper mesa must be conditioned upon the absolute and permanent preservation of the lower mesa as open space habitat area. The current application obviously attempts to circumvent that important finding.

The failure of the applicant to fully and completely disclose its intentions for development on the lower mesa or to dedicate that area as conservation area leaves the potential for development of devastating environmental impact.

Compliance with Section 30240 necessarily requires that any Coastal Development Permit Application for any property within the Bolsa Chica include a full evaluation of development alternatives for other adjacent parcels, and impacts of development on the upper and lower mesas, the wetlands, including the State Restoration area, and other adjacent properties.

2. WATER QUALITY EVALUATION DOCUMENTS PRESENT FALSE AND MISLEADING STATEMENTS REGARDING THE IMPACTS OF THE PROJECT UPON THE STATE OWNED BOLSA CHICA WETLANDS AND WETLAND RESTORATION AREA.

The applicant proposes to release storm water into the 42 acre pocket wetland that lies between the north embankment of the Wintersburg flood control channel and the Bolsa Chica mesa bluff. While toxic materials may be reduced in some of this runoff (the first flush of a storm flow) by its diversion through a constructed wetland, the Application for Coastal Development Permit does not adequately address what the overall impact the total volume of storm water will have on the pocket wetland. The applicant claims the impact will be insignificant and may even improve the wetland.

This misleading claim is based on the erroneous assumption that the pocket wetland will have no connection with outer Bolsa Bay. The Application frequently refers to the pocket area as being "isolated". In fact, the pocket wetland is part of the major restoration of the Bolsa Chica wetlands and will be connected to outer Bolsa Bay. Through limited tidal flow, the area will become a muted tidal wetland. Plants typical of muted saltwater tidelands such as *Salicornia* (Pickleweed) and *Spartina* (Cord Grass) can be established in the pocket. These plants are critical for the survival of the endangered species Belding's Savannah Sparrow and the California Light Footed Clapper Rail. What impact will flow from a major storm have on these saltwater plants? Being subject to muted tidal flow, the flushing action of the tide may not be adequate to reestablish saline conditions in the wetland within a reasonable time following a storm. It is well documented that the intrusion of fresh water into a saltwater wetland leads to the establishment of exotic and weedy plant species and the exclusion of native species.

From the pocket wetland, storm flow will enter outer Bolsa Bay. The Application document fails to discuss what the impact of storm water flow will have on the biological resources of outer Bolsa Bay. At low tide, a 10 acre mud flat is exposed in the outer bay. Of particular concern is the impact of runoff on the populations of invertebrate species in the mud flat, organisms that provide food for thousands of shore birds. Sections 30230 and 30231 of the Coastal Act prohibit adverse impacts of a proposed project on the quality and biological productivity of a coastal resource.

Section 30230 and 30231 of the Coastal Act prohibit adverse impacts of the proposed project on the quality and biological productivity of Coastal Waters. The State and Federal Governments have recognized the importance of mitigating the loss of over 90% of California's Wetlands by approving a massive restoration project for the Bolsa Chica Wetlands. It is imperative that the wetland restoration not be impaired by destructive impacts of residential development.

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3. ENVIRONMENTALLY SENSITIVE HABITAT AREAS MUST BE PROTECTED BY RESTRICTED USE BUFFER AREAS OF SUFFICIENT AREA AND QUALITY TO ENSURE CONTINUED VIABILITY OF THE ESHA.

Although the applicant has provided for areas around acknowledged ESHAs, including an existing wetland, to be free of residential buildings, those areas have been incorporated into landscape plans for active use areas which would bring significant intrusion and disruption to the ESHAs. We note that an important "existing wetland" area is **immediately** surrounded by a swimming pool, tot lot and picnic area. A "Habitat Park" adjacent to eucalyptus and wetland ESHAs located along the bluff edge includes active uses such as bicycling, parking, hiking, a emergency vehicle access. Such uses would render the ESHAs to be of virtually useless environmental utility. It could further be expected that the homeowner maintained ESHAs would ultimately cease to function entirely due not only to human intrusion but to vector control measures and possible destruction resulting from homeowner recognition of the ESHAs as human safety and health hazards.

It further appears that the applicant has attempted to take advantage of compromised buffers allowed by the Coastal Commission in 2000 which were conditioned on the maintenance of the entire lower bench of the mesa as open space. As the applicant has refused to designate the lower bench as open space, no reduction in buffer area should be allowed around individual ESHAs, which must be maintained in natural condition, free of active uses associated with the residential development. Existing wetlands and other ESHAs must be maintained with sufficient non-active use buffer areas to ensure their continued biological viability.

4. BLUFF AREAS SEPARATING THE UPPER AND LOWER MESA BENCHES MUST BE PROTECTED.

As previously noted by the Coastal Commission Staff, the application insufficiently defines and fails to protect the integrity of the bluff edge separating the upper and lower benches and the top area of the southern bluff. Cut and fill operations will affect those bluffs and detention basins and water treatment areas appear to encroach dangerously upon the bluff edge.

The applicant's contentions in regard to the mesa are further muddied by its inconsistent arguments that although the bluff edge cannot be defined and is actually a natural "slope", the project is contained entirely on the upper bench of the mesa and therefore the lower mesa is not subject to the commission's review during these proceedings. The proposed construction of drainage and water treatment facilities, Southern Tar Plant relocation on the bluff edge and lower mesa as a part of the proposed project also belies any argument that the project is contained on the upper bench of the mesa.

The project must provide for protective setbacks from bluff edges which should remain free of active uses, water treatment or drainage facilities, utilities, parking areas or other uses which could impair the integrity of the bluffs.

5. THE DATA SUBMITTED FAILS TO DETAIL THE DESIGN AND FFECTIVENESS OF THE PROPOSED CONSTRUCTED WETLANDS.

It is not clear from the information in the applicant's Water Quality Management Plan what criteria were used in the design of the constructed wetland. It appears that the size of the wetland was based solely on the estimated volume of runoff that the development would produce without regard to pollutant loading. There is no discussion of the pollutant concentrations that would accompany the runoff, a critical factor in the design of any BMP. Pollutant concentrations are not uniform across the country and are highly dependent on local conditions, including climate. National averages for pollutant concentrations are derived from locales in mostly humid climates where frequent storms produce relatively low pollutant loads in the first flush. Pollutant loads generally tend to be higher in semi-arid locales where rains are relatively rare, such as Southern California. The WQMP should be more specific in explaining how the size of the constructed wetland was determined to assure that the wetland will adequately fulfill its purpose. If it fails, the runoff from this project will be in clear violation of Section 30231 of the Coastal Act.

The health of the plants in a treatment wetland is of paramount importance. Being wetland plants, most tend not to tolerate drought conditions. The document proposes a daily dry weather input of 5600 gallons, a figure apparently based on about 80 acres of developed space producing 70 gal per acre. The source of this figure is not explained. But then the document states that because of irrigation controls, water efficient landscaping and other water conservation measures, the volume of dry weather runoff may actually be lower. How much lower? Enough to maintain healthy wetland plants during 7 months of dry weather?

The applicant should be required to provide sufficient data and modeling to establish the efficacy of its proposed water treatment facilities and constructed wetlands.

Further, provisions for monitoring, continued maintenance, and funding of onsite wetlands and water treatment facilities must be required. Funding should be established prior to development permitting and the operation of such facilities must be supervised by an appropriate government agency to insure continued operation.

6. THE PROPOSED PROJECT FAILS TO ADEQUATELY PROTECT SIGNIFICANT ACHEOLOGICAL RESOURCES.

Several significant archeological sites are located on the Bolsa Chica Mesa. The applicant acknowledges location of numerous artifacts and human remains and indicates prior and intended future relocation of artifacts from the site. Given the significance of sites such as ORA-83, the applicant should be required to preserve and avoid further destruction of unique archeological and historical sites. Mere relocation of discovered artifacts may result in the ultimate loss of highly significant resources.

We appreciate the opportunity to participate in the public planning process for Bolsa Chica and look forward to discussing these issues with you further at your convenience.

5-04-192

Sincerely,

James Robins, President

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Bolsa Chica Land Trust
5200 Warner Avenue, Suite 108
Huntington Beach, CA. 92649-4029

January 19, 2004

Teresa Henry
District Manager
South Coast District Office
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, Ca. 90802-4416

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CALIFORNIA
COASTAL COMMISSION

Subject: Brightwater Development (CDP Application No. 5-02-375)

Dear Ms. Henry:

Thank you for the opportunity to comment on the Coastal Development Permit for the Brightwater Development Project in Orange County, Ca. (CDP Application No. 5-02-375) These comments are submitted on behalf of the Bolsa Chica Land Trust.

Background

The proposed Coastal Development Permit (CDP) would allow the development of 379 residential units, an underground water reservoir, and recreation/conservation open space on approximately 105 acres on the upper bench of the Bolsa Chica Mesa in Orange County, California. In July 2002, the Orange County Board of Supervisors approved a Master Site/Area Plan, Project Site Development Plans, and Vesting Tentative Map No. 15460 in furtherance of the proposed development. At that time, the Board of Supervisors also certified Subsequent Environmental Impact Report (SEIR) No. 551, which is an attachment to the Coastal Development Permit application submitted by the applicant, Hearthside Development.

Over the years, numerous coastal planning efforts have ensued for the Bolsa Chica. Most recently, in November 2000, the Coastal Commission approved a modified Local Coastal Program (LCP) for the entire Bolsa Chica Mesa. This approval permitted development of the upper bench of the Bolsa Chica Mesa while preserving the lower bench as open space. In its approval, the Commission recognized the value of resources on the upper bench, but weighed impacts on these resources against the benefit to be gained from preserving the lower bench. The County of Orange failed to accept the LCP as approved by the Commission, and the LCP approval therefore became of no effect.

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Current Application

The Current application fails to answer the question: What is the true scope of the proposed project? The applicant is now apparently seeking to gain approval of a development plan for just the upper bench, although the proposed project is located on legal lots that extend onto the lower bench. Because, on the one hand, the application only seeks approvals for upper bench development, but, on the other hand, the developer has for years consistently in court (including most recently in Signal Landmark; Hearthside Homes, Inc. v. California Coastal Commission and County of Orange, Superior Court of California, County of San Diego, Case No. GIC 764965), in public, and before this Commission repeated its intention to build on the entire Mesa, the Land Trust, the public and the Commission are left to wonder -- what exactly is the project here?

Lucy Dunn, executive vice president of Hearthside Homes, the project developer, was quoted in a *Los Angeles Times* discussion of Brightwater on August 14, 2001 stating: "We're not conceding the lower [tier]...This is a way to move forward with part of the project".

The developer advertises in its Petition in the above-referenced action that the entirety of the Mesa "is the ideal place for new development." (Petition p. 10 – emphasis in original)

The developer asserts many reasons why development on the entire mesa is so "ideal." Here excerpted are just two:

> it is ideal because:
>
> - the mesa is physically suitable, being comprised of two relatively flat plateaus which will require little grading...
> - Access is outstanding: the mesa fronts on a major arterial highway (Warner avenue) which intersects with pacific coast highway . . ." (Petition at p. 10-11)

Further, Orange County in its active support of the developer's claims in the above-referenced action states:

> The County remains committed to that program [the development for the Mesa reflected in its rejected LCP] and is ready to proceed with it." (Response of Real Party County of Orange to Demurrer, Nov. 26, 2001, p. 3)
>
> Maintaining the development as planned [meaning, as set forth in its rejected LCP] is important to the County. (Response of Real Party County of Orange to Demurrer, Nov. 26, 2001, p. 5)

Elsewhere, the County reiterates its knowledge that the developer wants to do more on the Mesa than build "Brightwater" and reiterates that it too wants more than the analyzed project to be built on the Mesa:

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> The Commission wants severe restrictions on the use of the Mesa. The County wants homes there. (Response of Real Party County of Orange to Demurrer, Nov. 26, 2001, p. 6)

Thus, both the applicant and Orange County, which is the local planning agency, have verbalized a clear intention to develop homes on both the upper and lower benches of the Bolsa Chica Mesa.

As additional evidence of the true extent of the actual project, the developer sought and obtained, over the objection of the City of Huntington Beach and the Land Trust, Public Utilities Commission approval to extend a nearly seven mile long water and wastewater pipeline weaving through several jurisdictions (Seal Beach, Westminster and Huntington Beach) to serve over one thousand proposed homes on 183 acres; meaning, the entire mesa. (PUC Decision 01-02-043) Key to the PUC's decision to permit such a radical step (when the City of Huntington Beach literally has an available pipeline right across the street from the Mesa) was that

> [a]lthough the Coastal Commission's approval of the Bolsa Chica LCP significantly reduced the allowable acreage for the development, the number of residential units approved remained the same. Thus, the pipeline extension project continues to be appropriate to meet the public need for water.[1]

The current application apparently contemplates a reduced reservoir, from about 4 million gallons designed to serve over one thousand homes, to about 2 million – designed to serve 387 homes? This "reduction" is further evidence that the application as submitted constitutes only "part of the project", just as Lucy Dunn concedes.

Finally, the CDP application maps and makes reference to Areas 3A, 3B, 4B, 7-1 to 7-4 and 8. What of Areas 1, 2, 5, and 6? Aren't they "part of the project"? What of plans for these areas? Are they located on the lower bench?

As if in answer this last question, SEIR 551 asserts (P.2-11) that "No development is proposed on the lower bench or in the Bolsa Chica Lowlands." While this statement may be explained away as applicable only to the immediate time frame, other materials submitted by the applicant imply the precise opposite--that the developer intends to preserve the lower bench as open space.

For example, the May 1, 2003 Translocation Plan for Southern Tarplant, Brightwater Development Project, prepared by LSA Associates, Inc. (Brightwater CDP Attachment 23) states that:

> ...this plan provides for the translocation of the southern tarplant from within the limits of the proposed development area to an identified open space area to be ***permanently preserved on the lower portion of the Bolsa Chica Mesa***.[emphasis added]

---

[1] Indeed, if it does not so clarify that point, at a minimum, the assumptions underlying the PUC's approval of the pipeline are moot, and a new PUC proceeding is required.

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How can it be asserted that open space for tarplant translocation will be "permanently preserved on the lower portion of the Bolsa Chica Mesa" when the lower portion of the mesa is not even included in this application? Does the applicant intend to commit to preservation of the lower bench as a part of this application? If that were indeed the case, the developer—and the Brightwater project application-- would certainly have the support of the Bolsa Chica Land Trust.

In the meantime, however, unless and until the developer definitively clarifies its intent as to the lower bench, the Commission cannot approve the proposed permit for the simple reason that it does not know what it is approving: A stand alone project that preserves the lower bench and brings final repose to Bolsa Chica planning or just the first phase of a broader mesa development that will raise the exact same issues as the prior LCPs?

The LSA Associates, Inc. Analyses of Potential Effects of Development of the Upper Terrace of Bolsa Chica Mesa on Avian Predation on Nesting Waterbirds in the Bolsa Chica Wetlands (Brightwater CDP Attachment 20) repeatedly refers to "a slight loss of habitat on the upper mesa" for raptors that "probably would be inconsequential" in its effects on predation of nesting waterbirds at Bolsa Chica. The study concludes that:

> Residential development of the upper terrace of Bolsa Chica Mesa would result in lost habitat for some of the predatory species and enhanced habitat for others...the proposed development on the Bolsa Chica Mesa is not expected to have a significant effect on nesting waterbirds in the wetlands.

This flies in the face of conclusions reached by the several raptor authorities reporting to the Coastal Commission in November 2000, as discussed below. The only way such a statement makes any sense at all, when considered in the light of the recognized authorities, is if the stated "residential development of the upper terrace" constituted the whole of any development ever contemplated for the entire Bolsa Chica Mesa. Is that what the applicant's biologist was given to understand?

The tract map itself appears to anticipate no future development of the lower bench. As currently proposed, the Brightwater project would provide no connection to the lower bench. No streets within the Brightwater project appear designed to extend to the lower bench. Thus, access would ostensibly be limited to Warner Avenue.

As stated in the attached October 4, 2001 letter from Howard Zelefsky, Huntington Beach Director of Planning:

> The City has always maintained the position that only one vehicular access point from any development in the Bolsa Chica area to Warner Ave. would be acceptable. This reduces the points of ingress and egress along Warner Ave. minimizing impacts to traffic flow on this major arterial. As proposed, development on the upper mesa would have one connection to Warner Ave. and

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> any future development on the lower mesa would have another connection. This is unacceptable...

In fact, public safety considerations require multiple access points for any residential development consisting of more than a very few homes. Thus, it is likely that residential development of the lower bench would require *more* than one additional connection to Warner Avenue. This would be difficult due to the location of Warner Pond adjacent to the road along a substantial portion of the lower bench. This is further complicated by the grade and the curve of the road.

On the other hand, could the applicant be anticipating provision of access to the lower bench via Bolsa Chica Road? Will the areas now designated for public parking, buffers for environmentally sensitive habitat areas and even the sensitive habitat areas themselves eventually be sacrificed to provide access to the lower bench? Will the proposed "multi-use trail" now planned for pedestrian and bicycle use be widened to serve as an access road for development on the lower bench?

Such a scenario is particularly jarring when one considers the following statements in SEIR 551 regarding a perimeter road which would, to a large extent, follow the same general alignment as any accessway from Bolsa Chica Road to the lower bench.

> In its recommendations on a Bolsa Chica LCP in November, 2002, the Coastal Commission proposed a similar [perimeter] road for the purpose of maximizing public access to the perimeter trail, to separate private residential land use from public areas, to preserve scenic views of the lowland and the ocean, and to allow for public safety and emergency vehicle access to the public areas, with parallel parking permitted along the road.
>
> Implementation of the perimeter access road will introduce a public road adjacent to the Eucalyptus ESHA and the pocket lowlands, resulting in greater noise and light intrusion impacts, and leaving less area for trails and pedestrian staging. Unfettered public access to the perimeter open space areas will also adversely impact the native plant revegetation that will take place on the perimeter of the project...Additionally, the size and use of the constructed wetlands would likely increase because of more runoff from a larger impervious surface area along the transition area.... The impacts associated with the perimeter access road are more significant than the preferred circulation system for the proposed project, and the proposed project's circulation system will better meet the objectives identified by the County (and conceivably by the Coastal Commission). Therefore this project alternative will not be further analyzed.

One is left to wonder how, then, the applicant imagines access to any future development of the lower bench will be accomplished. This points up the folly of considering what is essentially one project in such a piecemeal fashion.

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Balancing of Resource Needs

Planning for the Bolsa Chica Mesa as one entity--instead of using the present piecemeal approach-- would allow for greater balancing of environmental impacts and benefits. This could result in improved protection of coastal resources. As stated in Section 30007.5 of the Coastal Act:

> The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.

The Commission cited this policy in their November 2000 Coastal Commission staff report for the Bolsa Chica Local Coastal Program Land Use Plan Amendment No. 1-95/Implementing Actions. This policy created the framework for the Commission's decision to concentrate development on the upper bench of the Bolsa Chica Mesa. The negative effects on resources on the upper bench were balanced by the benefits to be gained by preserving the large intact area of the lower bench. For example:

> Concentrating residential development on the upper bench will have some adverse biological impacts...However...concentrating development on the upper bench of the mesa in close proximity to existing developed areas and conserving the lower bench of the mesa is more protective overall of significant coastal resources than protecting each specific habitat area in conjunction with development of the entire mesa.

And, as an explanation for requiring only minimal buffers:

> The 100 foot buffer and the fifty foot buffers are appropriate in this case for the following reasons...The Commission finds that residential development must be concentrated on the upper bench of the Bolsa Chica Mesa. Limiting residential development to the upper bench preserves the lower bench as a component of the overall Bolsa Chica wetland/upland ecosystem. The preservation of the lower bench as natural open space is vital to the functioning of the existing ESHA resources which are principally found on the lower bench. Though buffers on the upper bench will not totally eliminate the adverse impacts of the residential development, they will still minimize the disturbance that would be created...

This same balancing of resource impacts and opportunities was cited by Chuck Damm, Senior Deputy Director of the Coastal Commission, in his review of planning efforts for the Bolsa Chica speaking before the Commission on November 16, 2000:

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> Back in early 1996...The situation then was staff was recommending that 900 acres of lowlands be dedicated. We were recommending that the residential development be clustered on the entire mesa, upper bench, and lower bench, but we were doing so because we were recommending that there be 900 acres of lowlands dedicated...
>
> It should not be interpreted that meant staff did not feel that there was no environmental issue associated with the Bolsa Chica Mesa. In fact, the record will support that there was much testimony...as to the importance of the upland habitat on the Bolsa Chica Mesa... The staff simply felt, at that time, it was not reasonable to require further clustering of the development when we were already asking that the residential development in the lowlands be clustered on the mesa.
>
> This LCP also required the major property owner... to spend approximately $50 million on the actual wetland restoration for the lowlands.

Subsequently, the lowlands were purchased by the State of California. In addition, the principal property owner, now Hearthside Homes, successor to the Koll Company which was then the applicant, was relieved of the financial obligation for wetland restoration.

Thus, under conditions as they exist today, any balancing of resource values must be limited to that property the applicant or its predecessor, Koll, has not already sold. This would include the entire Bolsa Chica Mesa. However, the applicant has attempted to bisect consideration of the habitat units comprising the Bolsa Chica Mesa obviating the opportunity for balancing of resource values and resulting in a decidedly inferior development proposal.

Biological Resources and Coastal Act Requirements

Section 30240 of the Coastal Act requires:

> (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
>
> (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas

As noted by Steve Rynas, Coastal Commission Orange County Area Supervisor, in a January 17, 2002 letter to Grace Fong of Orange County Environmental and Project Planning Services Division:

> The fundamental problem with the preferred alternative of the DSEIR [Brightwater] is that it is inconsistent with Section 30240 of the Coastal Act, which protects environmentally sensitive habitat areas (ESHA)....

Comments submitted to the Commission from the scientific community during the Bolsa Chica. LCP process document that the Bolsa Chica Mesa and the adjacent lowlands constitute one integrated ecosystem. Consequently specific areas can not simply be protected based on one defined biological issue such as preservation of the Eucalyptus grove for the benefit of raptors. Therefore, to maintain the functionality of the Bolsa Chica Mesa as an integrated ecosystem (large enough to provide a wide range of habitat values) a sufficient area must be protected as natural open space. Furthermore, current research dictates that the area to be preserved for conservation must be connected to larger areas of habitat (such as the lowlands), that it should not be fragmented, and that it should be concentrated to minimize the perimeter to area ratio.

It is worth noting, based on this scientific evidence, that the Commission concluded, in its November 2000 decision on the Bolsa Chica LCP, that residential development must be concentrated on the upper bench of the Bolsa Chica Mesa in order to preserve the lower bench as conservation open space.

Commission staff strongly recommends that the FSEIR incorporate the Commission's decision on the Bolsa Chica LCP in its alternatives analysis. We note that it is an alternative that could be found consistent with the Coastal Act specifically, this new alternative requires concentration of residential development on the upper bench, with the lower bench preserved as open space within one comprehensive development plan. Moreover, this alternative must include provisions that no development can occur on the Mesa in the absence of a conservation plan for the entire Mesa. The Commission's environmental review process has been certified by the Secretary of Resources as functionally equivalent to the EIR process. Consequently, based on Section 21080.5(d)(2)(A) of the California Public Resources Code, the Commission cannot approve or adopt a proposed activity if there are feasible alternatives or feasible mitigation measures which would substantially lessen any significant adverse effect the activity may have on the environment. Based on the policies of the Coastal Act, concentrating residential development on the upper bench in order to preserve the lower bench as conservation constitutes a feasible alternative to the currently proposed project, containing mitigation that would substantially lessen any significant adverse effects on the environment.

Habitat Buffers

The proposed project provides fragmented habitat, habitat that generally maximizes the perimeter to area ratio due to its elongated configuration, minimal buffers and buffers of questionable value due to the placement of recreational uses in the buffer areas. The importance of adequate buffers has been repeatedly reiterated and cannot be reiterated too often.

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As stated by Peter Bloom in his October 20, 2000 letter to Susan Hansch, Costal Commission Chief Deputy Director:

> The rigors of migration are hard on birds and in the case of predatory birds, being disturbed prematurely several times before capturing prey after hunting for several hours, can in the long term be terminal if it happens frequently enough ...If a hiking trail were placed within 50", paralleling the eucalyptus ESHA, I would predict that even the Red-shouldered Hawk, normally a very tolerant raptor would also stop nesting...

And Brian Walton in his October 20, 2000 letter to Susan Hansch, Costal Commission Chief Deputy Director:

> If raptor use is desired, then the original plan with passive recreation is unacceptable. The modified plan with no trails but with enhancement would still be subject to much fight/flight distance pressure and only the final modified plan [preservation of the lower bench] seems to offer hope of continued use of the area for breeding.

The applicant proposes to establish a supposed "Upland Habitat Park" adjacent to the eucalyptus and wetland ESHAs located along the bluffs on the upper bench. As discussed below, vegetation in the habitat park will be modified from its natural condition both as to species included and density of growth. Permitted activities within the "Upland Habitat Park" include hiking, bicycle riding, parking, and access for emergency and maintenance vehicles. At one location, the proposed multi-use trail/access road is mapped immediately adjacent to the eucalyptus ESHA, with no buffer at all.

The paltry nature of the proposed buffers is illustrated by the proposed fuel modification plans which designate areas near homes where fuel modification would be pursued to protect the proposed homes from brush fires. The fuel modification areas, as mapped in the applicant's CDP submittals, extend well into the proposed buffers, and even into the habitat itself.

Even worse, the buffer for the wetland near Los Patos Avenue is quite small and includes a boardwalk and gazebo barely fifteen feet from the wetlands. Picnicking areas are delineated approximately thirty feet from the wetland, a tot lot and wading pool are mapped within ninety feet, and a recreation building is to be provided at about one hundred feet from the resource. Not only does this fail to buffer the habitat consistent with the provision of Coastal Act Section 30240(b), but the provision of such minimal buffers also conflicts with Section 30231 which calls for natural buffers to reduce impacts on water quality and wetlands.

This is unacceptable and illegal. Buffers for all ESHAs must be a minimum of one hundred meters as previously recommended by the California Department of Fish and Game (Environmentally Sensitive Habitat Areas at Bolsa Chica, June 3, 1982) and the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service Special Report; Bolsa Chica Area, May 1979). Further, no recreational uses or fuel modification at all should be permitted in the fifty meters

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closest to the resource, with any human activity within buffer areas to be avoided to the extent feasible.

Even a one hundred meter buffer may be considered ineffective by some standards. Professor Scott Findlay of the University of Ottawa has recommended that buffers of at least 150 meters be provided at Bolsa Chica, with the statement that a buffer of one hundred meters is not likely to be adequate. Findlay has also stated that research indicates that wetlands may be affected by development as far distant as a kilometer. This occurs due to water quality impacts and invasion by non-native species.

As noted in the attached report by Noss, Case, and Fisher, buffer zones of 275 meters, 100 to 500 meters and 164 meters have been recommended by various studies. The report stated:

> Given the increasing evidence that very wide upland buffers are often required to maintain the ecological integrity of wetlands and other aquatic ecosystems, we believe that the narrow (on the order of 100 m) buffer zones proposed by some people for Bolsa Chica are unlikely to be sufficient. Therefore, we recommend that the presently undeveloped mesa upslope from the wetlands be protected ***in its entirety*** [emphasis added] and restored to natural vegetation.

Although in its November 2000 action the Coastal Commission assented to lesser buffers in some locations, this was in recognition of the preservation of consolidated habitat on the lower bench. The proposed project contains no such guarantees and should not be permitted to piggy-back the reduced buffering onto the new project if it includes only a portion of the mesa.

Raptor Forage Areas

A primary concern has been the provision of adequate upland forage for raptor species, in order to minimize predation on sensitive wetland species. All three raptor biologists retained by the Coastal Commission in 2000, Brian Walton of the UC Santa Cruz Predatory Bird Research Group, Ron Jurek of the California Department of Fish and Game and Peter Bloom of the Western Foundation for Vertebrate Biology (reports attached), concluded on an independent basis that retention of a large, consolidated habitat at Bolsa Chica Mesa would best address problems with raptor predation and maintenance of high interest species. This led to the decision to move all development to the upper bench.

Even if the eucalyptus ESHA were removed from the Brightwater property, this would still be an issue, because, as noted by Ron Jurek in his October 20, 2000 letter to the Commission, certain raptors such as kestrels have been noted to prey on chicks over a mile from the kestrel nesting site. Thus, elimination of the eucalyptus ESHA would not only leave the problem of predation in the wetlands unsolved it would eliminate habitat for sensitive species as well. Predation by crows and ravens has also been noted to be a problem.

In recognition of this impact, SEIR 551 recommended, and the Orange County Board of Supervisors adopted, the following measure:

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> Prior to issuance of grading permits, the applicant shall establish a trust fund in an amount to be determined in consultation with CDFG, to assist in the ongoing management of raptor predation upon nesting sensitive target species of other sensitive species after the implementation of residential development on the Bolsa Chica Mesa. This fund will be available to CDFG and USFWS if is can be demonstrated by DEFG and USFWS, to the satisfaction of the County Environmental and Project Planning Division, that the residential development results in an increase in raptor predation. If no such effect is demonstrated within five years of completion of project construction, the trust fund shall revert to the Applicant.

It should be noted that Department of Fish and Game personnel requested that the fund be maintained for seven years, longer than the five years specified in the SEIR.

Now, two years later, the applicant has submitted a study prepared by LSA Associates which indicates that the primary avian predators on wetland species at Bolsa Chica are kestrels, crows, and ravens. The study concludes that although development of the mesa could have some effect on certain predators, with continued trapping by the California Department of Fish and Game the problem can be controlled.

This information is used to justify non-implementation of the above condition. The applicant claims, in its Response to Requests from Commission Staff to Hearthside Homes in a Letter dated December 5, 2002, that:

> Mitigation Measure 9.1 was originally included in EIR 551 for the Bolsa Chica LCP. Certified in 1996, EIR 551 ... concluded that "the loss of raptor foraging habitat in the uplands may cause some raptors to prey on nesting birds in the wetlands." In order to maintain consistency between the two environmental documents, Mitigation Measure 9.1 was included in SEIR 551 for the 388-units Brightwater project. Since the certification of SEIR 551, additional research has been conducted...As a result of this additional research, Hearthside Homes believes that Condition # 35 [Mitigation Measure 9.1] is no longer necessary.

It should be noted that SEIR 551 was prepared at the direction of the applicant, was submitted on behalf of the applicant and subject to additional review by the applicant during the public review period. Now, long after SEIR 551 was certified, new information is presented to release the applicant from responsibility for implementing an adopted condition. The applicant suggests that no mitigation will be necessary on the applicant's part as long as the California Department of Fish and Game continues to trap at the public's expense.

The applicant claims that the mitigation measure was a "carryover" from the original EIR 551. They claim they were more concerned with maintaining consistency with an old, out-dated EIR than with accurately presenting and analyzing the environmental impact of their proposed Brightwater project—in the EIR they themselves commissioned. Has the applicant then knowingly presented information they believe to be inaccurate in other portions of SEIR 551 as well? In other documents as well?

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In any case, other impacts and mitigation measures contained in EIR 551 were not carried over. These deal with factors as diverse as provision of utilities to oil spill cleanup. This "carryover" would certainly not be ascribed to an artifact of word processing inasmuch as the two documents were prepared by different consultants. Even stranger, a review of the old Revised EIR 551 for the Bolsa Chica LCP reveals that, while the potential for raptor foraging in the wetlands was acknowledged, mitigation was to be as follows:

> If raptors begin to prey upon nesting sensitive target species or other sensitive species, the Applicant shall consult with CDFG and USFWS and prepare a relocation program for these raptors.

Bolsa Chica Land Trust urges that, if the Commission were to vote to approve the Brightwater project, that adequate open space be maintained to provide for raptor foraging in order to minimize predation of in the wetlands, optimally through preservation of the lower bench, and that Mitigation Measure 9.1 above be adopted with the trust fund to be maintained for seven years as requested by Fish and Game.

Upland Values

The proposed project appears to dismiss the value of upland habitat. However, as noted in the November 2, 2000 Costal Commission staff report:

> The Bolsa Chica Mesa is considered ecologically valuable. According to both the California Department of Fish & Game and the US Wildlife Service, the Bolsa Chica Mesa and the lowland wetlands are biologically interdependent. These biological interdependencies are vital to maintaining biological productivity and diversity. Residential development on the Mesa will impair biological productivity of the Mesa itself and the adjacent lowland wetlands.

And:

> The maintenance of ecological links between uplands and wetlands is thought to be of extreme conservation importance...studies...have demonstrated that uplands and wetlands should be considered integrated parts of a larger ecosystem...The importance of upland pollinators for plants like saltmarsh bird's beak and saltmarsh goldfields has also become widely recognized. As more is learned about the biology of native solitary bees, more examples will no doubt be discovered. The presence of the wetland-upland complex is also critical for many species of insects...without the appropriate mix of habitats adjacent to one another, such species will disappear from coastal ecosystems. Therefore, significant blocks of upland habitat should be maintained adjacent to coastal wetlands...

Thus, apart from any intrinsic value in the uplands themselves, which value does indeed exist, preservation of uplands is necessary to fulfill the purposes of Section 30240 of the Coastal Act

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which requires that habitat values be preserved and that development in areas adjacent to environmentally sensitive habitat areas be sited and designed to prevent impacts which would significantly degrade those areas and be compatible with the continuance of those habitat and recreation areas.

Coastal Sage Scrub

The uplands themselves provide useful habitat on their own. The upper bench contains 1.36 acres of coastal sage scrub habitat, which is widely recognized to be the fastest disappearing habitat in southern California, due to ongoing development pressures. In fact the U.S. Fish and Wildlife Service has characterized the Coastal Sage Scrub community as "the most threatened upland vegetation type in southern California".

Although definitions of the various plant communities vary, it is generally agreed that dominant shrub species in coastal sage scrub are California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), coastal prickly-pear (*Opuntia littoralis*), toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), sugarbush (*R. ovata*), and fuchsia-flowered gooseberry (*Ribes speciosum*). (Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California; Munz, P.A. 1974. A flora of southern California). Coastal sage scrub supports a diverse fauna, including many species that are in decline. Among these are the California gnatcatcher (*Polioptila californica*) and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). On the Brightwater site, the coastal sage scrub community is dominated by salt bush (*Atriplex* spp.), prickly pear and Encelia.

While most of the coastal sage scrub on-site is said to be "preserved", a review of grading plans reveals that coastal sage scrub on-site is located in an area slated for grading. Thus, it will be removed and replanted. If the project were to move forward, any removal and replanting should be conducted at typical re-planting ratios required for this habitat.

The applicant proposes to establish an open space area known as an "Upland Habitat Park" which will include 1.50 acres of coastal sage scrub and 12.36 acres of coastal bluff scrub. Coastal bluff scrub habitat is similar to the coastal sage scrub but subject to slightly more marine influence. The "Upland Habitat Park" will also include ESHA buffer areas, a multi-use trail and water treatment ponds.

A significant portion of the "Upland Habitat Park" is in the fuel modification zone, and thus certain species will be prohibited under the terms of Fuel Modification Plan submitted by the applicant as Attachment 34 to the CDP application. Although an unlabelled attachment to the CDP titled "Answers to CDFG Questions" indicates that with proper management and use of fire resistant construction techniques more flexibility may be appropriate, the Fuel Modification Plan included with the CDP application lists prohibited species to include California sagebrush, buckwheat, and black sage. These same species are prohibited under the proposed Covenants, Conditions and Restrictions for the Brightwater project. Although an *Opuntia* species is proposed for use, the species proposed is not the prickly pear already on the site, but Coast

Cholla. Further, the areas will be subject to periodic thinning of vegetation and occasional irrigation.

The impact of this change in species composition and growth habit on habitat values is not known. This is of particular interest as it affects prey species. Unfortunately, the fuel modification plan was not studied or included in the public review for SEIR 551, despite requests from the Bolsa Chica Land Trust and others that it be provided. Thus, the "Upland Habitat Park" may be of value or it may not. It is suggested that, where sage scrub communities lie within buffer areas, the vegetation be allowed to remain undisturbed and that sage scrub species already existing in the area be allowed to remain. If adequate buffers and open space were provided, the overlap of fuel modification into buffer areas would not be a problem.

Grasslands

The bulk of the Brightwater site is in annual grassland or ruderal. Even this habitat is of value, a primary factor being forage areas for raptors. As stated by Senior Deputy Damm at the November 16, 2000 Commission hearing:

> The California Department of Fish and Game emphasized the importance of non-native grasslands to raptor habitat in their recent comments on the Hellman properties in Seal Beach. In that letter, they recommended a mitigation ratio of .5 to 1 for non-native grasslands that were going to be lost in that project.

The bulk of this habitat on the project site will be lost to residential development. Mitigation should be provided consistent with that required at Hellman Ranch.

Normally, even suburban residential areas would be expected to support populations of rodents and other small prey. However, the AMEC Earth & Environmental, Inc. report attached as Attachment 10.2 to the CDP Application includes the following as a critical, ongoing element in addressing soil issues on the site:

> Any burrowing rodents on the lots should be exterminated and their burrows should be filled and sealed at the ground surface with clayey soil...

Not only would this reduce available prey species, depending on how rodents were exterminated, additional impacts could result. Chemical poisons could move up the food chain to predator species. The proposed Covenants, Conditions and Restrictions for the Brightwater project prohibit large-scale use of pesticides by unlicensed applicators, but they are not prohibited altogether. Control measures for burrowing rodents should be reconsidered as a strategy, and use of poisons must be prohibited, especially in light of the proximity of the development to ecologically sensitive areas.

Introduced Flora

The applicant has submitted a list of invasive species that will be prohibited from the Brightwater project. However, the Covenants, Conditions and Restrictions for the Brightwater

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project require landscape limitations only in front yards and common areas. Many of the invasive species listed broadcast their seeds over fences quite easily. Thus, the project C,C&Rs, absent a prohibition invasive exotics in all parts of the Brightwater development, do not provide adequate means to prevent planting of invasive species within the proposed residential development, and the project does not provide protection for invasions of such species in nearby ESHAs, whether on or off the subject property . The program also lacks an effective means of enforcement.

Predation by Pets

The Brightwater C,C&Rs require that dogs be leashed and that cats be kept inside. A detailed trapping program for feral cats is included. However, the C,C&Rs then go on to recommend that cat owners provide their pets with collars and tags to avoid being included with the trapped feral cats. This presents an inherent contradiction, since if the cats were inside as required, they wouldn't get trapped. This also points up the difficulty of enforcement. Reasonable enforcement responsibilities must be identified.

Lighting

Night lighting can disrupt sensitive species. Although project documents indicate that lighting will be controlled and will be directed away from sensitive areas, the Brightwater C,C&Rs contain no limitation on lighting by the individual homeowners. Such limitations should always be required for any development in such a sensitive area.

Additional Study

To verify the presence or absence of this sensitive invertebrate species, the project site must be re-surveyed for two rainy seasons or one wet and one dry season to investigate this possibility as well as to further delineate on site wetlands. U.S. Fish and Wildlife Service protocol assumes the presence of endangered and threatened vernal pool species where appropriate vernal pool, or "seasonal pond" habitat is found. Further, ponding has been observed in areas not designated as wetlands in project mapping. The two surveys must verify the presence of absence of wetlands in additional areas.

Water Quality

Section 30231 of the Coastal Act states that:

> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

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A small portion of site runoff will be directed to Huntington Harbor. Huntington Harbor has been designated an impaired water body and as such is not to receive any additional pollutants at all. The applicant proposes that catch basin inserts be used to treat drainage to Huntington Harbor.

According to information contained in the Water Quality Management Plan (attachment 11.3 to the CDP submittal), such inserts would remove 69 to 90 percent of oil and grease, leaving 10 to 31 percent behind. The inserts trap a lesser proportion of suspended solids and heavy metals. Thus, even though some pollutants would be removed, others would make their way into the already impaired waters of Huntington Harbor. This is unacceptable.

The applicant proposes to direct the bulk of urban runoff from the project to a series of detention basins/constructed freshwater wetlands and then into the Bolsa Chica lowlands. The detention basins would be designed to capture low flows and first flush runoff. In larger storms, water would be diverted away from the treatment wetlands to the existing pocket wetland and a detention basin. The water would eventually he discharged into the isolated lowland area planned for restoration with as yet unknown affects.

Information contained in the Water Quality Management Plan indicates that this type of wetland detention and treatment system could be expected to remove 87 percent of petroleum residues, but only 67 percent of suspended solids, 49 percent of phosphorus and a mere 28 percent of nitrogen. Thus, a considerable proportion of pollutants will still remain.

Unfortunately, the Water Quality Management Plan does not provide information on total loading. Thus, one doesn't know whether almost clean water would be rendered nearly pristine or whether absolutely filthy water would be cleaned to the point where it's just fairly polluted.

Although the Brightwater C,C&Rs ban large-scale use of pesticides, fertilizers and other chemicals by unlicensed individuals, nothing prevents such use on a small scale by many individuals working in their own yards. Thus, it is probable that at least some pesticides and fertilizers will enter the drainage system along with at least some animal waste and other pollutants.

As discussed above, even under a best case scenario, the water will not be fully cleaned. This is of greatest concerns for the water which would be most polluted, typically low flows and first storm flush of the season. Directing low flows to the Orange County Sanitation District treatment plant would be consistent with the action of the Coastal Commission in November 2000. This would also cause drainage to more closely approximate natural conditions under which little or no moisture would enter the wetlands involved during the dry months. At no time should any project drainage be permitted to enter Warner Pond.

The applicant has indicated that the drainage improvements discussed above will be maintained by the homeowners' association and the City of Huntington Beach. Inasmuch as the project is located in an unincorporated Orange County, it appears that this may be an error.

In any case, some oversight of onsite drainage and water quality treatment facilities will be required to ensure compliance by the homeowners' association. It is suggested that the homeowners' water quality monitoring and maintenance of the wetlands and catch basin inserts be supervised by Orange County, with annual reports to be provided to the Coastal Commission for review if the Commission approves the proposed development.

Section 30231 does not limit issues involving water discharge to direct surface flows. Drainage reaching the pocket area adjacent to the Mesa eventually reaches Outer Bolsa Bay generally through subsurface or muted tidal action. Under certain restoration options, tidal flows would be extended to the pocket area, increasing direct effects of runoff on Outer Bolsa Bay. Thus, some very sensitive resources under the jurisdiction of the Coastal Commission could be involved. If the proposed development is approved, the Coastal Commission must reserve the right to review maintenance of water quality draining from the site and impose additional pollution control measures at any time.

In addition, the applicant should participate in funding for additional water quality studies as well as ongoing sampling efforts for affected resources, including studies of total maximum daily loads (TMDLs) for the Bolsa Chica Bay prior to any development at Bolsa Chica. These TMDLs are long overdue and are an essential component of determining the scope and impact of proposed development on the surrounding and adjacent protected coastal resources. These numeric criteria will certainly be impacted by any new development on the Mesa; and vice versa, the Project itself may be constrained by statutory requirements that do not permit increased loading into an already water quality limited Area. The U.S. Environmental Protection Agency (USEPA) has established regulations (40 CFR 122) requiring that National Pollutant Discharge Elimination System (NPDES) permits be revised to be consistent with any approved TMDL. Federal regulations, effective October 2001, require that implementation plans be developed along with the TMDLs.

The applicant has indicated that the project will be covered under the general permit to discharge storm water associated with construction activity, and has submitted a copy of a receipt of a notice of intent from the State Water Resources Control Board dated December 8, 1998, over five years ago. This was well before the project was designed and well before even the November 2000 hearing on the now-defunct Local Coastal Program. The notice of intent should be resubmitted if construction ever proceeds on the Bolsa Chica Mesa.

As stated in the attached January 21, 2000 letter from Gerald Thibeault, Executive Officer of the California Regional Water Quality Control Board, Santa Ana Region:

> The Regional Board at all times retains the right to issue waste discharge requirements where it is necessary to do so to protect water quality and beneficial uses. Board staff will consider the propriety of issuing individual requirements to Hearthside Homes when the project is finally defined and approved.

Thus, the December 8, 1998 document should not be considered to be a carte blanche for any development that may ensue on the Bolsa Chica Mesa.

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The applicant has submitted an erosion control plan for the project. However, as submitted, the plan is inadequate. The plan consists solely of a map indicating where sandbags will be placed on the site once mass grading has been completed and building pads and street beds have been established. There is no information as to how erosion will be controlled during grading. This is inadequate, and project processing should not be permitted to move forward until such time as additional erosion control measures have been developed. It is especially critical that all erosions be controlled due to the sensitive resources in the surrounding area and the former use of the site for hunting and military purposes, leading to the potential deposit of lead from ammunition on the site.

The Water Quality Management Plan includes a potpourri of attachments including articles and flyers regarding water quality issues. It is not clear what, if any, measures mentioned in these attachments will actually be taken. This must be clarified.

As currently proposed, the Brightwater project fails to fulfill the purposes of the Coastal Act regarding water quality.

Cultural Resources

Section 30244 of the Costal Act provides that:

> Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

The Bolsa Chica Mesa includes a number of highly significant archaeological sites, including ORA-83 and ORA-85. Ora-83 is almost certainly the last major coastal habitation site remaining between Los Angeles and San Diego. The site has been nominated to the Register of Historic Places, and qualifies based on the value of the site, but cannot be listed due to the owner's refusal to agree to listing.

In the light of statements from recognized experts urging "complete avoidance", declaring that we must "do everything in our power to preserve", and mourning the potential loss of ORA-83 as a "tragedy" (attached), site avoidance must viewed as the only reasonable mitigation measure for ORA-83.

Although some materials from ORA-83 will be recovered under test programs, the remainder of the site must be preserved in perpetuity for future generations. Following data recovery, the site must be capped to reduce the potential for looting of potentially significant resources.

Even if only data recovery were necessary as mitigation, the currently proposed research design is not adequate. As noted in the attached comments by Patricia Martz:

> Part 2: Research Implementation is very general and superficial and lacks sufficient detail regarding the research questions and data requirements to address the themes and models discussed in Part 1. The majority of the questions that are

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presented are about data requirements and not formulated to advance knowledge regarding past human behavior.

Thus, further refinement of the proposed archaeological research design is necessary.

Visual Resources

Section 30251 of the Costal Act provides that:

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

The proposed project will entail alteration of existing landforms and construction of hundreds of homes on a previously vacant site. As noted SEIR 551:

> Residential development will permanently alter the undeveloped appearance of the Bolsa Chica Mesa within the public viewsheds as seen from Pacific Coast Highway near Warner Avenue and Pacific Coast Highway at the State Ecological Reserve Overlook, adjacent to Inner Bolsa Bay and along Los Patos Avenue at Bolsa Chica Street.

This finding was also adopted by the Orange County Board of Supervisors as part of their Statement of Facts and Findings when they approved the Brightwater project.

However, the applicant has chosen to deny this finding of fact, instead averring that the statement in SEIR 551 was another "holdover" from the previous EIR 551. As noted above, SEIR 551 was prepared at the direction of the applicant, was submitted on behalf of the applicant and was subject to additional review by the applicant during the public review period. Further, the County's Findings of Fact were adopted as a separate document, which the applicant also had the opportunity to review.

In fact, this impact has increased somewhat from the time SEIR was certified. Under current plans, grading will be balanced, with no export of soil off-site. This will result in one to six foot increases in building pad elevations, increasing the visual intrusion of homes on the raised pads.

If it is the desire of the Commission to approve the proposed project, additional open space should be required for visual buffering. This is important not only along the edge of the project adjacent to the lowlands, but along the bluff separating the lower bench and the upper bench.

The bluff must be fully delineated and preserved consistent with the provision of Section 30253 of the Coastal Act which states, in part:

> New Development shall..Assure stability and structural integrity and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

In addition, restrictions on night lighting must be adopted as a condition of approval and incorporated into the Brightwater C,C & Rs. Reflective materials should be prohibited. Both of these measures would also benefit wildlife.

Homes on the project site are projected to exceed thirty feet in height, equivalent to a three story structure. This can result in an imposing appearance for structures that rise straight up, but can and should be softened by a lower limitation on the heights of structures along the perimeter of the site.

Housing

Section 65590(d) of the Government Code imposes on local agencies, in this case the County of Orange, the duty to ensure that:

> "new housing developments constructed within the coastal zone shall, where feasible, provide housing units for persons and families of low or moderate income...Where it is not feasible to provide these housing units in a proposed new housing development, the local government shall require the developer to provide such housing, if feasible to do so, at another location within the same city or county, either within the coastal zone or within three miles thereof".

The local agency is also required to offer incentives for the provision of low and moderate income housing.

Section 65590 acts in concert with, but independent of, the previous sections (65580 through 65589.8) of the Government Code governing local housing elements, which by State mandate must address housing issues in all areas subject to County jurisdiction, including the Coastal Zone. Thus, the affordable housing provisions of Section 65590 must be implemented <u>whether or not</u> they are included within the local agency's adopted housing element or other locally adopted program.

As described by staff of the California Department of Housing and Community Development (HCD), local agencies are charged with implementation of Section 65590, for the legitimate government purposes established by the California State Legislature in Section 65580, specifically:

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> "(a) The availability of housing is of vital statewide importance, and the early attainment of decent and a suitable living environment for every California family is a priority of the highest order...
>
> (d) Local and state governments have a responsibility to use the powers vested in them to facilitate the improvement and development of housing to make adequate provision for the housing needs of all economic segments of the community."

Under Section 65590, low or moderate income housing must be provided in new residential development in the Coastal Zone where feasible. As defined under Section 65590(g)(3):

> "'Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technical factors."

Staff of the California Department of Housing and Community Development (HCD) has indicated that they believe an assumption of feasibility must be made barring evidence to the contrary. This position has been upheld by the courts.

Thus, County government is responsible for ensuring that affordable housing is included in new developments such as the proposed Brightwater. Inasmuch as a ten percent exclusionary requirement is imposed by the City of Huntington Beach immediately adjacent to the project site, which is in the City's adopted sphere of influence, it is reasonable to conclude that it would be feasible to provide ten percent of ***all*** units in the project, i.e. thirty eight units, as affordable units. These units must be provided as part of the proposed project. The applicant and the County have yet to take steps to implement this requirement or address the feasibility of doing so.

Proposition 50

Proposition 50, passed in November 2002 added Section 79572 to the Water Code appropriating. $750,000,000 to the Wildlife Conservation Board. Money appropriated is to be used for the acquisition, protection, and restoration of lands in or adjacent to urban areas. Eligible projects are limited to:

- Acquisition, protection, and restoration of coastal wetlands identified in the Southern California Coastal Wetlands Inventory as of January 1, 2001, published by the State Coastal Conservancy, located within the coastal zone, and other wetlands connected and proximate to such coastal wetlands, and upland areas adjacent and proximate to such coastal wetlands, or coastal wetlands identified for acquisition, protection, and restoration in the San Francisco Baylands Ecosystem Habitat Goals Report, and upland areas adjacent to the identified wet lands.
- Acquisition, protection, and restoration of coastal watershed and adjacent lands located in Los Angeles, Ventura, and Santa Barbara Counties.
- Not less than three hundred million dollars ($300,000,000) for projects within Los Angeles and Ventura Counties.

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STATE OF CALIFORNIA

GRAY DAVIS, *Governor*

CALIFORNIA STATE LANDS COMMISSION
) Howe Avenue, Suite 100-South
acramento, CA 95825-8202

PAUL D. THAYER, *Executive Officer*
(916) 574-1800 FAX (916) 574-1810
California Relay Service From TDD Phone **1-800-735-2922**
from Voice Phone **1-800-735-2929**

Contact Phone: **(916) 574-1850**
Contact FAX: **(916) 574-1855**

April 14, 2003

ATTACHMENT 18

Brightwater CDP

Ms. Lucy Dunn
Executive Vice President
Hearthside Homes
6 Executive Circle, Suite 250
Irvine, California 92614

Re: Brightwater Development Project

Dear Ms. Dunn:

This letter is in response to Condition of Approval #27 contained in The Orange County Board of Supervisors' Resolution No. 02-221 for Hearthside Homes' Brightwater development project located on the Bolsa Chica Mesa. The project was approved by the Orange County Board of Supervisors together with its Subsequent Environmental Impact Report 551(SCH # 1990371064), on July 23, 2002.

The State of California, acting by and through the California State Lands Commission, obtained title to the Bolsa Chica lowland property, including the "pocket" area, on February 14, 1997 from Hearthside Homes' affiliate company, Signal Bolsa. In paragraph 2.4 of the deed to the state the seller retained, over the "pocket" area, "A non-exclusive easement for the construction, operation, and maintenance of drainage facilities .... to handle drainage and flood waters." The deed was recorded on February 14, 1997 in the County of Orange, California, as document No. 19970069448. We have reviewed the plans for the Brightwater project drainage facility, as prepared by Hearthside Homes, and believe the plans meet the easement requirements.

Sincerely,

Frederick O. Ludlow II
Assistant Chief Counsel

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STATE OF CALIFORNIA—THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

26 May 2004

GEOTECHNICAL REVIEW MEMORANDUM

To: Teresa Henry, South Coast District Manager
From: Mark Johnsson, Staff Geologist
Re: CDP 5-04-192 (Brightwater)

With regard to the above-referenced CDP application, I have reviewed the following documents:

1) Forma 2004, "Slope analyses graphics, Attachment 49--Maps A, B, and C, CDP Application 5-02-375 (Brightwater)", 3 p. letter to Mark Johnsson dated 8 January 2004 and signed by P. Edwards.

2) AMEC Earth and Environmental, Inc. 2003, "Response to review comments, stability of southerly perimeter slopes, Section 30253(2) of the Coastal Act, proposed vesting tentative tract no. 15460, Brightwater Development Project, Orange County, California", 5 p. letter to Mr. Ed. Mountford dated 15 July 2003 and signed by S. T. Kerwin (CEG 1267).

3) AMEC Earth and Environmental, Inc. 2003, "Stability of southerly perimeter slopes, Section 30253(2) of the Coastal Act, proposed vesting tentative tract no. 15460, Brightwater Development Project, Orange County, California", 3 p. letter to Mr. Ed. Mountford dated 27 February 2003 and signed by D. Dahncke (GE 2279) and S. T. Kerwin (CEG 1267).

4) AMEC Earth and Environmental, Inc. 2002, "Geotechnical review update, proposed vesting tentative tract no. 15460, Brightwater Development Project, Orange County, California", 2 p. letter to Mr. Ed. Mountford dated 31 October 2002 and signed by D. Dahncke (GE 2279) and S. T. Kerwin (CEG 1267).

5) AMEC Earth and Environmental, Inc. 2001, "Preliminary geotechnical review, possible alternative grading concept, vesting tentative tract no. 15460, Brightwater Development Project, Orange County, California", 2 p. letter to Mr. Ed. Mountford dated 8 November 2001 and signed by D. Dahncke (GE 2279) and S. T. Kerwin (CEG 1267).

6) AMEC Earth and Environmental, Inc. 2001, "Addendum geotechnical review, revised tract map, vesting tentative tract no. 15460, Brightwater Development Project, Upper Bolsa Chica Mesa, Orange County, California", 29 p. geotechnical report dated 26 September 2001 and signed by D. Dahncke (GE 2279) and S. T. Kerwin (CEG 1267).

7) AMEC Earth and Environmental, Inc. 1997, "Geotechnical evaluation report, Phase I rough grading plans, Vesting tentative tract 15460, Bolsa Chica Mesa, South of Warner/Los Patos Avenues, Orange County, California", 60 p. geotechnical report submitted to the Koll Real Estate Group dated 1 December 1997 and signed by D. Dahncke (GE 2279) and S. T. Kerwin (CEG 1267).

8) Woodward-Clyde Consultants, 1987, "Evaluation of hazards due to fault surface rupture at Bolsa Chica Mesa and in the Bolsa Chica lowland, Orange County, California", p. report for Signal Landmark, Inc. and Orange County Environmental Management Agency dated October 1987 and signed by Woodward-Clyde Consultants.

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9) Woodward-Clyde Consultants, 1984, "Report addendum: Response to questions and review comments raised by CDMG re: surface faulting, seismicity and earthquake ground motions, Bolsa Chica planning unit, Orange County, California", 21 p. report for Signal Landmark, Inc. and Orange County Environmental Management Agency dated 26 October 1984 and signed by Woodward-Clyde Consultants.

10) Woodward-Clyde Consultants, 1984, "Preliminary evaluation of surface faulting, Bolsa Chica Local Coastal Program, Bolsa Chica Planning Unit, Orange County, California", 43 p. report for Signal Landmark, Inc. and Orange County Environmental Management Agency dated January 1984 and signed by Woodward-Clyde Consultants.

I also have reviewed the original CDP application, dated November 2002, and three "supplemental submittals" dated May 2003, July 2003, and September 2003. These documents contain reports and graphics that bear on some of the geotechnical issues regarding the project. I have had numerous discussions with the applicants, their consultants, and, especially with Mr. Scott Kerwin of AMEC, principal geotechnical consultant for the project. I also have visited the site on several occasions over the past three years.

In this memorandum I will address what I perceive to be the principal geotechnical issues related to the proposed development. These are: geomorphology and landscape evolution, seismic safety, and slope stability.

Geomorphology and Landscape Evolution

The subject parcel straddles the Upper and Lower Bolsa Chica Mesas, which represent an uplifted marine terrace. The two mesas are separated by a slope approximately 25 feet high with an average gradient of about 10-15%. At the toe of the slope, and running parallel to it, lies the surface trace of the Newport-Inglewood fault, suggesting that the slope is a "fault line scarp," and owes its existence to differential movement across the fault. This is one of the few places in Orange County where such a feature can be observed, as most fault line scarps associated with the Newport-Inglewood fault zone or other faults have largely been destroyed by grading and urbanization.

The southeastern edge of the project area is marked by a much steeper slope, averaging approximately 45% and locally nearly vertical. This slope ranges from 25 to 30 feet high, and cuts across both mesas. To the southeast of the toe of the slope lie the Bolsa Chica lowlands and the Wintersberg flood control channel. This slope represents a river bluff, formed by fluvial erosion from when the Santa Ana River occupied this part of the lowlands in the past.

Previous development at the site has resulted in the physical alteration of these natural landforms. In the early 1900's access roads were graded across the site. In the mid-twentieth century additional grading resulted from farming, oil field operations, construction and demolition of two large military bunkers, and the excavation of fill material from two large borrow pits. This grading has resulted in an altered appearance to both the fault line scarp and the river bluff, but both maintain their basic topographic integrity.

The applicant proposed to grade the bluff edge, adding fill to one large barrow pit, building out the bluff edge, thereby "restoring" the bluff configuration as it existed prior to major

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modification. The relative merits of such a "restoration" are debatable, but in my opinion it is clear that the proposed grading represents significant alteration of a natural landform.

I have had extensive discussion with the applicants and their consultants on ways to delineate the limits of these landforms. The applicants contend that these landforms have been so altered that they do not constitute natural landforms. In my opinion this is incorrect; they clearly represent fundamental natural topography that simply has been altered by human activities. The applicants also contend that only the river bluff meets the definition of the term "bluff," although neither they nor the Coastal Act provide a definition for the term. I concur that the slope separating the Upper and Lower Mesas probably is gradual enough, except where modified by road grading, that most geomorphologists would not consider it a bluff. Nevertheless, Commission staff asked the applicant to provide a delineation of the top-of-slope, which could prove helpful in evaluating various aspects of the project. The applicants initially declined to do so, indicating that "any attempt to draw a precise line defining the top of bluff is fraught with complications and nuances that render such delineation meaningless for the purpose of determining compliance with Section 30253" (from "second supplemental submittal"). Eventually they acquiesced, and produced a map showing a line midway down the slope ("Attachment 46" in the "third supplemental submittal.") Apparently, this line was drawn along the top of steep roadcuts on the slope and interpolated between them. This certainly does not conform to the top of the natural, but altered, slope. I do agree, however, that the gradual rounding of the top of the slope makes choosing an appropriate top-of-slope very difficult. It is probably best to delineate the slope face on the basis of its measured gradient, which is markedly steeper than the very gentle gradient of the mesas above and below. The applicant made an analysis of slope across the property, little modified by human activities, from a 1939 stereo pair of aerial photographs. The slope can clearly be distinguished on this map on the basis of its steeper average gradient. To refine this map and to extend the analysis to existing and planned topography, the applicants prepared reference (1). Unfortunately, the gradient intervals are too coarse to delineate the slope on these maps. When asked to produce a map with finer gradient intervals, the applicant declined. Thus, we are left with a clear natural landform, but we have no definitive, objective means of defining its boundaries.

Attachment 46 also contains a line corresponding to the edge of the river bluff. This line was apparently drawn with reference to the bluff edge guidelines found in the Coastal Commission regulation Section 13577 (h)(2). Reference (1) contains similar lines drawn on the 1939 and on the proposed topography. Although there may be some small areas of disagreement between this line and where I would draw the top of slope, there only is one major discrepancy. This is in the area of the large borrow pit midway along the Upper Mesa. The maps in reference (1) place the top of bluff at the outer edge of the broad "step" cut in the bluff. Section 13577 (h)(2) states, however, that "in a case where there is a steplike feature at the top of the cliff edge, the landward edge of the topmost riser shall be taken to be the cliff edge." Accordingly, I draw the bluff edge considerably inward of the line in reference (1) and Attachment 46 in this area (see exhibit).

Seismic Safety

The site is traversed by the Newport-Inglewood fault zone, generally recognized as the source of the M 6.25 Long Beach earthquake of 1933 that killed 120 people and resulted in passage of the Field Act. The fault has been designated an Earthquake Fault Zone by the State Geologist under the Alquist-Priolo Act, but the area has not been identified as an area susceptible to earthquake-induced landslides or liquefaction hazard on the Seismic Hazard Map prepared by the California Geological Survey under the Seismic Hazard Mapping Act.

References (8), (9), and (10) report on fault studies undertaken in compliance with the Alquist Priolo Map. These studies demonstrated that the North Branch Fault (of the Newport-Inglewood Fault Zone) does, indeed, show Holocene movement and thus should be considered an active fault. In addition, a detailed trenching and mapping program was undertaken to locate the surface trace of the fault. In accordance with the Alquist-Priolo Act, which requires that no structure for human habitation be built across an active fault, 50-foot setback zones from the mapped fault traces were identified. These setback zones are intended to assure that buildings for human habitation will not be damaged by surface rupture of the fault. Inasmuch as the fault seems to be well established at its present location (i.e., there is little evidence for faulting far from the fault zones identified in the trenches), I concur that such a setback is sufficient. Indeed, no lots even abut the mapped setback line. The fault does cross the area of the excavated detention basins ("created wetlands"), and these features could be damaged during an earthquake. Even if they contained water at the time of the earthquake, however, flood danger would be minimal since these features are excavated below grade and because no structures are built on the Lower Mesa, the area that is most likely to be inundated.

The proposed project includes the creation of a 14 acre residual parcel on the Lower Mesa. The fault zone runs through a portion of this parcel, and the setbacks required from the fault zone under the Alquist-Priolo act place constraints on the amount and nature of development that may be possible on the residual parcel. I recommend that the applicant be asked to identify and communicate to us the intended use of this residual parcel, and demonstrate that the parcel can be developed consistent with the applicable Chapter 3 policies of the Coastal Act.

Despite the fact that the project site does not lie in a seismic hazard zone as defined by the Seismic Hazard Mapping Act, slope stability analyses in references (6) and (7) contain pseudostatic analyses that demonstrate high (<1.1) factors-of-safety against sliding for all of the proposed slopes during earthquake loading events.

Reference (7) also contains a liquefaction analysis making use of cone penetrometer data. From these data, I concur with the applicants that there is little liquefaction risk in the dense sands of the terrace deposits that make up the Upper and Lower Mesa surfaces. Liquefaction during an earthquake is likely, however, in the alluvial lowlands below the two mesas. However, no development is being planned for this area.

Finally, ground shaking at the site is likely to be severe during a major earthquake on the Newport-Inglewood fault or one of the other faults that traverses southern California. Reference

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(7) contains a probabilistic seismic hazard assessment and seismic design criteria consistent with the International Building Code that should be followed during design of all structures.

Slope Stability

Reference (7) contains the results of direct shear tests undertaken on relatively undisturbed samples collected at the site. These tests were used to derive soil strength parameters for use in quantitative slope stability analyses of all of the proposed slopes in the project. When the grading plan was changed in order to balance grading on site, analyses of the new slopes were performed and are reported in reference (6).

I concur with the applicants that these tests demonstrate that the proposed slopes are stable. Surficial instability could result from erosion of these slopes, and so the recommendations in reference (7) should be followed regarding drainage and vegetation of these slopes.

I hope that this review is helpful. Please do not hesitate to contact me if you have any questions.

Sincerely,

Mark Johnsson, Ph.D., CEG, CHG
Staff Geologist

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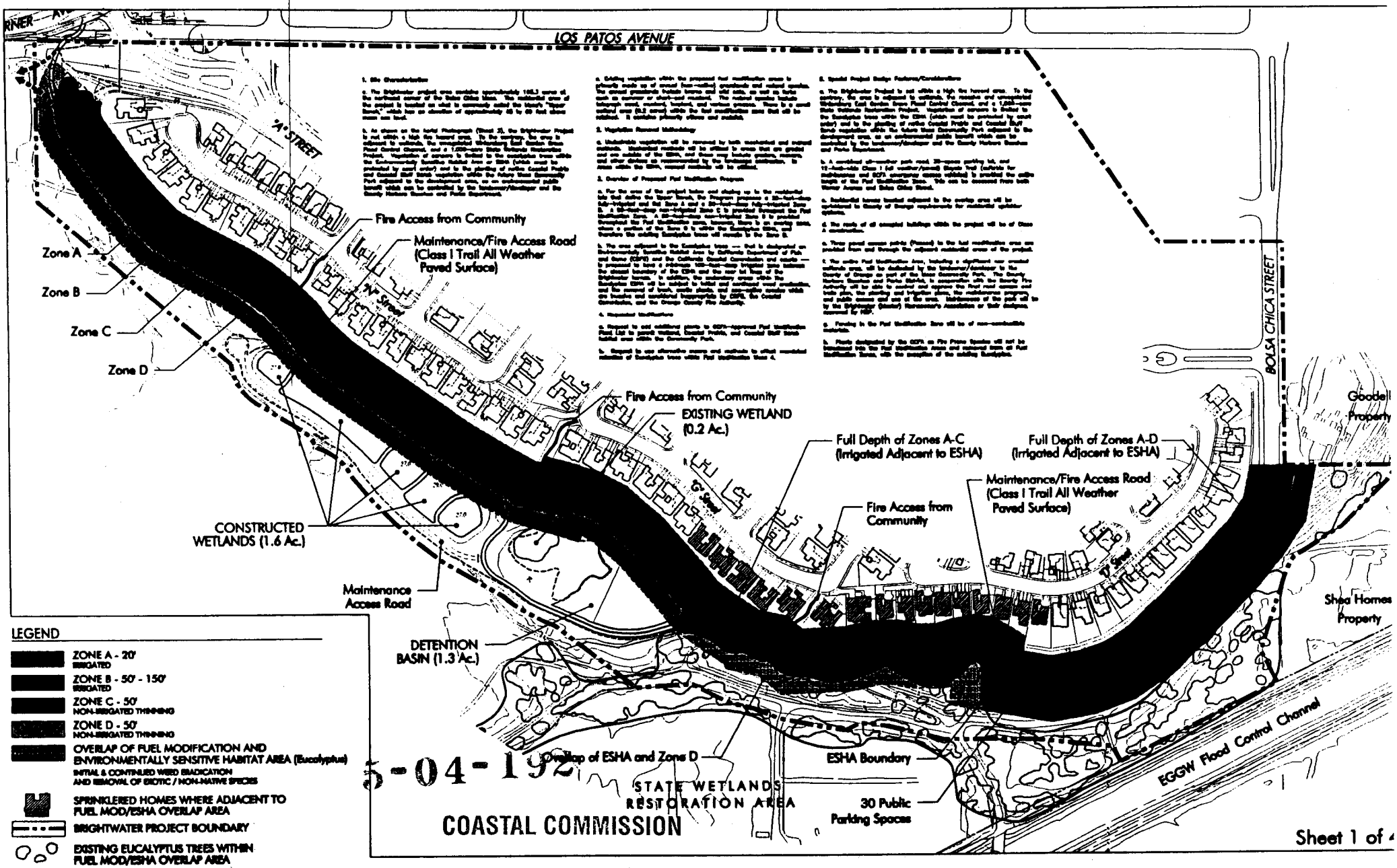

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Zones and Program Descriptio
Conceptual Fuel Modification Pla

BRIGHTWATER DEVELOPMENT

Bolsa Chica Planned Community

PLANNING
DESIGN
LANDSCAPE ARCHITECTURE
ENTITLEMENT SERVICES tel: 949.660.1900
MAPPING AND PRESENTATIONS

August 12, 2002

Mr. Bret Anderson
Senior Fire Safety Specialist
Planning and Development Services Section
ORANGE COUNTY FIRE AUTHORITY (OCFA)
180 S. Water Street
Orange, CA 92866-2123

ATTACHMENT 9.2

Brightwater CDP

SUBJECT: OCFA Service Request (SR) No. 68164
Conceptual Fuel Modification Plan for
Brightwater Project — Tentative Tract Map No. 15460
Unincorporated Huntington Beach Area

Dear Mr. Anderson:

Consistent with your letter dated April 26, 2002, we are hereby submitting a revised Conceptual Fuel Modification Plan for the Brightwater Project (TTM No. 15460) which lies in an unincorporated area adjacent to the City of Huntington Beach.

This submittal is intended to demonstrate compliance with your letter, and in particular the 1997 California and Uniform Codes (CBC, UBC, UFC, and CFC) and other codes as adopted and amended by state regulation and local jurisdiction, and consists of the following:

- ❑ Three (3) sets of the corrected Conceptual Fuel Modification Plans, in a standard drawing sheet format;
- ❑ A point-by-point response to each of the comments/requests contained in your 4-26-02 letter (a copy of the original letter is attached); and
- ❑ An Attachment "A" to this letter which describes two proposed Alternative Means and Methods of complying with your guidelines/requirements.

Answers to Your Comments/Requests

Comment/Request No. 1: ***Plants proposed are not on the approved plant list. Ensure to only use the exact verbiage from the OCFA plant palette in the OCFA Guideline for Fuel Modification and Maintenance dated April 10, 2001. Some are close in kind and some are not on the list at all.***

Answer: We are not proposing to retain or introduce any plants on the Orange County Fire Authority's List of Undesirable Plants, except for retention of eucalyptus trees within a State-designated, Environmentally Sensitive Habitat Area (see Sheet 2). We are requesting to add additional plants to the OCFA Approved Fuel Modification Plant List through the Alternate Means and Methods process (see Attachment "A").

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Comment/Request No. 2: ***Place the following sheets on the plans in blue line from the OCFA Guideline for fuel modification and maintenance dated April 10, 2001. Sheet 5, starting only at Section V, "Setback Zone "A" and continue placing all information from sheets 4 through 9 verbatim (except sections VIII, X, XII, and XIII) on the plan. (Remove only the first word "Trees", in the 7th bullet of zone B specific requirements and* keep large form tree shrubs in the verbiage.)***

Answer: See Sheet 4, OCFA Requirements - Conceptual Fuel Modification Plan, which contains Sections V, VI, VII, IX, and XI as requested.

Comment/Request No. 3: ***Provide a statement on the plan regarding the future maintenance of this fuel modification in accordance with the OCFA Guideline. Provide the name of responsible party for maintenance.***

Answer: See Sheet 1, Zones and Program Description, Item 5f, that states that the Conceptual Fuel Modification Area that will be dedicated to the County of Orange's part of the Mesa Community Park. Although the land will ultimately be owned by the Orange County Harbors, Beaches and Parks Department, it is anticipated that the Brightwater (Master) Homeowners Association (HOA) or their designee, approved by County HBP, will be responsible for the maintenance of the fuel modification program within the Community Park.

Comment/Request No. 4: ***Provide a 20 foot flat area "A" zone for all lots.***

Answer: See Sheet 1, Zones and Program Description, which depicts Zone A. There is a 20-foot flat area for all lots.

Comment /Request No. 5: ***Provide a note stating that fencing in fuel modification zones will be of non-combustible materials.***

Answer: See Sheet 1, Zones and Program Description, Item 5g, which states that fencing in the Conceptual Fuel Modification Zone shall be of non-combustible materials.

Comment /Request No. 6: ***Provide the sheets that you submitted in the booklet, to be burned onto the plan sheets. Multiple sheets can be used.***

Answer: The text pages in the booklet have been formatted as Sheet 1, Zones and Program Description. The Plant Palette and Planting Locations are formatted on Sheet 2. The Site Photos are formatted on Sheet 3, Photographs of Existing Eucalyptus ESHA Within and Adjacent to Development Area.

Conclusion

I hope that this revised submittal meets with your approval. I look forward to hearing from you as your schedule permits so that we can begin to prepare our final and more detailed development plans, including a Precise Fuel Modification Plan for your review and approval.

Please call me if you have any questions or additional comments.

Sincerely,

FORMA

Scott Armsworth
Senior Project Manager

cc: Ed Mountford, Hearthside Homes
Chad Brown, Orange County Planning and Development Services Division (PDSD)

Enclosures:

- ❑ Attachment "A": Proposed Alternative Means and Methods for Complying with OCFA Guidelines.
- ❑ Revised Conceptual Fuel Modification Plans (3 sets; 4 sheets each).
- ❑ Letter from Bret Anderson, OCFA, to Scott Armsworth, FORMA, dated April 26, 2002.

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PAGE 3 OF 12

ATTACHMENT "A"
to Letter to Brett Anderson, OCFA, dated August 12, 2002
Brightwater Conceptual Fuel Modification Plan
OCFA Service Request No. 68164

REQUEST FOR USE OF ALTERNATE MEANS AND METHODS FOR COMPLYING WITH OCFA GUIDELINES

A. Project Information

1. Project - Brightwater (TTM No. 15460), located at the southern terminus of Bolsa Chica Street in unincorporated Orange County.

2. Landowner/Developer - Hearthside Homes, 6 Executive Circle, Suite 250, Irvine, California, 92614. Contact: Ed Mountford (949) 250-7760.

3. Project Approvals - Master Site Plan/Area Plan and Project Site Plans were approved by the Orange County Planning Commission on May 8, 2002 (Resolution No. 02-03).
   Tentative Tract Map No. 15460 was approved by the Orange County Subdivision Committee on May 29, 2002.

4. EIR Certification - The project was environmentally evaluated by Final Subsequent EIR 551 (State Clearinghouse No. 1993071064).

B. Hardship for the Project

The courts and subsequently the California Coastal Commission have determined that the eucalyptus trees on and adjacent to the Bolsa Chica Mesa shall be preserved as raptor habitat. (A portion of this area is within the Mesa Community Park, which will be constructed by the landowner and dedicated to the County of Orange.) Therefore the landowner and its successors must retain these trees in their present locations. The Coastal Commission has determined that maintenance of this area is required, and includes ". . . initial and continued weed eradication, and the removal of exotic plants and non-native species which are invasive and considered inappropriate by CDFG and USFWS." This will reduce fuel volume in the area.

C. Code Section Modification Requests

Appendix II-A-1, Section 27, Fuel Modification Requirements for New Construction

1. (Item 1 in OCFA letter dated April 26, 2002) *Only use plants on the OCFA Approved Plant List* — We propose the use of plants listed on our Conceptual Fuel Modification Plan Plant List. These plants reflect a Wetland and Coastal Prairie habitat does not contain high fuel content plant material. Attached to this Request is a letter dated July 24, 2002 from Project Biologist, Tony Bomkamp of Glenn Lukos Associates, that describes the proposed species and why those species are appropriate in this Fuel Modification Zone. These species have been approved by the OCFA in other coastal Fuel Modification Zones.

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ATTACHMENT "A"
to Letter to Brett Anderson, OCFA, dated August 12, 2002
Brightwater Conceptual Fuel Modification Plan
OCFA Service Request No. 68164

2. (Item 8 in OCFA letter dated April 26, 2002) *Remove existing Eucalyptus trees from overlap areas, move homes back, or propose alternate construction of the homes* — We are required by the courts and Coastal Commission to retain the existing Eucalyptus trees, which results in an overlap of Zone D and the ESHA. This overlap area is approximately 33,500 square feet, or 4.5 percent of the total 731,000 square feet of Fuel Modification.

D. Structural Modifications other than Code Requirements to provide for Alternate Means and Methods

1. Zones C and D will be irrigated (the same as Zone B) where they are adjacent to the Overlap Area of Fuel Modification and Eucalyptus ESHA. The irrigation of this zone increases its equivalent width, when compared to non-irrigated zones. This irrigation exceeds code requirements.

2. The sixteen (16) single-family residences, which are potentially affected by the Overlap Area of Fuel Modification and Eucalyptus ESHA, will be sprinklered to County of Orange requirements for residential sprinkler systems. This exceeds Code requirements.

3. The roofs of all occupied buildings within the Brightwater project will be of Class A construction. This exceeds Code Requirements.

E. Alternate Fire Protection Measures which provide for Alternate Means and Methods

1. The entire length of the Fuel Modification Zone is served by a combination all-weather park road, a 30-space public parking lot, and 12-foot-wide Class I Bicycle Trail suitable for maintenance and emergency access vehicles. This all weather system of park roads, parking lot, and paved trails will be accessible to fire department vehicles from both Warner Avenue and Bolsa Chica Street.

Conclusion

The Brightwater Project is not within a high fire hazard area. To the contrary, the area is adjacent to wetlands, the massive and unvegetated Wintersburg East Garden Grove Flood Control Channel, and a 1,000-acre State Wetlands Restoration Project. Vegetation of concern is limited to some Eucalyptus trees within the ESHA which must be preserved.

Public access to this ESHA will be limited by fencing or other means, and will be controlled by the County of Orange as the ultimate owner of this area.

The above-stated Alternate Means and Methods provide equivalent safety for the public and future residents of Brightwater.

COASTAL COMMISSION

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GLENN LUKOS ASSOCIATES

Regulatory Services

July 24, 2002

Bret Anderson
Orange County Fire Authority
180 South Water Street
Orange, California 92866

Subject: Fuel Modification Zones and Proposed Plant Palette for Brightwater Project, Huntington Beach, Orange County

Dear Mr. Anderson:

I prepared the proposed plant palette for water quality basins within the Community Park to be incorporated into the Brightwater Project as well as the plant palette for the adjacent upland areas and offer the following descriptions relative to the use of the proposed plants within a fuel modification zone.

Water Quality Basins

First, by way of general comment, it is important to note that all of the species proposed for the water quality basin are wetland species, many of which only survive in areas that exhibit long-term saturation or inundation. Many of these species are not included on the Orange County Fire Authority's (OCFA) list of approved plants because, presumably, there was no need to include species that occur in salt marshes or other wet environments on the list. None of the following proposed species present any risk relative to fuel and I am providing brief descriptions of each to assist you in your analysis. The species indicated in bold italics are proposed wetland species that are not on the approved list.

Scirpus maritimus is a perennial bulrush that occurs in seasonally or permanently flooded areas. *S. Californicus* and *S. acutus*, which are approved by the OCFA, reach heights of 10 feet; whereas *Scirpus maritimus* reaches a maximum height of about four feet and proposce less biomass. Because it is shorter that the approved species and produces less biomass it exhibits less risk than the above-noted approved species of *Scirpus*.

Leymus triticoides is a perennial wetland grass that is closely related to *Leymus condensatus*, which is approved by the OCFA. *L. triticoides* reaches a maximum height

COASTAL COMMISSION 5-04-192
EXHIBIT # 14a
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23712 Birtcher Drive ▪ Lake Forest ▪ California 92630-1782
Telephone: (949) 837-0404 Facsimile: (949) 837-5834

of about 30 inches whereas the approved *L. condensatus* reaches heights of over 60 inches and exhibits far more biomass. Based on height and biomass, the *L. triticoides* is clearly superior to *L. condensatus* relative to fuel modification concerns.

Carex praegracilis is a perennial sedge that grows in alkali meadows and on streambanks. This species exhibits a maximum height of approximately eight inches and exhibits no risk as a fuel source.

Baccharis douglasii is a perennial sub-shrub that occurs in alkali marshes and the edge of salt marshes. This species is closely related to *Baccharis salicifolia* and *Baccharis emoryi*, both which are on the approved list. Importantly (and similar to the species of *Scirpus* and *Leymus* listed above), this species reaches a maximum height of 36 inches and exhibits little woody vegetation, whereas the approved *B. salicifolia* and *B. emoryi* reach heights of eight feet and can become woody within the first year. Based on height and biomass, the *B. douglasii* is clearly superior to *B. salicifolia* and *B. emoryi* relative to fuel modification concerns.

Juncus mexicanus and ***Juncus patens*** are perennial rushes, which grow in wet meadows, alkali marshes and along streambanks. Both species reach maximum heights of 18 inches. The approved *Juncus acutus* reaches heights of 42 inches and exhibits substantially more biomass than either of the proposed species. Based upon height and biomass, both species are far superior to the *Juncus acutus* relative to fuel modification concerns.

Arthrocnemum subterminale is a salt marsh succulent that is closely related to common pickleweed (*Salicornia virginica*). This species reaches maximum heights of eight inches, is succulent, and supports no woody tissue. This species exhibits no risk relative to fuel modification.

Distichlis spicata is a perennial turf-building wetland grass that occurs in salt marshes, wet meadows and on streambanks. This species has a maximum height of six inches and has a growth form most similar to Bermuda grass. This species exhibits no risk relative to fuel modification.

Anemopsis californica is a perennial herb that grows at the edge of salt marshes and in alkali meadows. This species reaches a maximum height of eight inches, is semi-succulent and supports no woody vegetation. This species exhibits no risk relative to fuel modification.

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Suaeda taxifolia is a perennial sub-shrub that reaches a maximum height of ten inches. This species occurs on the margins of saltmarshes and occasionally on coastal bluffs. This species is a succulent that produces no woody vegetation. . This species exhibits no risk relative to fuel modification.

Lycium californicum is a perennial shrub that reaches a maximum height of 30 inches. This species occurs on the margins of saltmarshes and occasionally on coastal bluffs. This species is a succulent that produces minimal woody vegetation. This species exhibits no risk relative to fuel modification.

Ambrosia psilostachya is an annual or biennial herb that reaches heights of 12 to 14 inches. This species typically grows on the margins of wetlands or in wetlands during the driest part of the season. This species is smaller and completely herbaceous unlike the approved *Ambrosia chammissonis*, which occurs on coastal dunes and exhibits some woody tissue. This species exhibits no risk relative to fuel modification.

If you have any questions regarding these plants or their suitability within a fuel management area, please contact me at (949) 837-0404.

Sincerely

GLENN LUKOS ASSOCIATES

Tony Bomkamp

Tony Bomkamp
Senior Biologist/Wetlands Specialist

S:0310-1a.fuel.doc

5-04-192

COASTAL COMMISSION

EXHIBIT # 14a
PAGE 8 OF 12

Orange County Fire Authority

180 S. Water St. • Orange, CA 92866-2123 • (714) 744-0400

Planning and Development Services Section

April 26, 2002

Forma
Scott Armsworth
17500 Redhill #100
Irvine

SUBJECT: **OCFA SR# 68164 (1.9, Conceptual Fuel Modification)**
Brightwater Tentative Tract #15460
Unincorporated Huntington Beach

The plans submitted for the project referenced above have been reviewed. The following information is needed to show compliance with the 1997 California and Uniform Codes (CBC, UBC, UFC, and CFC) and other codes as adopted and amended by state regulation and local jurisdiction.

1. Plants proposed are not on the approved plant list. Ensure to only use the exact verbiage from the OCFA plant pallett in the OCFA Guideline for fuel modification and maintenance dated April 10, 2001. Some are close in kind and some are not on the list at all.

2. Place the following sheets on the plans in blue line from the OCFA Guideline for fuel modification and maintenance dated April 10, 2001. Sheet 5, starting only at Section V, "Setback Zone "A" and continue placing all information from sheets 4 through 9 verbatim (except sections VIII, X, XII, and XIII) on the plan. (Remove only the first word "Trees", in the 7th bullet of zone B specific requirements and* keep large form tree shrubs in the verbiage)

3. Provide a statement on the plan regarding the future maintenance of this fuel modification in accordance with the OCFA Guideline. Provide the name of responsible party for maintenance.

4. Provide a 20 foot flat area "A" zone for all lots.

5. Provide a note stating that fencing in fuel modification zones will be of non-combustible materials.

6. Provide the sheets that you submitted in the booklet, to be burned onto the plan sheets. Multiple sheets can be used.

7. Place a legend on the plan showing the undesirable plants to be removed from all fuel modification zones. The list is in the OCFA fuel modification guideline.

COASTAL COMMISSION
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8. Homes adjacent to the overlap areas need to have eucalyptus removed from the "D" zones, move the homes back 50 feet, or propose alternate construction to the structures (Equivalent to exposed sides defined in the OCFA guideline for development in SFPA areas)

9. Provide a plant pallet for each color code shown including color codes on the planting plan in the booklet.

10. Add to page 2 of 5, 3b, last sentence, "inappropriate by CDFG, CC, and OCFA.

11. Add to page 2 of 5, 5b, "and removed from all fuel modification zones". OCFA does not want to have plants introduced and also wants the plants removed from all zones as they invade.

It will be necessary to reevaluate the project after the receipt of additional information.

- Resubmit 3 sets of corrected plans to OCFA.
- Incorporate all corrections into blue/black line drawings
- Utilize the OCFA service request number on all references to this submittal.
- Resubmit a copy of this letter with changes identified in the margin.

The failure to document deficiencies during this review shall not be held to permit or approve the violation of any law. If clarification or additional information is desired, please contact me at (714) 744-0477.

Respectfully,

Bret Anderson
Senior Fire Safety Specialist
bretanderson@ocfa.

5-04-192

COASTAL COMMISSION

EXHIBIT # 14a
PAGE 10 OF 12

ORANGE COUNTY FIRE AUTHORITY/PLANNING AND DEVELOPMENT
SERVICE REQUEST

68164

Planning Applicant: Please review the Planning Submittal Criteria Form prior to completing this Service Request.

B ng Plan Review Applicant: Please review the Building Plan Review Submittal Criteria Form and complete the Permit Screening Form prior to completing this Service Request. Permit Screening Form must be submitted with your plans. All information must be included to review plans in an expeditious manner. **For status of your plan(s) please call (714)744-0500; for other questions (714) 744-0499; for inspection scheduling (714) 744-0567.**

APPLICANT NAME (use pen, press firmly): Scott Armsworth Forma	PHONE (949) 660-1900
ADDRESS: 17500 Red Hill Ste 100	
CITY: Irvine	ZIP CODE: 92614
BILL TO (if different than above): Heathside Homes - Ed Mountford	PHONE (949) 250-7760
ADDRESS: 6 Executive Circle	
CITY: Irvine	ZIP CODE: 92614

JURISDICTION USE ONLY

DATE / /

BUILDING DEPT. REFERENCE NO.

PLANNING DEPT. REFERENCE NO.

SIGNATURE, CITY/COUNTY STAFF

I HEREBY AUTHORIZE THE FOLLOWING PROJECT/PLANS REVIEW SERVICES AND AGREE TO PAY ALL FEES PRIOR TO ISSUANCE OF APPROVALS OR BUILDING PERMITS. I ALSO ACKNOWLEDGE RECEIPT OF A COPY HEREOF.

SIGNED X [signature]

PLAN SUBMITTED AT THE OCFA FACILITY? YES NO RESUBMITTAL: YES NO

PROJECT NAME: Brightwater

PROJECT ADDRESS: South End of Bolsa Chica Street

PROJECT CITY: Huntington Beach (unincorporated) ZIP CODE WITH EXTENSION: -

PROJECT CONTACT: Ed Mountford PHONE: 949 250-7760

DEPENDING ON THE STAGE OF YOUR PROJECT, AT LEAST ONE OF THE FOLLOWING DATA ELEMENTS IS MANDATORY:

TRACT # / LOT #: PARCEL MAP: -

TENTATIVE TRACT # / LOT #: TTM 15460 COMMUNITY NAME: Bolsa Chica Planned Community

Service Requested: (select from service codes on reverse).

↓ APPLICANT ↓	↓ JURISDICTION USE ONLY ↓		
SERVICE CODES	AMT COLLECTED		
1.9	$ 174-		
	$		
	$		
	$		
CITY/COUNTY PROCESSING FEE: →	$		

		DATE / INITIALS	RECEIPT NO.
Initial Amount Collected:	$ 174-	4-4-02 KM	040879 CASH (1.00)
Additional Balance Due or Refund Amount:	$		
	$		

Sub-Total Due to OCFA:

Refund of OCFA Fee, if any:

Additional Fee Due to OCFA:

COASTAL COMMISSI

COMMENTS: 3-04-192

EXHIBIT # 14a

PAGE 11 OF 12

FORM ROUTING: 1) WHITE: FIRE AUTHORITY; 2) CANARY: REFUND/PAYMENT; 3) PINK: BLDG. DEPT.; 4) GOLD: CUSTOMER

F1211-320 (1/2000)

68164
BRIGHTWATER

ORANGE COUNTY FIRE AUTHORITY
REVIEWED by Planning & Development

Approval subject to field inspection and required test, notations hereon, conditions in correspondence and conformance with applicable regulations. The stamping of these plans shall not be held to permit or approve the violation of any law.

OCFA Service Request # 68164
Fee Codes: 1.9 + 1.47
By: B. Ordner Date: 8/30/02
(Employee # 3220)

ONLY STAMPED SHEETS REVIEWED BY ORANGE COUNTY FIRE AUTHORITY
Call 48 hrs. in advance to schedule inspections:
Phone 714-744-0472

5-04-192

COASTAL COMMISSION
EXHIBIT # 14a
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Bolsa Chica - Brightwater
Geotechnical Review and Lower Bench Residual Parcel

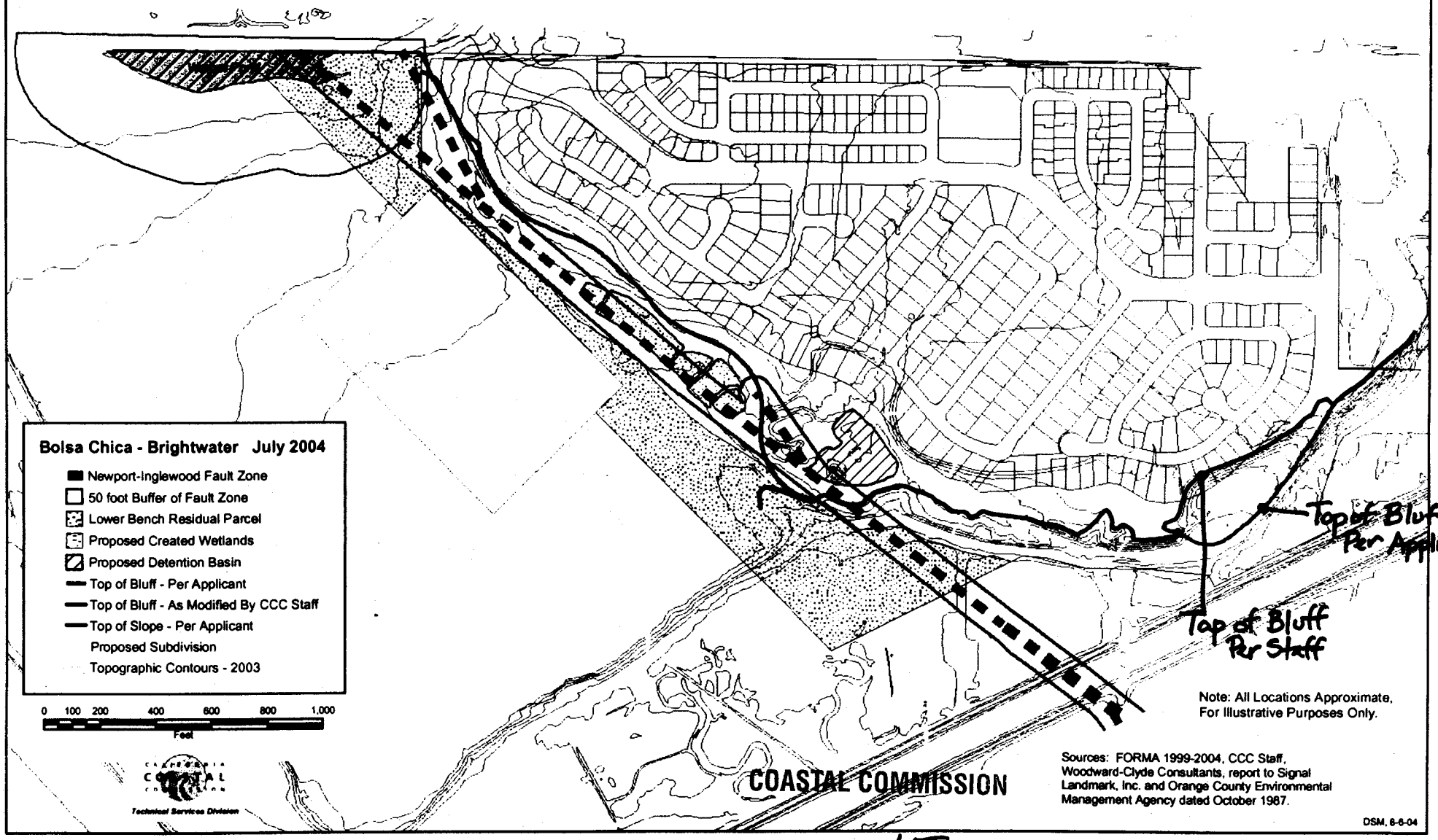

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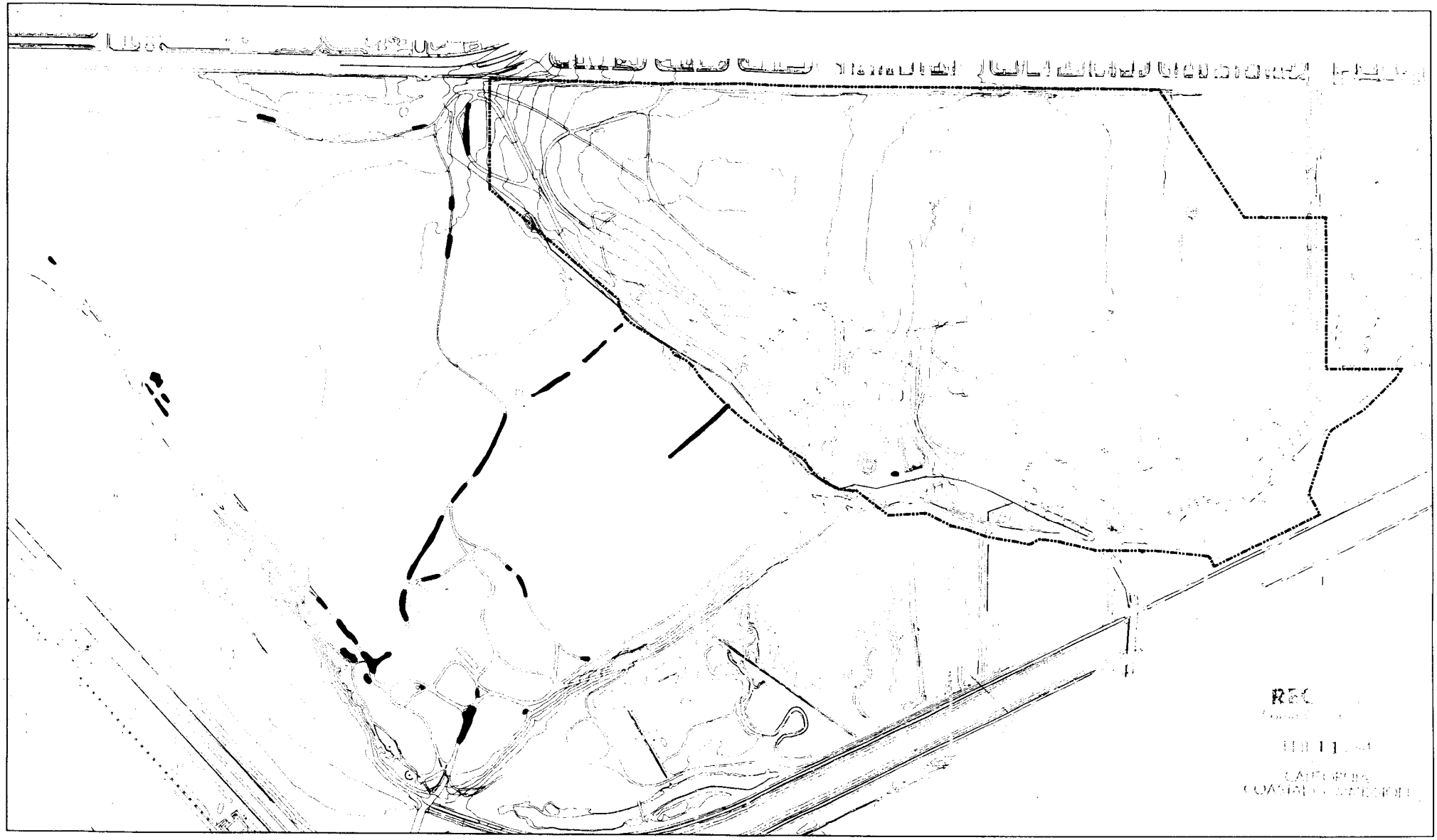
EXHIBIT # 15

5-04-192 PAGE 1 OF 1



TARPLANT 1999

0 175 350 Feet

FORMA
FEB. 2004

COASTAL COMMISSION
5-04-192
EXHIBIT # 16
PAGE 1 OF 4

COASTAL COMMISSION

5-04-192

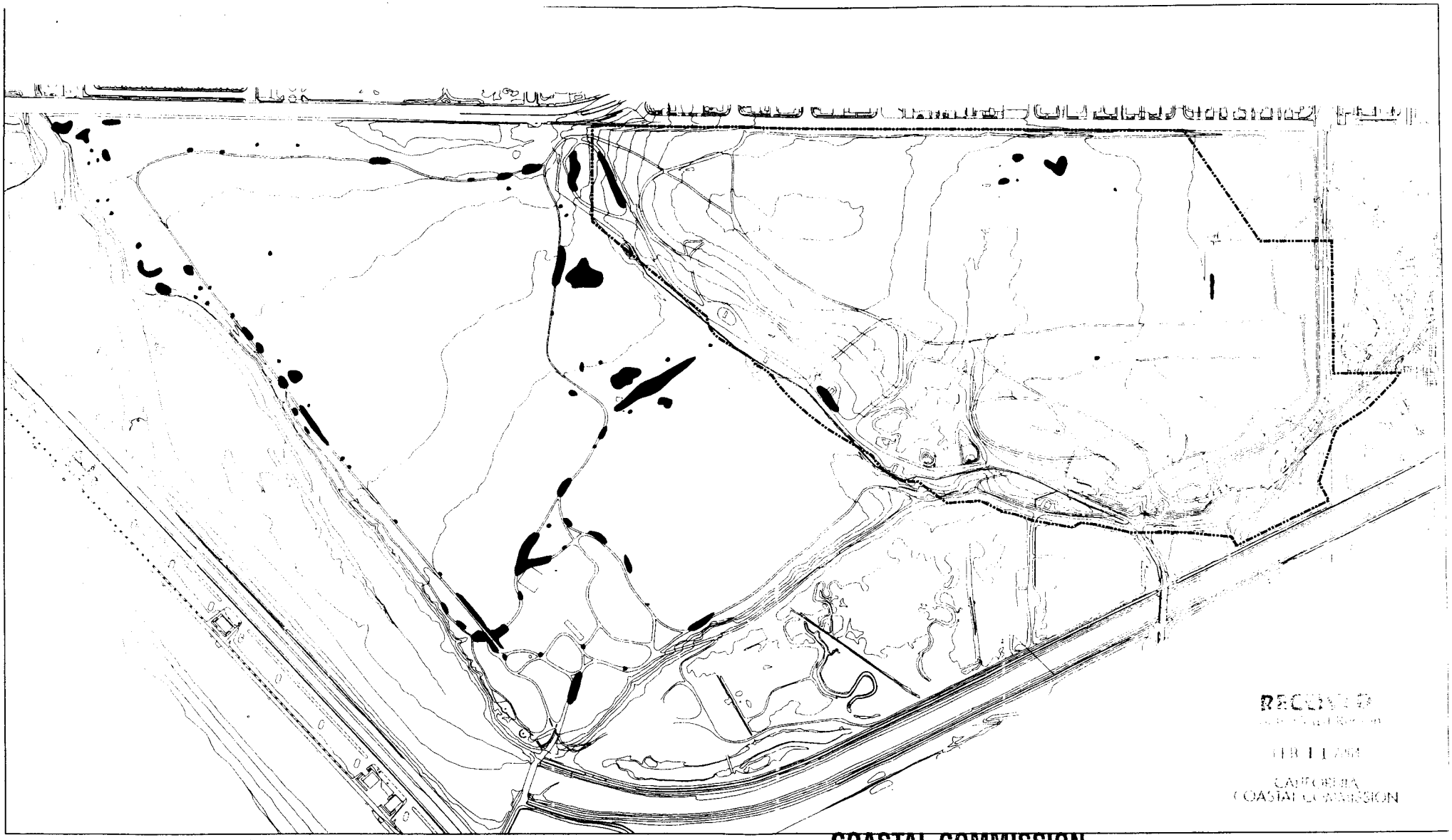
EXHIBIT # 16

PAGE 2 OF 4

TARPLANT 2000

0 200 400 Feet

FORMA
FEB. 2004



COASTAL COMMISSION
5-04-192
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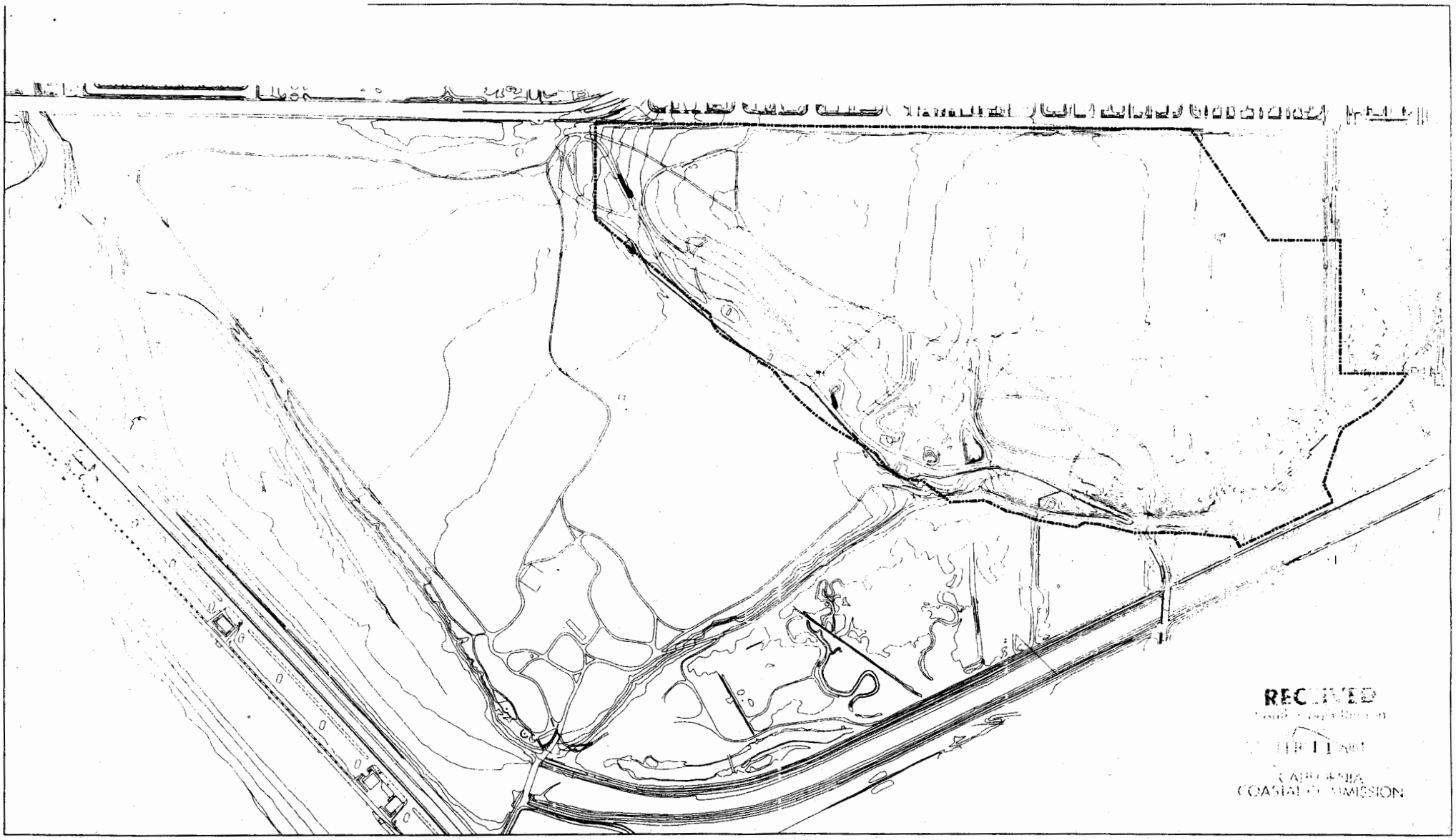
PAGE 3 OF 4

TARPLANT 2001

0 200 400 Feet

FORMA
FEB. 2004



TARPLANT 2002

0 200 400 Feet

FORMA
FEB. 2004

COASTAL COMMISSION
5-04-192
EXHIBIT # 16
PAGE 4 OF 4

LSA

LSA ASSOCIATES, INC.
20 EXECUTIVE PARK, SUITE 200
IRVINE, CALIFORNIA 92614-4731

949.553.0666 TEL
949.553.8076 FAX

BERKELEY
FORT COLLINS
POINT RICHMOND

RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

RECEIVED
South Coast Region

JUN 15 2004

CALIFORNIA
COASTAL COMMISSION

June 11, 2004

Dr. John Dixon
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, California 94105

Subject: California Ground Squirrel Distribution in the Lower Bolsa Chica Mesa Area

Dear Dr. Dixon:

At your request, LSA Associates, Inc. (LSA) surveyed for California ground squirrel *(Spermophilus beecheyi)* activity in the vicinity of the Lower Bolsa Chica Mesa in Orange County, California. The burrowing owl *(Athene cunicularia)*—a California Species of Special Concern and of widespread conservation concern elsewhere in western North America—uses the burrows of rodents such as the California ground squirrel. Up to two burrowing owls wintering on Bolsa Chica Mesa in recent years frequented the World War II era borrow area identified by the concentration of squirrel locations midway along the south side of the development area boundary shown on Figure 1. Because of the possibility that adjacent development might reduce the suitability of the borrow area for burrowing owls, specific alternative areas and/or mitigation for this species are being considered.

STUDY AREA AND METHODS

LSA biologists Richard Erickson and Leo Simone conducted the survey between 9:00 a.m. and 1:00 p.m. on June 2, 2004; squirrels were active on the surface throughout the period. The area surveyed included all of the lower mesa, which is bounded on the west by Bolsa Bay, on the north by Warner Avenue, on the east by the upper mesa development area, and on the south by the lowlands adjacent to the East Garden Grove-Wintersburg Channel. Also surveyed were all of the lowland areas north of the channel and west of a line extending directly south from the end of Bolsa Avenue (the same line forming the eastern boundary of the development area).

Most of the survey area was covered on foot. Areas of disturbance or with a break in topography were examined most thoroughly. On an aerial photograph, each observer marked all squirrels detected by sight or sound and all burrows showing signs of current use. These were later combined to create Figure 1.

RESULTS

Approximately 130 squirrel locations were mapped. This number should not be considered an accurate population estimate but rather a rough approximation of how squirrels are distributed on the site. Inspection of Figure 1 reveals several areas where squirrel activity is concentrated. There is a break in topography in all of these areas: along the periphery of the development area where the

upper mesa gives way to the lower mesa on the west and to the Bolsa Chica lowlands on the south, and on the periphery of the lower mesa where it drops off to Bolsa Bay on the southwest and to the Bolsa Chica lowlands on the southeast. Most of the occupied areas have little or low vegetation, but many of the squirrels at the eastern end of the study area were found among Brewer's saltbush *(Atriplex lentiformis* ssp. *breweri)* and other bushes.

DISCUSSION

California ground squirrels are widely distributed in the study area, primarily in areas that have either been subject to considerable pedestrian traffic (i.e., southwestern and southeastern edges of the lower mesa, southern edge of the upper mesa) or adjacent to the proposed development area on the upper mesa (i.e., the break between the upper and lower mesas). Since burrowing owl use of potential habitat could be limited by high levels of pedestrian traffic, efforts to mitigate for potential impacts to burrowing owl habitat through habitat conservation should consider the ultimate locations of trails and other high levels of human activity.

Therefore, the best way to offset potential impacts to burrowing owl habitat would be to enhance owl habitat suitability somewhere on the lower mesa where human disturbance could be managed. Under current conditions, the best place for owl mitigation would be near the middle of the mesa, farthest from human disturbance and in an area affording maximum visibility for owls. If there is ultimately a desire to have pedestrian access to most of the lower mesa, an alternative owl mitigation area could be established in the vicinity of the heronry at the old gun club site, where at least seasonal closures are anticipated.

Creation of a series of low berms and mounds would likely result in additional ground squirrel colonization and might lead to at least occasional use by burrowing owls as well. This topography could include features that are similar to those where LSA observed wintering burrowing owls in 2001/2002 and 2002/2003, which were also artificially created.

Sincerely,

LSA ASSOCIATES, INC.

Art Homeyhausen for

Richard Erickson
Associate/Biologist

cc: Teresa Henry
Ed Mountford

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5-04-192
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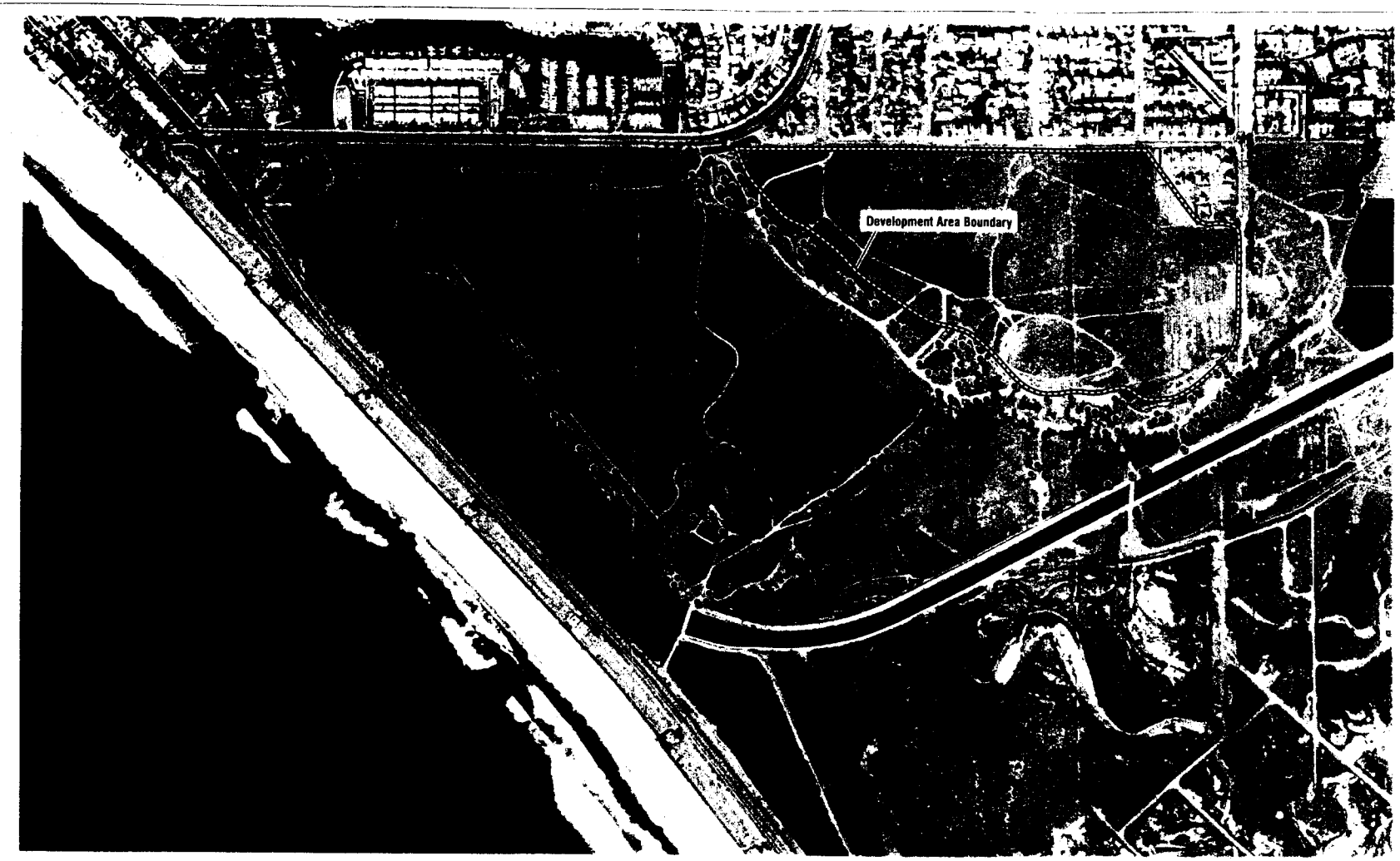

LSA

CALIFORNIA GROUND SQUIRREL LOCATION

Aerial Photo Source: FORMA

C:\JISD\30\Ground Squirrel Locations-2004.cdr (6-7-04)

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South Coast Region
JUN 15 2004
CALIFORNIA
COASTAL COMMISSION

FIGURE 1

Bolsa Chica Mesa

California Ground Squirrel Locations, June, 2004

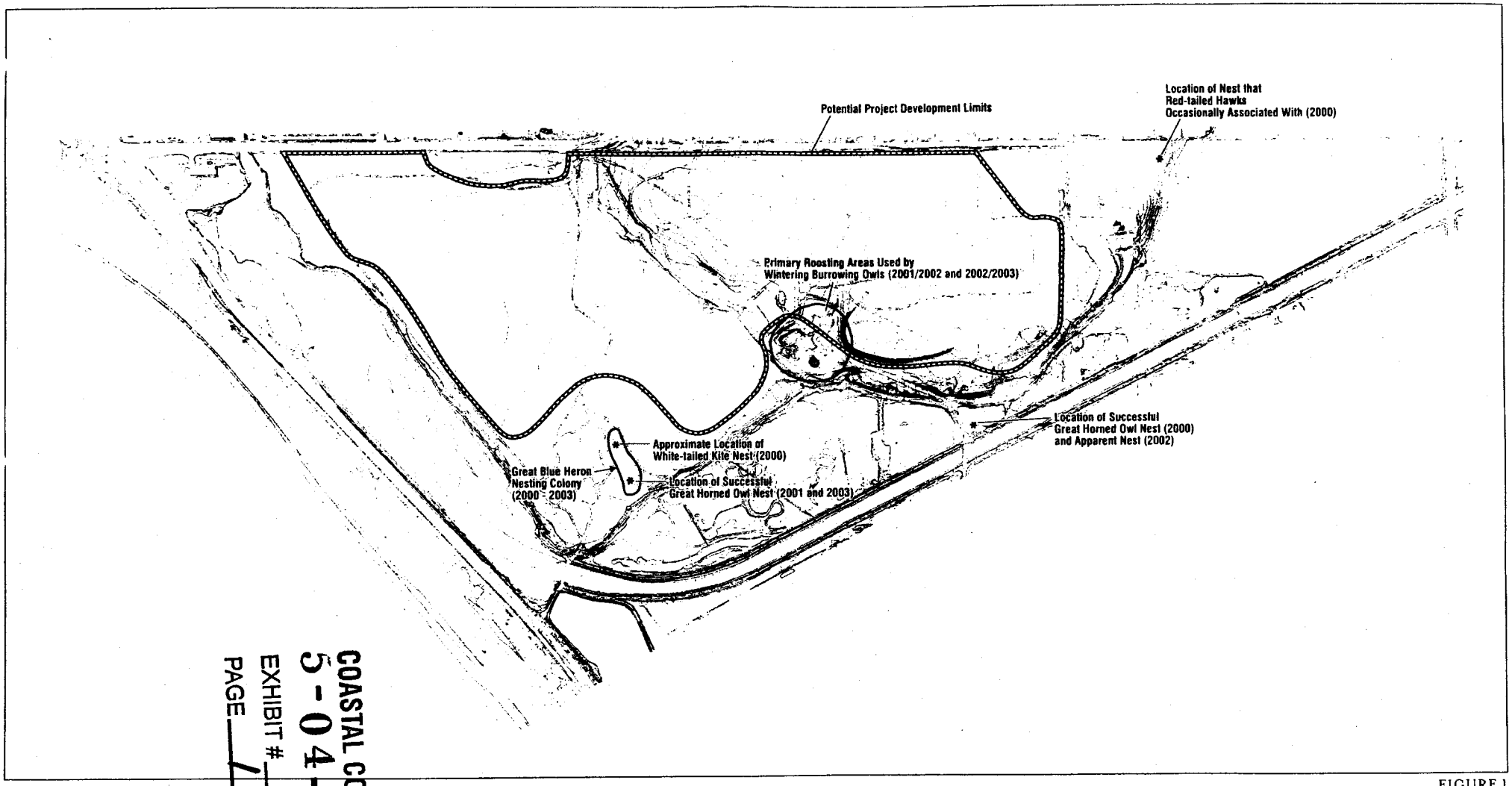

FIGURE 1

LSA

0 300 600
FEET

Bolsa Chica ESHA

Heron and Raptor Locations, 2000 - 2003

I:\HSH930\G\Heron & Raptor Locations.cdr (9/10/03)

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5-04-192
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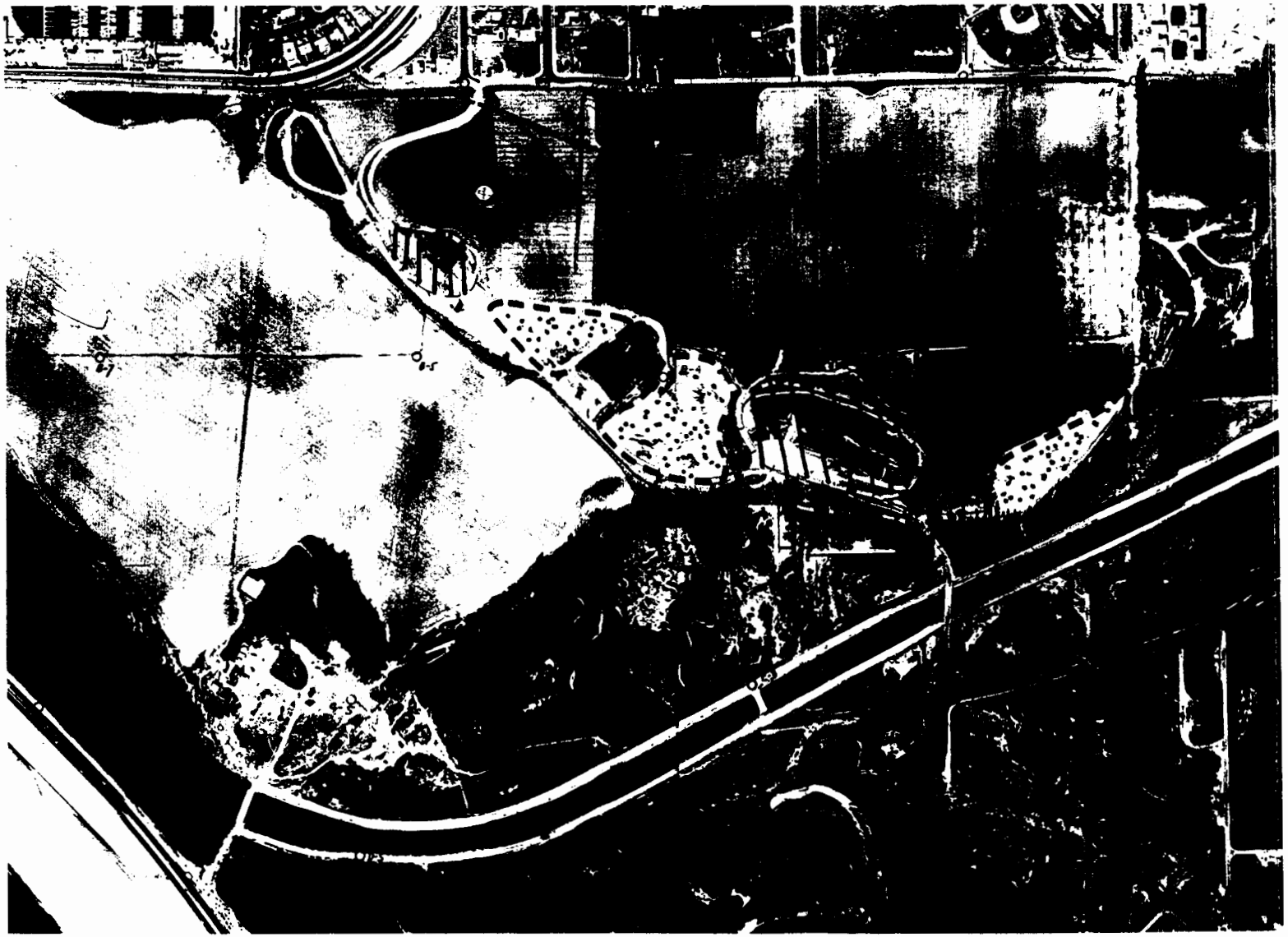

LEGEND

- WWII Naval Gun Bunkers
- Mass Grading Operations (Borrow Sites)

Exhibit D-
1971 Aerial Phot
Showing Active Borrow Site
and Mass Grading Operations on Mes

COASTAL COMMISSION
-04-192

BRIGHTWATER

EXHIBIT # 19
PAGE 1 OF 1

NOT TO SCALE

FORM
July 200

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

MEMORANDUM

FROM: John Dixon, Ph.D.
Ecologist / Wetland Coordinator

TO: Teresa Henry

SUBJECT: Proposed Brightwater Development on Bolsa Chica Mesa

DATE: July 15, 2004

Documents reviewed:

General Resource Issues

1. California Department of Fish and Game. June 3, 1982. Environmentally sensitive areas at Bolsa Chica. A report to the California Coastal Commission.

2. County of Orange. 1996. The Bolsa Chica Report, Local Coastal Program. 1996 Recirculated Draft Environmental Impact Report. County Project Number 551. State Clearinghouse Number 93-071064.

3. R. Feldmeth (Ecological Research Services). December 4, 1989. An analysis of environmentally sensitive habitat areas at Bolsa Chica in 1981 and 1989. A report to Signal Landmark, Inc.

4. Ferren, W. (U.C. Santa Barbara). October 28, 2000. Wetland edges, transitions, and adjacent uplands. Letter to J. Dixon (CCC).

5. Findlay, C. (U. of Ottawa). No date (received at CCC February 9, 2000). Letter to CCC concerning wetland buffers at Bolsa Chica.

6. Guthrie, D. December 10, 1981. Bird studies at Bolsa Chica: Significance of aquatic and terrestrial habitats. A report to Signal-Landmark Properties and Nossaman, Krueger and Marsh.

7. Homrighausen, A. and R. Erickson (LSA). November 23, 1999. Buffer design for Bolsa Chica Eucalyptus ESHA. Letter to S. Rynas (CCC).

8. Homrighausen, A. (LSA). November 5, 2002. Revisions to vegetation community mapping: Brightwater Project. A letter report to E. Mountford (Hearthside Homes).

9. LSA Associates, Inc. November 17, 2001. Draft subsequent environmental Impact report, Volume I, Brightwater Development Project, Orange County, California, SCH #1993071064. A report to the County of Orange.

10. LSA Associates, Inc. November 17, 2001. Draft subsequent environmental Impact report, Volume II: Appendices, Brightwater Development Project, Orange County, California, SCH #1993071064. A report to the County of Orange.

11. Mitech. October, 1989. Results of a small mammal trapping study at the Bolsa Chica wetlands and associated upland habitat. A report to the Army Corps of Engineers.

12. Mitech. September, 1989. Preliminary report, Bolsa Chica insect survey. A report to the Army Corps of Engineers.

13. Noss, R. (U. Central Fl), T. Case (UCSD), and R. Fisher (USGS). No date (submitted to CCC on November 20, 2002). Evaluation of the biological significance of the Bolsa Chica Mesa. A report commissioned by the Bolsa Chica Land Trust.

14. Raysbrook, C. (CDFG). January 16, 2002. Draft subsequent environmental impact report for the Brightwater Development Project, County of Orange and City of Huntington Beach, California (SCH 1993071064). Letter to G. Fong (County of Orange).

15. Schoenherr, A. 2001. When wetlands are not enough. California Wild 54:32-35+53.

16. Soule, M. October 23, 2000. Letter to the CCC concerning effect of development on the Bolsa Chica mesa on top predators and biodiversity.

17. U.S. Fish and Wildlife Service, Ecological Services, Laguna Nigel, CA. May 1979. U. S. Fish and Wildlife Service Special Report: Bolsa Chica Area.

18. Zedler, J. (U. Wisconsin). Bolsa Chica Local Coastal Program, Land Use Plan Amendment No. 1-95. Letter to CCC concerning ecological implications of development on the mesa.

Raptors

19. Bloom, P. (U.C. Santa Cruz Predatory Bird Research Group). April 15, 1982. Raptor inventory and habitat assessment for the Bolsa Chica area, Orange County, California. Report to U.S. Fish and Wildlife Service.

20. Bloom, P. (Research Biologist). March 21, 2000. Solicited letter to J. Dixon (CCC) concerning the significance of the Bolsa Chica Mesa to raptors and potential effects of development.

21. Bloom, P. (Research Biologist; Member, Independent Review Committee appointed by CCC, CDFG & Hearthside Homes). October 22, 2000. Letter to S. Hansch (CCC) concerning probable effects of development on raptors at Bolsa Chica Mesa.

22. California Burrowing Owl Consortium. April 1993. Burrowing Owl survey protocol and mitigation guidelines.

23. California Department of Fish and Game. September 25, 1995. Staff Report on Burrowing Owl Mitigation. A report transmitted by Interim Director C. F. Raysbrook on October 17, 1995.

24. Center for Biological Diversity and 5 others. 2003. Petition to the State of California Fish and Game Commission and supporting information for listing the California population of the Western Burrowing Owl (*Athene cunicularia hypugaea*) as an endangered or threatened species under the California Endangered Species Act. A petition received by the Fish and Game Commission on April 8, 2003.

25. Guthrie, D. (Claremont Colleges). December 10, 1981. Bird Studies at Bolsa Chica (Preliminary Draft). Report to Signal-Landmark Properties and Nossaman, Krueger and Marsh.

26. Hamilton, R. (Consulting Biologist). January 26, 1998. Animal species observed at Bolsa Chica Mesa. Letter report to N. Donovan (Bolsa Chica Land Trust).

27. Jurek, R. (CDFG; Member, Independent Review Committee appointed by CCC, CDFG & Hearthside Homes). October 16, 2000. Letter to S. Hansch (CCC) concerning probable effects of development on raptors at Bolsa Chica Mesa.

28. Keane, K. (Keane Biological Consulting). November 14, 2000. Letter to S. Hansch (CCC) concerning indirect effects of development of the Bolsa Chica Mesa on raptor predation in the adjacent lowlands.

29. Keane, K. (Keane Biological Consulting). January 27, 2004. Analysis of potential effects of development of the upper terrace of Bolsa Chica Mesa on avian predation on nesting waterbirds in the Bolsa Chica wetlands, Coastal Development Permit Application Number 5-02-375. Letter to T. Henry (CCC).

30. LSA Associates, Inc. October 6, 1999. Eucalyptus ESHA preservation and management plan: Bolsa Chica, Orange County, California. A report prepared for Hearthside Homes.

31. LSA Associates, Inc. September, 2003. Analysis of raptor and special interest species use of the Bolsa Chica Area, including the mesa.

32. LSA Associates, Inc. September 10, 2003. GIS shape files and Map labeled "Figure 1, Bolsa Chica ESHA, Heron and Raptor Locations, 2000-2003." The map bears the following computer file identification number: I:/HSH930/G/Heron & Raptor Locations.cdr (9/10/03).

33. LSA Associates, Inc. June 11, 2004. California ground squirrel distribution in the lower Bolsa Chica Mesa area. Letter report to J. Dixon (CCC).

34. Tierra Madre Consultants. December 5, 1999. Raptor habitat assessment of the Bolsa Chica Mesa. Report to Bolsa Chica Land Trust.

35. Walton, B. (U.C. Santa Cruz Predatory Bird Research Group). September 15, 2002. Letter to P. Imhoff (CCC) concerning the significance of foraging habitat and the effects of development.

36. Walton, B. (U.C. Santa Cruz Predatory Bird Research Group; Member, Independent Review Committee appointed by CCC, CDFG & Hearthside Homes). October 23, 2000. Letter to S. Hansch (CCC) concerning probable effects of development on raptors at Bolsa Chica Mesa.

37. Zarn, M. (U.S. Bureau of Land Management). 1974. Habitat Management Series of Unique or Endangered Species. Report 11. Burrowing Owl, *Speotyto cunicularia hypugaea*. BLM Technical Note T-N-250.

Southern Tarplant

38. LSA Associates, Inc. May 1, 2003. Translocation Plan, Southern Tarplant (*Centromadia parryi ssp. australis*), Brightwater Development Project, Bolsa Chica Mesa, Orange County, California. A report to Hearthside Homes.

39. F. Roberts, Jr. (California Native Plant Society). January 24, 2004. Southern Tarplant (*Centromadia parryi ssp. australis*) translocation plan for the Brightwater Development Project, Bolsa Chica Mesa, Orange County, California. Letter to M. Reilly (Chairman, CCC).

40. F. Roberts, Jr. (Biologist). No Date (Figures dated 10 March 2000). Southern Tarplant (*Centromadia parryi ssp. australis*) on the Bolsa Chica Mesa, Orange County, California. A report to the Bolsa Chica Land Trust.

41. R. Hamilton (California Native Plant Society). November 22, 1999. *Hemizonia parryi ssp. australis* at Bolsa Chica. Letter to S. Rynas (CCC).

42. FORMA. February 2004. GIS shape files showing southern tarplant distribution and abundance in 1999, 2000, 2001, and 2002 (upper mesa and slope only) from field surveys conducted by LSA Associates, Inc.

General Ecological Considerations

The Bolsa Chica wetlands once covered over 30 square miles and, on the Bolsa Chica and Huntington Mesas, were bounded by coastal sage scrub communities that interacted ecologically with the wet lowlands. Although the wetlands have been reduced to less than two square miles and the adjoining mesas have been substantially developed and the remaining open space much altered, the U. S. Fish and Wildlife Service in 1979 (17[1]) nonetheless identified the Bolsa Chica ecosystem as "one of the last remaining viable wetland-bluff ecosystems in southern California." This viewpoint was echoed by conservation biologists (13) over twenty years later: "...Bolsa Chica is one of the last remaining areas in coastal southern California with a reasonably intact upland-wetland gradient, which is of high ecological importance and generally lacking in representation in reserves in the region." In nearly all other coastal marsh ecosystems in southern California , the upland components have succumbed to urban development. Uplands provide pollinators for wetland plants, nesting and denning sites for avian and mammalian predators that forage in wetlands, important alternative prey populations for many of those predators, and critical habitat for primarily upland species (4, 13, 15, 18). Many species have life-stages that rely on both wetland and upland habitats. For example (4), "The caterpillar[s] of the Pygmy Blue Butterfly eat only marsh and edge species of plants belonging to the Spinach Family and the caterpillars of the Wandering Skipper eat only Saltgrass. Adults of both butterflies nectar mostly on summer and fall flowering plants belong (sic) to the Sunflower Family that occur in adjacent palustrine marshes (e.g. Western Goldenrod) and shrubs of coastal scrub, grassland, and dune habitats including Coast Golden Bush and Mock Heather. Because many native coastal butterflies are dependent on specific host plants, without an appropriate mix of native habitats that support native plant communities, these edge-dependent species are not likely to survive in coastal wetland ecosystems."

[1] References are presented as document numbers in the above review list.

The mesa and associated bluffs provide habitat for over 88 species of land birds, including some 33 resident species, 38 migrants, 15 wintering species and 3 summering species (6, 9, 10). Reptiles are represented by the southern pacific rattlesnake, gopher snakes, king snakes, and several species of lizards. At least 10 species of mammals are also supported by Bolsa Chica Mesa habitats. Many of the species that utilize the mesa also are found in the adjacent lowlands.

In addition to it's important ecosystem functions as an integral part of the Bolsa Chica wetland-upland ecosystem, the Bolsa Chica mesa provides specific direct support for a number of species and habitats that are of particular intrinsic value. These include fresh and saline wetland habitats, foraging and nesting habitat for hawks and owls, foraging and reproductive habitat for a variety of mammals, appropriate physical habitat for the rare southern tarplant, and coastal bluff habitat that supports remnant stands of coastal sage scrub.

The entire Bolsa Chica mesa is not included in the current development proposal. The proposed residential development and associated infrastructure is confined to the upper bench and adjacent southern bluff, to the transitional slope between the upper and lower benches of the mesa and to a small area on the lower bench proposed as a mitigation site for impacts to southern tarplant. However, the various biological assessments that have been done generally have not distinguished between the upper and lower benches when describing the resources of the mesa. In addition, resource use is not constrained by property or parcel boundaries. Therefore, I will discuss the biological resources present on the entire mesa and examine their ecological relationships in the context of the local ecosystem, which is comprised of both upland and wetland habitats. This is necessary both to analyze the potential impacts of the proposed development and to determine the location of Environmentally Sensitive Habitat buffers that may affect the development footprint.

Wetlands

The Bolsa Chica Mesa is bounded to the south by degraded historical salt marsh that will be returned to a muted tidal regime as part of the ongoing lowland restoration project. The western edge of the mesa is part of the Department of Fish and Game's Ecological Reserve and is bounded by outer Bolsa Bay. There are three wetlands on the mesa itself. Warner Pond is remnant tidal open water and marsh on the lower bench that was recognized as an Environmentally Sensitive Habitat Area (ESHA) by the Department of Fish and Game, (1) and by the Coastal Commission and developer, as noted by the courts (71 Cal. App. 4th 493, 514 (1999)), largely due to the important ecological services it provides for a great variety of bird species. There are also two freshwater palustrine wetlands present. One is a seasonally ponded depression near Los Patos Avenue on the upper bench of the mesa, which is dominated by herbaceous vegetation, including the rare southern tarplant. The second is a seasonal freshwater wetland in a small borrow pit in the transitional area between the upper and lower

benches, which is dominated by a stand of willows and mulefat with little understory vegetation.

Raptor Habitat.

The Bolsa Chica Mesa has long been recognized as being of particular significance to a large suite of birds of prey (1, 19). The annual grassland and ruderal vegetation on the mesa provide foraging habit for many species, as do adjacent lowland habitats. The Eucalyptus and palm trees along the southern bluff provide perching, roosting or nesting opportunities for at least 12 of the 17 species of raptors that are known to occur at Bolsa Chica (19, 20, 31, 34). Seven of those species are designated "special animals" in California[2]. The white-tailed kite is a California fully protected species[3]. Species of special concern[4] include the Northern Harrier, sharp-shinned hawk, Cooper's hawk, prairie falcon, burrowing owl, and loggerhead shrike

Because of their important ecosystem functions, the grove of trees on the mesa and along the southern bluff has long been recognized as an environmentally sensitive habitat area (1; 71 Cal. App. 4th 493, 506-08 (1999)). Some of the raptors that use the Eucalyptus trees forage in the wetlands, some forage in the mesa grasslands, and some forage within the coastal sage scrub along the bluff edge (20, 31, 34). Many forage in more than one habitat. The need for hunting perches and roosting or nesting sites cannot be separated from the need for an effective hunting area. The Eucalyptus grove would cease to function as ESHA were there not adequate foraging habitat nearby. This point is made by the U.S. Fish and Wildlife Service (17: "...the success and presence of the many birds of prey found in the Bolsa Chica have been attributed to the eucalyptus groves and the extensive foraging areas provided by the mesas and

[2] These taxa generally fall into one or more of the following categories: Officially listed or proposed for listing under the State and/or Federal Endangered Species Acts; State or Federal candidate for possible listing; Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA Guidelines; Taxa considered by the Department to be a Species of Special Concern; Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring; Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California; Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, vernal pools, etc.); Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO). (http://www.dfg.ca.gov/endangered/special_animals.html)

[3] "DFG: Fully protected and Protected: Fully protected and Protected species may not be taken or possessed without a permit from the Fish and Game Commission and/or the Department of Fish and Game." (http://www.dfg.ca.gov/endangered/special_animals.html)

[4] "DFG: CSC: California Special Concern species: It is the goal and responsibility of the Department of Fish and Game to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long term viability." (http://www.dfg.ca.gov/endangered/special_animals.html)

lowlands."), by the EIRs (2, 9: "In the case of Bolsa Chica, the raptor foraging habitat may be considered sensitive because it plays a valuable role in sustaining the migratory population of raptors."), and by Peter Bloom (20), a raptor biologist with over 30 years research experience in southern California ("...on the local and regional scale, the grasslands at Bolsa Chica are the principal reason for the abundance of raptors, and therefore could be considered an environmentally sensitive habitat area[5]."). Therefore, the ecological significance of the Bolsa Chica Mesa to birds of prey is the combination of foraging habitat and perching, nesting, and roosting habitat, which, for most birds, is the Eucalyptus grove.

The requirements of the burrowing owl (California species of special concern) are qualitatively different from most of the other birds of prey. These owls utilize small mammal burrows as protective shelter during both the nesting and wintering seasons. They choose areas with low vegetation and good visibility, frequently in active ground squirrel colonies, near foraging areas with relatively low vegetation. This species is in general decline in California, except in the Imperial Valley, due to loss of burrow habitat associated with development and rodent control activities (22, 23, 24, 26). Losses have been particularly severe in the coastal zone. The Bolsa Chica Mesa supports 1 or 2 wintering birds and probably stop-overs by an unknown number of migrants (P. Bloom, personal communication; 21, 31). Ground squirrel colonies at Bolsa Chica are concentrated in areas where there is a sharp break in topography, principally on the slope between the upper and lower benches of the mesa, along the bluff adjacent to Outer Bolsa Bay, and along the southern bluff face (33). Wintering burrowing owls have been documented to use burrows at the old borrow site at the border between the upper and lower benches of the mesa (31). The grassland and ruderal habitats on both the upper and lower benches of the mesa are appropriate foraging habitat for this species whose prey consists of insects and small vertebrates (37).

Mammalian Habitat

Small mammals provide an important prey base for many birds, reptiles, and larger mammals. At the Bolsa Chica Mesa the harvest mouse and house mouse, which inhabit grassland and shrubland, and ground squirrels, which occur in open areas with breaks in topography, are the major prey species (9, 11). Cottontail rabbits and black-tailed jack rabbits (California species of special concern) also rely on the grasslands and shrublands for habitat. Mesopredators (middle-sized predators) and scavengers, such as opossums and skunks, are present. The introduced red fox may also occasionally hunt on the mesa and is a potential threat to nesting birds in the lowlands. The top predator in this system is the coyote. Coyotes are commonly observed on the mesa and at least one pair has been documented to den on the southern bluff.

In order to maintain bird species diversity, it is critically important that coyotes be maintained in the upland-lowland ecosystem (16). Coyotes control mesopredators,

[5] Mr. Bloom was using the phrase "environmentally sensitive habitat area" in an ecological sense, not necessarily as a legal term of art under the Coastal Act (P. Bloom, personal communication).

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including domestic and feral house cats, that can have devastating effects on local bird populations. Large areas of open space and connectivity to other such areas are necessary to maintain coyotes in the system. At Bolsa Chica, the mesa habitats are important for coyotes and will become increasingly so as more and more of the lowlands are subjected to tidal inundation as the wetland restoration proceeds.

Southern Tarplant Habitat

Southern tarplant is a Federal "Species of Concern" and a California Native Plant Society "1B species" (rare, threatened, or endangered in California and elsewhere). List 1B species meet the requirements for listing under the California Endangered Species Act. Southern tarplant is an annual species that favors damp disturbed areas and is characteristically found in seasonally moist alkali grassland[6] near the coast or on other saline or alkaline soils that are subject to irregular shallow flooding (39). Due to loss of its native habitat, it has become rare in California and its remaining habitat is particularly valuable. On the Bolsa Chica Mesa, southern tarplant is most abundant near trails and other open disturbed areas. However, based on recent surveys, it tends to be much more widely distributed among such habitats on the lower bench than on the upper bench where it is almost entirely confined to the area surrounding the seasonal pond adjacent to Los Patos Avenue. This suggests that there may be differences in habitat between the two benches that are significant to the tarplant. For example, it is likely that the lower bench is wetter on average than the upper bench due to its topographic position. In addition to differences between the two benches, annual surveys conducted during the period 1999-2002 demonstrate that both the abundance and spatial extent of southern tarplant individuals varies by orders of magnitude from year-to-year within suitable habitat. This probably reflects temporal differences in environmental conditions, especially patterns of rainfall. The long-term health of the population depends on an extensive seed bank. The population at Bolsa Chica is one of the more significant in terms of numbers in southern California.

Coastal Bluff Habitat

The particular association of scrub habitat along the southern bluff slope at the Bolsa Chica Mesa has variously been categorized as Coastal Bluff Scrub (2) or coastal sage scrub (9). In 1979, the U.S. Fish and Wildlife Service (17) referred to this community as, "..the most threatened upland vegetative type in southern California because of extensive urban developments." The status of the coastal sage scrub has not improved during the intervening twenty years. At Bolsa Chica, coastal sage scrub occurs in relatively small stands along the southern bluff slope and is being restored along the bluff adjacent to Outer Bolsa Bay by personnel of the ecological reserve working with community volunteers. In some areas of the southern bluff, the scrub vegetation is essentially intact, and in others it has been nearly completely displaced by exotic

[6] Hickman, J.C. ed. 1993. The Jepson Manual. Higher plants of California. University of California Press, Los Angeles.

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species. Although degraded, the importance of this vegetation is amplified by its landscape position adjacent both to perching sites for raptors and to wetlands. This importance will increase as the wetlands are restored.

Environmentally Sensitive Habitat Areas (ESHA)

Section 30107.5 of the California Coastal Act defines an Environmentally Sensitive Habitat Area as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

In the November 2, 2000 Commission staff report concerning a proposed amendment to the Bolsa Chica Local Coastal Program, the following Environmentally Sensitive Habitat Areas (ESHA)[7] were identified: (1) the Eucalyptus grove on and along the edge of the mesa; (2) Warner Pond, a marine habitat connected by culvert to Huntington Harbor; (3) the natural habitats within the California Department of Fish and Game Ecological Reserve along the western edge of the mesa; (4) the coastal sage scrub community; (5) habitat of the southern tarplant; and, (6) the degraded wetlands in the lowlands that are part of a restoration plan. Although the Eucalyptus trees, Warner Pond, and the Ecological Reserve were generally depicted in the map labeled Figure 1 in the staff report, the locations of the other ESHA types were not mapped.

There has been no change in circumstances that would cause one to remove any of these habitats from the recommended list of environmentally sensitive habitat areas on or adjacent to the Bolsa Chica mesa. The Eucalyptus trees and Warner Pond have long been recognized by CDFG and the Coastal Commission as ESHA because of the their important ecosystem roles of providing habitat for many bird species, including sensitive species, and their susceptibility to human disturbance (1; 71 Cal. App. 4th 493, 506-08 (1999)). The Bolsa Chica Ecological Reserve includes the coastal bluff above Outer Bolsa Bay and the transitional salt marsh and coastal sage scrub communities. Such an ecological system is rare in southern California because most have been destroyed by human activities and the remaining habitats are extremely important because of their important roles in the wetland-upland ecosystem. Coastal sage scrub

[7] Due to a typographic error, the ESHA findings in the staff report appear partially contradictory. In the introduction, the staff report identifies ESHA as follows (pages 26-27): "The mesa contains significant ESHA areas such as the Eucalyptus grove, coastal sage scrub community, wetlands, and the Southern Tarplant." In subsequent sections, there are discussions of a court decision regarding an earlier Commission action that identified the Eucalyptus grove and Warner Pond (but not other habitats) as ESHA. Later, the staff report (page 233) notes that, "...various portions of the Mesa contain environmentally sensitive habitat areas (ESHA) (Figure 1 on Page 5). These ESHA areas include a Eucalyptus tree grove and Warner Pond. Other habitat areas which have previously (emphasis added) not been identified as ESHA because they are not a predominate vegetate (sic) type but are considered sensitive include Coastal Bluff Scrub habitat on the southwest bluff slope of the Bolsa Chica Mesa and two colonies of Southern Tarplant. The Southern Tarplant is a California Native Plant Society "1B species" which qualifies it as a rare, threatened or endangered Plant." But, on page 252, the staff report omits the word "previously" and states: "Though not designated as ESHA, the Bolsa Chica Mesa also contains habitat types which include sensitive or rare plant communities. For example, the Southern Tarplant is known to exist on both the upper and lower bench." This sentence should have read: "Though not previously designated ESHA...."

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is one the most heavily impacted terrestrial communities in California. Over 85 percent of historical CSS has been destroyed by agricultural and urban development. Nevertheless, 10s of thousands of acres are still present in southern California. However, much less remains in the coastal zone and still less adjacent to coastal wetlands. It is this landscape position that makes the restored coastal sage scrub within the Ecological Reserve and the remnant patches of this vegetation on the southern bluff so ecologically significant and qualifies it as ESHA both for its rarity and for its important role in the Bolsa Chica wetland-upland ecosystem, in addition to its vulnerability to disturbance or degradation by human activities and developments. Southern tarplant meets the definition of ESHA because of its rarity and because of its documented vulnerability to loss of habitat by development activities. The majority of the extant populations of southern tarplant have fewer than 1,000 individuals and, before field surveys were conducted at the Bolsa Chica Mesa, only two populations of southern tarplant were known to support more than 5,000 individuals (39). Estimates of the population at Bolsa Chica were 3,399 individuals in 1999, 10,496 individuals in 2000 and 8,656 plants in 2001[8], of which 0, 854 and 919 plants, respectively, occurred on the upper bench around the seasonal pond (42). Except for an additional handful (≤ 13) of scattered plants on the upper bench, the rest of the plants present each year were found on the lower bench. Such large year-to-year variability in numbers is common among annual plants and is probably most closely related to patterns of rainfall. In terms of numbers and geographic distribution, the southern tarplant populations on the lower bench and on the upper bench at the seasonal pond are significant to the species.

It is difficult to delineate the habitat for a temporally variable annual species like the tarplant. Appropriate habitat is more extensive than is observed occupied in any one year. However, there have been three years of useful surveys for tarplant on the Bolsa Chica mesa and an additional year during which only the upper bench and transitional area between the two benches were surveyed. I recommend delineating the tarplant ESHA boundaries adjacent to the proposed development by drawing a line between all observed locations of tarplant growing on the eastern edge of the lower bench or on the between-bench slope that are adjacent to the proposed development area[9] and by drawing a line between observed locations of tarplants growing adjacent to the seasonal pond near Los Patos Avenue on the upper bench.

Two other categories of habitat require an ESHA analysis because of the potentially important roles they play in the ecosystem by supporting birds of prey. The first is burrowing owl habitat. Burrowing owls are in decline throughout most of the state and have become rare in coastal areas because of loss of habitat. It is raptor biologist Peter Bloom's professional opinion (21, and personal communication to J. Dixon) that migrant and wintering burrowing owls use the Bolsa Chica Mesa during most years. One or two

[8] These figures were obtained by adding the numbers shown on the maps obtained from FORMA and differ slightly from those in the Draft Subsequent EIR.

[9] Since the development proposal is mainly restricted to the upper bench, it is not necessary to delineate all the tarplant habitat on the lower bench at this time and I would not necessarily recommend this procedure for identifying tarplant habitat on the remainder of the lower bench where plants have been observed widely scattered wherever open, disturbed ground is present.

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birds were documented wintering on the mesa in 2001-2002 and 2002-2003 (31). In addition, the mesa formerly supported nesting burrowing owls and is one of the few areas in the region that still has the potential for nesting by this species in the future (20, 31). The burrowing owl is one of three species of raptors at Bolsa Chica that CDFG biologist Ron Jurek thinks is most in need of habitat protection (27). The required habitat for this species includes both foraging and burrow habitat. The same grassland and ruderal habitat that provides foraging opportunities for other species is appropriate foraging habitat for burrowing owls. For this species, ground squirrel burrows are analogous to the Eucalyptus trees for most of the other birds of prey at Bolsa Chica. Recent surveys (33) have shown that ground squirrel activity on the mesa is concentrated in areas where there are distinct breaks in topography along the bluffs and along the slope between the upper and lower benches. Although there is an argument that all appropriate burrow habitat should qualify as ESHA because of its important ecosystem function of supporting the burrowing owl, it is difficult to justify such a recommendation for any particular burrows in the absence of pertinent data and there have been few formal surveys conducted that could document habitat use by this species. Therefore, I recommend that the Commission adopt an approach analogous to its decision in the case of the Arco Dos Pueblos Golf Links (December 11, 2002 Commission Hearing). In that case, the Commission designated only trees known to have been used by white-tailed kites for nesting or perching and adjacent trees as ESHA. In the present instance, LSA Associates has identified the area containing burrows known to be used by wintering burrowing owls. Burrowing owls tend to reuse burrows year after year and an area should be considered occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years (22, 23). Therefore, the LSA field observations are good evidence of occupied habitat, and I recommend that the Commission designate as ESHA the area mapped by LSA as the "Primary roosting areas used by wintering burrowing owls" (32) in recognition of its important role in the ecosystem of providing support to a species of special concern that has nearly been extirpated from the coastal zone by conversion of habitat to urban uses.

The second additional habitat issue that requires some discussion is that of foraging habitat for birds of prey. A very large proportion of existing raptor foraging habitat in California is dominated by annual grasses and ruderal vegetation. Because the dominant species in these communities are non-native, in the past there has been little concern about conversion of such communities to urban uses. However, in recent years, the Department of Fish and Game and others have come to realize that because of the loss of native prairies, annual grasslands and ruderal habitats are essential for maintaining healthy populations of many birds of prey and other native species. For this reason, the Department has recommended mitigation under the California Environmental Quality Act for the loss of such foraging habitat. In over 60 recent actions, the Department has required preservation of foraging habitat at a ratio of 0.5 acres preserved to each acre lost to development (W. Tippets, CDFG, personal communication to T. Henry, CCC). At Bolsa Chica, the foraging habitat on the mesa is absolutely necessary for the continued presence of many of the raptors that utilize the Eucalyptus ESHA. In an independent review (27), CDFG biologist Ron Jurek wrote that

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the Eucalyptus ESHA "...is a zone of trees with good perching and nesting conditions within raptor habitat. It is not the raptor habitat itself. In my professional opinion, for most of the raptor species known to use the ESHA, raptor use depends primarily on the availability of the food resources of the surrounding lands...." Although there seems to be consensus among experts that the value of the Eucalyptus ESHA is dependent on the presence of adequate foraging habitat (9, 17, 20, 27), and despite the objections of the California Department of Fish and Game (14), the draft subsequent EIR (9) nevertheless suggests that the proposed loss of foraging habitat at the Bolsa Chica mesa will not be significant because: (a) there is substantial wintering habitat elsewhere in the region; (b) there will still be considerable habitat on the mesa[10]; and, (c) according to raptor expert Brian Walton (36), the overall population status will not be changed for any species of raptor at Bolsa Chica. The latter is no doubt true. However, in the context of resource conservation decisions, it would be a very low standard that ignores the local or regional significance of a species' presence. It simply means that the viability of the species in California is unlikely to be measurably decreased by local losses. Similar claims can be made of impacts even to many endangered species where the loss of a few individuals is unlikely to push the species to extinction. That fact is, however, not a compelling argument for additional impacts. To put these issues in perspective, I include two quotations from Mr. Walton. The first is from an email[11] to the Department of Fish and Game:

> Pete [Bloom] and I have studied raptors in coastal California for the last 25+ years. No one else can say that. We still feel that the raptors and the Bolsa Chica habitat are important. That has been a consistent opinion for nearly 20 years from the only two people who have been continuously focused on these species in these locations.
>
> During that period ... the rest of Orange County has largely been paved over and upland grasslands near coastal wetlands are almost non-existent. Hence, it would be likely that the opinions we had in 1982 on the importance of this habitat are even more relevant in 2000. I have difficulty in understanding why any development is allowed to occur in this area. If the Coastal Commission and the Department of Fish and Game has [sic] any area of southern California in their jurisdiction that warrants protection because it is [a] unique remnant wildlife habitat, this has got to be one of those places.

The second quotation is from a letter (35) written by Mr. Walton in response to a request from Coastal Commission staff for his professional opinion concerning a project that would impact raptor foraging habitat in central California:

> The facts of the matter concerning impacts of development on raptors are that loss of, and changes to, habitat does indeed result in loss of individual raptors and some

[10] However, nearly all the remaining foraging habitat would be outside the project boundary. Within the project area, 54.4 acres of the 55.9 acres of annual grassland would be eliminated by development, as would 20.7 acres of the 26.7 acres of ruderal habitat. Both are habitats that are currently used by foraging raptors.

[11] B. Walton. November 17, 2000, 0947 AM. Email to R. Haight and R. Rempel (CDFG), subject: "Bolsa Chica letter of 14 November", with copies to R. Jurek (CDFG) and P. Bloom (raptor biologist).

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impacts to populations. This loss is difficult to observe when one house is allowed to be built in Big Sur. However, if you examine the situation in Orange County where near complete development of the coastal zone has occurred, you can clearly see the cumulative nature of impacts on raptors and all other coastal bird species.

At some point, the Coastal Commission should probably address how the impacts of all the developments it regulates have minor to significant impacts on raptor and prey populations. Exactly where that impact begins to occur is difficult to assess. As a result of this vagueness, it is difficult to determine if any one Commission action is actually 'the straw that breaks the camel's back' and has a significant impact on local raptors; there always seems to be a window for the Commission to allow some development of each site. The clearest case where development is impacting raptors and their prey species but where the Commission still is uncertain of the real impact on raptor populations, is in Orange County. There, most raptor species have been completely eliminated from the coastal zone as breeders and most of the region has vastly reduced wintering population range. Even still, the last bit of available open space (Bolsa Chica) is being considered for some development, with the idea that the remaining raptors will move elsewhere or not be impacted, or live in remnant open space within the developed area.

It is not accurate, in fact, that individual raptors when impacted by development simply move elsewhere and everyone survives. If that were true, there would be areas of incredible density in non-developed areas, where the impacted raptors have moved and are now living with pre-existing birds. This philosophy would be analogous to thinking that if you tore down one of two adjacent apartment buildings, that all the residents would simply move into the remaining building and live two families to an apartment. The density of raptors is dependent on a variety of things, so birds cannot actually just get denser in adjacent areas by moving off development sites.

I think the importance of the foraging habitat at the Bolsa Chica Mesa to many birds of prey is clear. It is also clear that a reduction in foraging habitat on the mesa will translate to a reduction in the average number of raptors present. Given these facts, does the ecosystem function of the foraging habitat rise to the level of ESHA?

ESHA determinations are a matter of informed judgment. Implicit in the determination of whether a species or habitat meets the definition in the Coastal Act, is an interpretation of the words "rare" and "especially valuable" in the ESHA definition. In making recommendations to the Commission, I consider the facts and then interpret the ESHA definition in the light of answers to three queries: 1. What standards have the Commission and the courts established in prior actions? 2. Has there been a change in the ecological context that would affect the Commission's deliberations? 3. Knowing that nothing is "special" if everything is "special," is the ecological value of the resource clearly far above the norm? To my knowledge, the Commission has never considered annual grassland or ruderal habitat to be ESHA in past actions, except where these vegetation types were included in the nesting territory of the threatened California gnatcatcher. However, the ecological context has changed over the years, and the area of annual grasslands has declined as development has increased. The Commission has recognized the increased importance of annual grassland for raptors in the coastal

zone by requiring mitigation for grassland loss (at a ratio of 0.5 ac preservation to 1.0 ac of loss) at Hellman Ranch (October 11, 2000 Commission Hearing; Permit 5-97-367) following the recommendations of the Department of Fish and Game. The raptor foraging habitat at Bolsa Chica is clearly of high ecological value because of the landscape context and the importance of maintaining raptors in the system, as evidenced by 20 years of recommendations and decisions by raptor experts, the resource agencies and the Coastal Commission. Nevertheless, within the proposed development area, I do not think that the foraging habitat, *per se*, rises to the level of ESHA. However, the importance of foraging habitat is clearly such that the loss of a large amount at Bolsa Chica would result in "impacts which would significantly degrade" the adjacent Eucalyptus tree ESHA such that it would no longer be especially valuable to birds of prey. Therefore, to be in compliance with Section 30240(b) of the Coastal Act, development must be sited such that this does not occur.

Therefore, because of the significant adverse effects on coastal resources, I recommend that the Commission follow the recommendation of the Department of Fish and Game (14) and seek mitigation for the destruction of any annual grassland or ruderal foraging habitat on the Bolsa Chica Mesa by preserving 0.5 acres of such habitat for each acre lost to development. Preservation should be on the project site adjacent to the Eucalyptus tree ESHA and could reasonably include the recommended buffer areas for the Eucalyptus trees and for the burrowing owl habitat described below.

Wetland and ESHA Buffers and Allowable Uses

CDFG (1) determined that the eucalyptus grove adjacent to and on the Bolsa Chica mesa and Warner Avenue pond are ESHAs and recommended that "a buffer area of no less than 100 meters in width should surround these areas to maintain their integrity and protect their resource values." The U.S. Fish and Wildlife Service (17) recommended that, if planning adhered to USFWS guidelines, 100-m buffers would be established around the Eucalyptus groves, coastal bluffs, and Warner Pond, and, "No development or access of any type would be allowed in the buffer area. Park corridors could border the zone but not intrude into it." Others have suggested that even wider buffers would be necessary to maintain the integrity of the ESHAs at Bolsa Chica (5).

I recommend that a minimum of 100-m (328-ft) buffers be established around the Eucalyptus tree ESHA and Warner Pond. I recommend that 30.5-m (100-ft) buffers be established around the seasonal, freshwater wetlands and that 15.25-m (50-ft) buffers be established adjacent to ESHA boundaries defined by the presence of southern tarplant or coastal sage scrub habitat. The Commission has used these standards for wetlands and sensitive vegetation in past actions (e.g., Marblehead application 5-03-13, approved June 11, 2003). In order to avoid disturbing burrowing owl habitat, the California Burrowing Owl Consortium (22) and the California Department of Fish and Game (23) recommend 50-m (164-ft) buffers during the non-breeding season, 75-m (246-ft) buffers during the breeding season, and a minimum of 6.5 acres of foraging habitat maintained adjacent to the burrows. Given that the existing use of the Bolsa

Chica Mesa is by wintering and migrant birds, I recommend that a 50-m buffer be established around the defined burrowing owl habitat.

The buffer around the Eucalyptus tree ESHA is particularly important if those trees are to continue to function as nesting habitat for a variety of raptors. The California Department of Fish and Game and the U.S. Fish and Wildlife Service recommended a 100-m buffer. A literature review[12] found that raptor biologists recommended buffers for various species of nesting raptors from 200 m to 1500 m in width, with the exception of 50-m buffers from visual disturbance for kestrels and prairie falcons. In the case of the ARCO Dos Pueblos Golf Links, the developer's consultant, avian biologist Jeff Froke[13], suggested that white-tailed kites would be tolerant of "low-frequency and non-disruptive activities" to within 150-200 ft (46-61 m) of the small grove containing the nest tree and raptor biologist Peter Bloom[14] recommended a minimum of 100 m, but felt that "a considerably more effective buffer" would be 200 m. In an independent review (36) concerning a prior development proposal at Bolsa Chica with 100-foot (30-m) buffers, raptor expert Brian Walton opined that developers "...often rely on buffers that I find largely ineffective for reducing raptor fright/flight response." and "They describe unusual tolerance, habituated individuals or exceptions to normal raptor behavior rather than the more common behavior of wild birds." Based on these various recommendations, it is my opinion that a minimum 100-m buffer is necessary if the Eucalyptus trees are going to function as nesting sites in the future. Larger buffers are necessary during the extraordinary disturbance that takes place during construction. If raptors are nesting, a 152-m (500-ft) buffer should be established around the nest during construction activities. The sensitive habitat areas and the recommended buffers are shown in Figure 1.

Buffers serve several important functions. They allow for some error in assigning boundaries (for example, extent of wetlands or southern tarplant habitat), they keep disturbance at a distance, they provide important auxiliary habitat (e.g., foraging or pollinator habitat), and they provide water quality functions around wetlands. They should not be used for activities that have negative effects on the resources that are being protected. In general, I agree with the U.S. Fish and Wildlife Service recommendation that no development or access of any type be allowed in the buffer area. However, I recommend that trails be allowed in the outer 5 m of 100-m buffers on the upper bench. In particular, there should be no roads, parking lots, recreational facilities or fuel modification activities in buffers. The current plan to extend the bluff to earlier contours and to install a road and public parking at the bluff edge would introduce disturbance at about the same height of potential nests. Such disturbance would degrade the Eucalyptus tree ESHA and would not be compatible with the continuance of the functions of that ESHA. Possible exceptions to the "no

[12] Table 1 in: Richardson, C.T. and C.K. Miller. 1997. Recommendations for protecting raptors from human disturbance: A review. Wildlife Society Bulletin 25(3):634-638.
[13] Froke, J.B. Conservation of White-Tailed Kites at Dos Pueblos Golf Links in Santa Barbara County, California. A report to Culbertson, Adams & Associates dated October 10, 2002.
[14] P. Bloom (Raptor Biologist). June 5, 2000. Solicited letter to J. Dixon (CCC) concerning probable effects of golfing activities on white-tailed kites.

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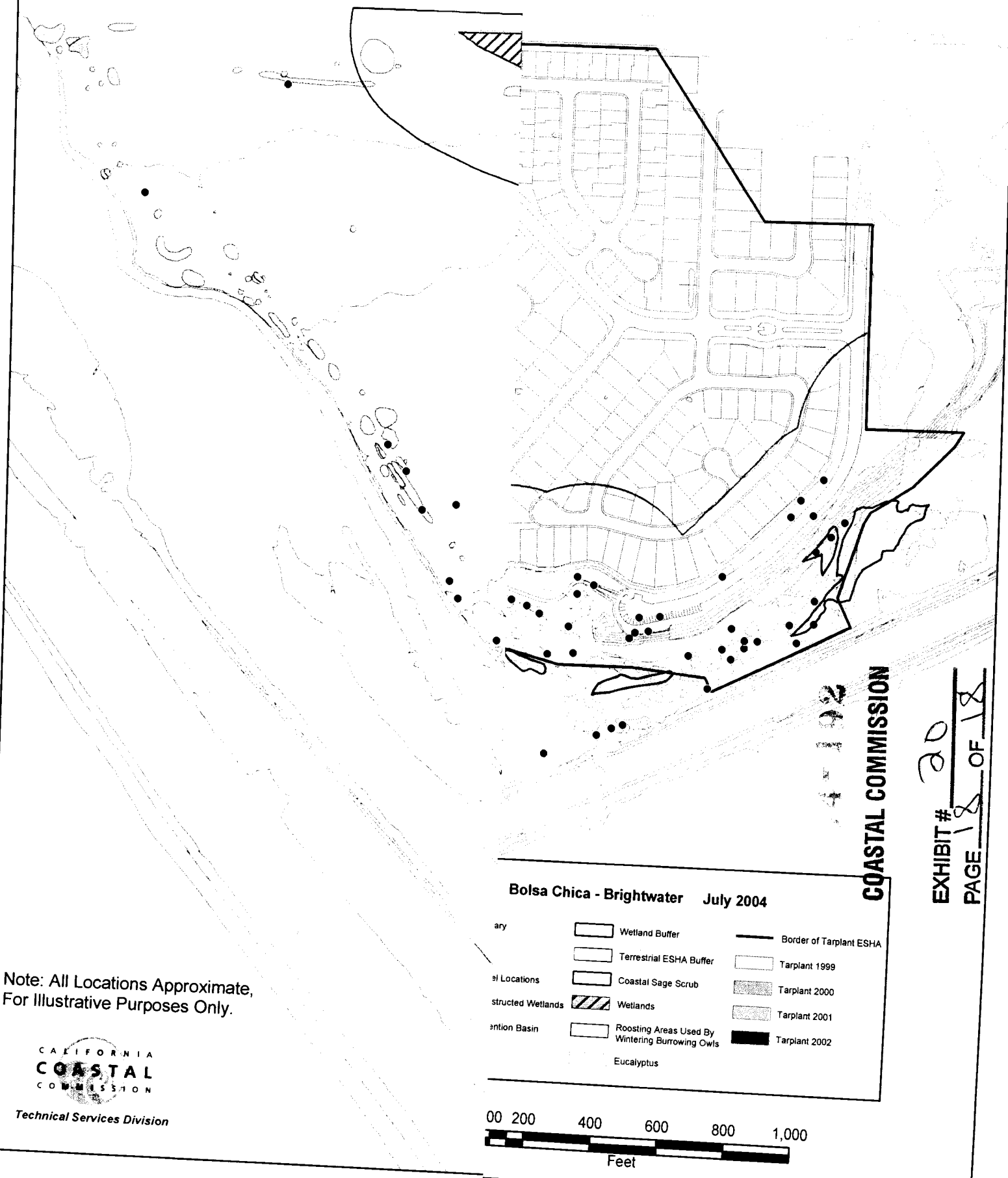
development" standard that might reasonably be considered are temporary ground disturbances that are then restored to appropriate native vegetation and will not be disturbed in the future. The entire ESHA area and associated buffers should be physically separated from the surrounding residential uses by dog-proof fencing. Dogs should be kept on leash when walking on trails.

In order to insure the future viability of the Environmentally Sensitive Habitat Areas, habitat buffers, and preserved foraging habitat within the project area, there should be a Management plan funded in perpetuity. The management plan should include habitat management, maintenance, restoration activities, domestic and feral animal control, and public education. The ESHAs, buffer areas, and preserved foraging habitat should be placed in permanent conservation status.

no re: Proposed Development
ıica Mesa Dated 7/15/04



Note: All Locations Approximate,
For Illustrative Purposes Only.

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VI. LAND USE PLAN SUGGESTED MODIFICATIONS

Suggested Modifications: The Commission certifies the following, with modifications as shown. Language as submitted by Orange County is shown in straight type. Language recommended by the Commission for ~~deletion~~ is shown in ~~line out~~. Language proposed to be ***inserted*** by the Commission is shown in ***underlined boldface italics***. **ALL THE LAND USE PLAN POLICIES ARE SHOWN EVEN IF THE COMMISSION HAS NOT PROPOSED SUGGESTED MODIFICATIONS.**

The County policy numbers (are shown in enclosed italics at the end of each policy) conform to the Bolsa Chica Local Coastal Program that is dated December 14, 1994. Policy numbers are "*built*" by taking the chapter number and adding the policy number. For example the public access and visitor serving chapter number is "*4.2*" (Page 78). The first policy in this chapter will have the number "*4.2.1*". New policies added by the Commission through suggested modifications are identified by word "*new*" enclosed in parentheses at the end of the new policy.

The addition of new policies or the deletion of policies (as submitted) will affect the numbering of subsequent Land Use Plan policies when the County of Orange publishes the final Bolsa Chica LCP incorporating the Commission's suggested modifications. For purposes of clarity, the numbers shown to the left of each policy have been revised to reflect the final number without the applying formatting to show strike through or insertion. Consequently, the final policy number will consist of the chapter number added to number shown on the left margin. For example the Visual and Scenic Resources Polices are located in Chapter 3.5.2. The last policy number as shown on the left margin for this section is "*15*" so the final full policy number is "*3.5.2.15*". As originally submitted this policy was numbered "*3.5.2.20*". (Page 77)

Additionally the Land Use Plan policies incorporate changes made to department names and titles as a consequence of a reorganization by the County of Orange. As part of the Executive Director's review for effective certification of the Bolsa Chica Local Coastal Program document, Commission staff will also review the LCP findings made by the County of Orange (in the Introduction and Technical Plans and Information sections of each chapter) to assure that they are consistent with the policies modified by the Commission. Below are the suggested modifications.

A. LAND USE PLAN SUMMARY

CHAPTER 2 OF THE LAND USE PLAN AMENDMENT

Graphic Suggested Modification: Figure 2.1-1 of the submitted LCP which shows the Land Use Plan and all figures and text based on the Land Use Plan (Figure 2.1-1) contained in the Bolsa Chica Local Coastal Program of December 14, 1994 shall be modified to conform to **Figure 1** (Page 5) of this staff report. Consistent with the suggested modifications, the ten acre school site shall be designated "Public Facility", the former Fieldstone parcel shall be designated "Conservation", the lower bench shall be designated "Conservation" and the reference to residential density shall be modified to "High" density. The land use designation "Recreation" shall be changed to "Open Space and Recreation". Since this policy refers to a graphic revision,

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once the graphic revisions are made, this policy does not need to be included in the amended Land Use Plan.

Graphic Suggested Modification: Table 2-1 of the submitted LCP which shows the Land Use Summary and all figures and text based on the Land Use Summary (Table 2-1) contained in the Bolsa Chica Local Coastal Program of December 14, 1994 shall be modified to conform to the Land Use Plan as shown in **Figure 1** (Page 5) of this staff report. Since this policy refers to a graphic revision, once the graphic revisions are made, this policy does not need to be included in the amended Land Use Plan.

Global Text Suggested Modification: Due to a renaming of the Orange County Environmental Management Agency, all text in the Land Use Plan which cites the *"Environmental Management Agency"* or *"EMA"* shall be revised to either "Planning and Development Services" or "PDSD". Any other name revisions shall also be made as required to make the LCP consistent with current department names. Since this policy refers to a global text revision, once the global text revisions are made, this policy does not need to be included in the amended Land Use Plan.

B. RESOURCE RESTORATION AND CONSERVATION COMPONENTS

CHAPTER 3 OF THE LAND USE PLAN AMENDMENT

3.0 GENERAL RESOURCE PROTECTION POLICIES

The following general policies shall provide the framework for interpreting this Land Use Plan (LUP):

1. Where policies within the LUP ~~overlap~~ ***conflict***, the policy which is the most protective of coastal resources shall take precedence.

2. Where there are conflicts between the policies set forth in this LUP and those set forth in any element of the Orange County General Plan, other County plans, or existing ordinances, the policies of this LUP shall take precedence.

3. In the event of any ambiguities or silence of this LUP not resolved by (1) or (2) above, or by other provisions of the Bolsa Chica LCP, the policies of the California Coastal Act shall guide interpretation of this LUP.

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3.1.2 WETLANDS/BIOLOGICAL RESOURCE POLICIES

WETLANDS ECOSYSTEM AREA ~~ZONING POLICY~~ POLICIES

1. ~~The Wetlands Ecosystem Area shall be designated as one or more Conservation Planning Areas on the Development Map of the Bolsa Chica Planned Community Program. This land use district (zone) shall allow the restoration, creation, and protection of wetlands, ESHAs, and Buffers, as well as public access for wildlife interpretation, education, and scientific study. To facilitate implementation of the Wetlands Restoration Program, this LUP shall provide for low density residential development on the northeasterly approximately 185 acre portion of the Lowland adjacent to existing residential areas of Huntington Beach, including appropriate local parks, trails, community facilities and similar supporting uses. All Conservation Planning Areas shall be offered for dedication to the County or other approved agency or organization, subject to the approval of the County Board of Supervisors, and the Coastal Commission Executive Director. In addition, the Landowner/Master Developer shall guarantee funding for the Wetlands Restoration Program~~. *(County Policy 3.1.2.1)*

The Wetlands Ecosystem Area is comprised of all of Planning Areas 1A, 1B, and 1D (which includes the Edwards Thumb area) and the former Fieldstone Property as shown in County Figure 2.1-1[11]. All lands in the Wetlands Ecosystem Area shall be designated as Conservation on the Development Map of the Bolsa Chica Planned Community Program. This land use district (zone) shall allow: the restoration, creation, and protection of wetlands, ESHAs and buffers; public access for wildlife interpretation, education, and scientific study, incidental public service purposes, including but not limited to, burying cables and pipes; and on an interim basis, oil production where it currently exists.

Prior to issuance of any coastal development permit for any subdivision of the Bolsa Chica LCP area, the private landowner shall irrevocably offer to dedicate to the County of Orange or other public agency a conservation easement over all areas owned by the private property owner which are designated as Conservation in Figure 2.1-1.

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[11] The Figure 2.2-1 cited is the County's November 2000 graphic **Figure 4** on page 20, not the figure as originally submitted.

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WETLAND RETORATION PROGRAM

Wetland Restoration within the Wetlands Ecosystem Area shall occur consistent with the Chapter 3 Policies of the Coastal Act.

~~OVERALL DESIGN STANDARDS AND ACREAGE REQUIREMENT POLICY~~

~~2. The Wetlands Restoration Program shall meet the following overall design objectives:~~

~~a. Creation of new tidal inlet, providing a direct ocean water source and tidal influence.~~

~~b. Establishment of a minimum of 1,000 acres of high-quality, fully-functioning wetlands, providing enhanced biological productivity and habitat diversity on-site;~~

~~c. Protective buffering between habitat areas and adjacent proposed development;~~

~~d. The creation of new least tern nesting habitat;~~

~~e. Design concepts that are consistent with low capital and operation costs;~~

~~f. Mutual compatibility of public and private improvements, including oil production facilities;~~

~~g. Establishment of criteria for evaluating success of wetlands and ESHA restoration;~~

~~h. Protection and/or restoration of endangered species habitat;~~

~~i. Assurance of water of sufficient quality and quantity to provide for improved productivity in the wetlands; and~~

j. ~~Compensation of fish and wildlife habitats in the form of replacement habitat that duplicates or surpasses any wildlife values lost.~~ *(County Policy 3.1.2.2)*

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HYDROLOGIC REGIMES POLICY

2. ~~The Wetlands Restoration Program~~ ***Wetland restoration within the Wetlands Ecosystem Area*** shall provide requirements for the design of hydrologic regimes which ***are consistent with the Chapter 3 Policies of the Coastal Act.*** ~~Provide habitat diversity and include:~~

~~a. Full Tidal Areas;~~
~~b. Muted Tidal Areas;~~
~~c. Seasonal Ponds Areas; and~~
~~d. Perennial Pond Area.~~ *(County Policy 3.1.2.3)*

ENVIRONMENTALLY SENSITIVE HABITAT AREAS (ESHAS) POLICIES

3. ~~The Wetlands Restoration Program shall provide for the preservation and/or restoration of a minimum of 65 acres of Environmentally Sensitive Habitat Area within the Wetlands Ecosystem Area~~.

Except for the ten (10) acre school site depicted as Public Facility on Figure 2.1-1, the lower bench of the Bolsa Chica Mesa, shall be designated as Conservation. The Eucalyptus Grove ESHA and the Warner Avenue Pond ESHA shall be preserved. Prior to issuance of any coastal development permit for any subdivision of the Bolsa Chica LCP area, the private landowner/master developer shall irrevocably offer to dedicate to the County of Orange or other public agency a conservation easement over all areas owned by the landowner/master developer which are designated as Conservation in Figure 2.1-1 that are owned by the landowner.
(County Policy 3.1.2.4)

~~5. The Wetlands Restoration Program shall provide for the planting of a minimum 20-acre native tree and shrub ESHA along the Huntington Mesa to compensate for the loss of a eucalyptus grove on the Bolsa Chica Mesa.~~
(County Policy 3.1.2.5)

4. ***Wetlands that are outside of the Wetlands Ecosystem Area shall be preserved, and where feasible restored, except for the seasonal wetland on the upper bench of the Bolsa Chica Mesa adjacent to Los Patos which can be filled in conjunction with an overall development plan that concentrates residential development on the upper bench of the Bolsa Chica Mesa and locates the school site as depicted in Figure 2.1-1.*** ***(NEW)***

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5. ***Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (NEW)***

6. ***Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas. (NEW)***

7. ***At the time of submittal of any coastal development permit for residential development on the Mesa, including any proposed subdivision of the Mesa, the landowner/Master Developer shall submit a long term habitat management plan for all areas owned by the applicant on or adjacent to the Bolsa Chica Mesa which are designated as buffer, Conservation, or Open Space and Recreation. This long term management plan shall be prepared in consultation with the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service. This long term management plan shall, at a minimum, provide for:***

   a. ***Landscaping provisions which include maintenance of the viability of the Eucalyptus tree ESHA, initial and continued weed eradication, and the removal of exotic plants and non native species which are invasive and considered inappropriate by CDFG & USFWS.***

   b. ***Provisions for protecting natural resources from domesticated pets and unauthorized human entry.***

   c. ***Provisions for public education such as public interpretive signs and brochures for homeowners advising them on how to avoid using plants and animals which could affect the ecology of the Conservation planning areas.***

   d. ***Provisions for a fence separating the conservation areas from both the trail and residential area on the upper bench and the interpretive trail along the edge of the Fish and Game Reserve. Each fence shall prevent normal access by humans and dogs and shall be a minimum of 4 feet in height with a solid top between posts. Each fence shall be constructed of a sturdy, long-lasting wire material such as chain link and shall extend 6 inches below the ground surface. Adjacent to the Fish and Game reserve, the bottom of the fence may be as much as 12 inches above the ground surface if dogs are prohibited on the trail and upon approval of the CDFG and USFWS.***

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e. Provisions which restrict access from the lowlands to the south into the Eucalyptus tree ESHA and adjacent upland areas. Unless there are other effective provisions on adjacent lands to prevent access, the Eucalyptus tree ESHA shall be separated from the adjacent lowlands by a chain link fence a minimum of 7 feet in height. Portions of the bottom of the fence may be up to 18 inches above the ground surface to allow access by small mammals.

f. Provisions which ensure that native shrubs appropriate to the area shall be planted on both sides of all fences adjacent to trails or residential areas to further restrict access.

g. Provisions for an irrevocable offer of dedication of an open space and conservation easement over all areas designated as Conservation in Figure 2.2-1prior to issuance of any coastal development permit for subdivision of the LCP area.

h. The landowner/Master Developer shall implement all management measures prior to issuance of any coastal development permit for residential construction other than grading. The landowner/Master Developer shall have management responsibility until the offer(s) of dedication are accepted. Any accepting public agency will have long-term management responsibility after any offers of dedication are accepted.

8. *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

a. New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

b. Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

c. In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary

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navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

d. In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

e. Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

f. Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

g. Restoration purposes.

h. Nature study, aquaculture, or similar resource dependent activities. (NEW)

9. *Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment shall be transported for such purposes to appropriate beaches or into suitable long shore current systems. (NEW)*

10. *The diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, and nature study. (NEW)*

11. *Erosion control and flood control facilities constructed on water courses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities shall be placed at appropriate points on the shoreline in accordance with other applicable provisions of the Coastal Act and where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before approving a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area. (NEW)*

BUFFER AND TRANSITION POLICIES

12. ~~Consistent with the CDFG findings that buffers reduce disturbance from adjacent urban development (CDFG, April 8, 1985), the Wetlands Restoration Program shall set design requirements to establish buffers between hydrologic regimes (habitat areas) and adjacent new urban development. The buffers may consist of native vegetation and landscape areas, open water and mudflats, rip-rap and/or other shoreline protection, open unvegetated areas, and public interpretive trails.~~

Buffers shall provide a transition zone between the resources to be protected and urban development. Buffer areas are not in themselves a part of the environmentally sensitive habitat area to be protected. The land use designation of all buffer areas shall be Conservation or Open Space and Recreation. Only native plants shall be allowed within buffer areas unless otherwise recommended by either the California Department of Fish and Game or the U.S. Fish and Wildlife Service. The buffer on the Bolsa Chica Mesa upper bench overlooking the lowland shall extend inland one-hundred feet from either the Eucalyptus grove ESHA or the edge of the top-of-bluff, whichever is the greatest distance. The buffer separating the lower bench from the upper bench shall extend from the top edge, fifty-feet into the upper bench. *(County Policy 3.1.2.6)*

~~7. The Wetlands Restoration Program shall set design requirements for transitions between the hydrologic regimes of the restoration plan.~~ *(County Policy 3.1.2.7)*

~~PUBLIC ACCESS AND INTERPRETATION POLICIES~~

~~8. The Wetlands Restoration Program shall include coastal access to provide public viewing, wildlife interpretation, and educational opportunities within and on the perimeter of the Wetlands Ecosystem Area. Such access shall be consistent with resource protection needs, and designed in coordination with the California Department of Fish and Game.~~ *(County Policy 3.1.2.8)*

~~9. The Wetlands Restoration Program shall provide for scientific research and educational opportunities within the Wetlands Ecosystem Area, where it is consistent with both wetlands monitoring and maintenance activities, and other public coastal access programs~~. *(County Policy 3.1.2.9)*

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~~IMPLEMENTATION AND PHASING POLICIES~~

~~10. The Wetlands Restoration Program shall provide implementation requirements for the restoration of wetlands, ESHAs, and Buffers. It shall establish:~~

~~a. Types and extent of various wetlands ecosystem habitats;~~

~~b. A Master Phasing Plan which coordinates wetlands restoration with the diminishing of oil production;~~

~~c. Additional sources of ocean water needed to restore the habitats;~~

~~d. Regulatory requirements for implementation;~~

~~e. Responsibilities for the ownership and management of restored areas; and~~

~~f. Responsibilities for the conservation, monitoring, and maintenance of created and restored areas~~. *(County Policy 3.1.2.10)*

~~11. The Wetlands Restoration Program shall include a detailed phasing program. It shall include a precise description of the kinds, locations and intensities of uses of each phase of restoration. The Phasing Program shall be consistent with the following LUP phasing concepts:~~

~~a. There shall be no net loss of wetlands or ESHA within the Wetlands Ecosystem Area. Specifically, the area of functioning wetlands and ESHAs shall at no time be less than 852 acres and 65 acres, respectively;~~

~~b. Grading and construction activities shall avoid impacts to Endangered and Threatened Species during the nesting/breeding season;~~

~~c. Consistent with the wetlands design criteria established by the California Department of Fish and Game (CDFG Report, April 8, 1985), the area of pickleweed saltmarsh shall not be less than 200 acres at any time during permitted wetlands restoration/urban development to ensure that the carrying capacity for the Belding's savannah sparrow is not reduced as a result of permitted activities; and~~

~~d. The Wetlands Ecosystem Area shall be restored in phases which are consistent with and dependent upon the depletion of existing oil recovery operations in the Lowland.~~

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~~e. All development impacts to the Bolsa Chica Wetlands shall be mitigated within the Wetlands Ecosystem Area~~. *(County Policy 3.1.2.11)*

~~**Monitoring and Maintenance Policy**~~

~~12. The Wetlands Restoration Program shall outline procedures and provide regulations that require three (3) specific monitoring and maintenance programs:~~

~~a. Construction-Period Monitoring and Maintenance Program;~~

~~b. Post-Construction Monitoring and Maintenance Program; and~~

~~c. Long-Term Monitoring and Maintenance Program.~~
(County Policy 3.1.2.12)

3.2.2 COASTAL/MARINE RESOURCES POLICIES

GENERAL MARINE POLICIES

1. ***Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes. (NEW)***

2. ***The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. (NEW)***

3. ***Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and***

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when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. ***(NEW)***

TIDAL INLET AND HYDROLOGY POLICIES

4. ~~The Tidal Inlet~~ ***Any tidal inlet*** and the hydraulic regimes for the Wetlands Ecosystem Areas shall be ***consistent with the Chapter 3 policies of the Coastal Act.*** ~~designed to:~~

~~a. promote tidal circulation;~~

~~b. minimize, to the extent possible, effects on exiting recreational facilities and opportunities at Bolsa Chica State Beach;~~

~~c. promote new recreation and interpretive opportunities; and~~

~~d. mitigate, to the extent feasible, anyadverse impacts on upcoast and downcoast beaches to a level of insignificance.~~
(County Policy 3.2.2.1)

~~2. A maintenance and monitoring program shall:~~

~~a. provide for the removal of sediment in the Tidal Inlet and Full Tidal areas of the wetlands;~~

~~b. mitigate for the increased operation and maintenance costs for the Tidal Inlet that otherwise would accrue to the County or other managing agency approved organization; and~~

~~c. determine specific responsibilities for operation, maintenance and liability for the Tidal Inlet and related mitigations~~. *(County Policy 3.2.2.2)*

WATER QUALITY MANAGEMENT POLICIES

5. ~~A Water Quality Management Plan (WQMP) shall be prepared for the Bolsa Chica Planned Community in accordance with Orange County's Drainage Area Management Plan, and Chapter 2 of the Bolsa Chica Planned Community Program~~.

As part of any coastal development permit application which includes grading and/or construction, including development of backbone infrastructure in the Bolsa Chica LCP area, a Water Quality Management Plan (WQMP) shall be

prepared by the landowner/developer. The WQMP shall be submitted prior to filing the coastal development application as complete.
The Water Quality Management Plan (WQMP) shall be consistent with the water quality policies and other applicable resource management polices of the Bolsa Chica Local Coastal Program. The WQMP shall identify specific source and treatment control measures or Best Management Practices (BMPs) to be incorporated into the development to minimize pollutant load generation, reduce nuisance flows commonly associated with urban development, and to minimize the volume, velocity, and pollutant load of stormwater leaving the development site. Furthermore, the WQMP shall contain provisions for long-term operation and maintenance of approved permanent Best Management Practices (BMP), a monitoring program and a public education program to protect and improve water quality.
(County Policy 3.2.2.3)

6. ***All development, as defined in Section 30106 of the Coastal Act, approved within the Bolsa Chica LCP area shall be designed and undertaken in compliance with applicable provisions of the State National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharge Associated with Construction Activity issued by the State Water Resources Control Board (SWRCB), and any subsequent amendments or re-issuance of; the County's NPDES Municipal Stormwater Permit, issued to Orange County and Cities by the California Regional Water Quality Control Board, and any subsequent amendment to or re-issuance thereof; the Orange County Drainage Area Management Plan (OC DAMP); and the water quality and marine resource policies of the LCP. (NEW)***

7. ~~All drainage facilities and erosion control measures at Bolsa Chica shall be designed and constructed to protect coastal/marine resources in accordance with the Orange County Flood Control District Design Manual and the Orange County Grading Code~~.

All drainage facilities, permanent structural Best Management Practices (BMPs), and erosion control measures within the Bolsa Chica LCP area shall be designed and constructed to protect coastal/marine resources-consistent with the certified LCP and applicable management measures recommended in California's Plan for the Control of Non-Point Source Pollution (January 2000), and in accordance with the specifications contained in the California Stormwater Best Management Practice Handbooks (1993), or any re-issuance thereof, the Orange County Flood Control District Design Manual and the Orange County Grading Code.

a. Where drainage facilities/ BMPs, or erosion control measures are necessary to comply with applicable Federal State and local water quality or flood control regulations, such facilities shall be located outside of natural drainage courses, to the maximum extent feasible, as well as outside of environmentally sensitive habitat areas or buffers.

b. Additionally, if detention basins or retention facilities are used, they shall be designed to promote the infiltration of stormwater into the ground for groundwater recharge. (County *Policy 3.2.2.4)*

8. ~~Urban runoff from the Bolsa Chica LCP Area shall comply with all existing and applicable Federal, State, and local water quality laws and regulations~~.

Stormwater runoff and nuisance flow from development within the Bolsa Chica LCP area, shall not cause or contribute to significant adverse impacts in immediate receiving waters, or in waters to which immediate receiving waterways are tributary, such as bays, wetlands, and other coastal waters. *(County Policy 3.2.2.5)*

9. ***Where new storm drain outlets are necessary, discharge points shall be sited and designed to release in the least environmentally sensitive location and manner.***

a. Storm drains are prohibited from discharging directly into Outer Bolsa Bay, the Bolsa Chica Ecological Reserve, Warner Pond or the lowland wetlands restoration area, unless it can be shown that this is not feasible in which case storm drain discharge shall be accomplished in a manner that is the least environmentally damaging feasible alternative.

b. The discharge (in terms of both volume and water quality) of stormwater into other wetlands or ESHAs other than those specified in subsection (a) above, shall only be allowed if necessary to maintain or enhance the functional capacity of the receiving wetland or ESHA.

c. Energy dissipater devices shall be installed on all approved storm drain outlets to prevent erosion and scour at base. (NEW)

10. ~~Sediment basins (e.g., debris basins and/or silt traps) shall be installed in conjunction with all initial grading operations, and shall be maintained throughout the development/construction process to remove sediment from surface runoff.~~

An erosion and sediment control plan shall be prepared by an appropriate licensed professional, and submitted, prior to issuance of any coastal

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development permit which includes grading and/or any construction, including construction of backbone infrastructure, within the LCP area. The plan shall include provisions for all of the following:

a. Sediment basins (e.g., debris basins and/or silt traps) and other erosion control measures (such as sandbags) shall be installed in conjunction with all initial grading operations to contain sediment on-site, and shall be maintained throughout their intended lifetimes to remove sediment from surface runoff.

b. Temporary and/or permanent erosion control measures shall be provided in order to control erosion both during and after project implementation. Sediment basins, debris basins, de-silting basins, or silt traps shall be designed and installed in accordance with the specifications contained in the California Stormwater Best Management Practice Handbook – Construction Manual (1993), and Chapter 2 of the Planned Community Program. *(County Policy 3.2.2.6)*

11. ***A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared for the Bolsa Chica Planned Community development, by a registered civil engineer. The SWPPP shall be in compliance with the State Water Resources Control Board (SWRCB) General Construction Activity Stormwater NPDES Permit. (NEW)***

12. ***Dry weather (April 30th through October 1st of any year) nuisance flows shall be diverted to flow into the local wastewater treatment facility, or other suitable treatment/reclamation facility for treatment prior to discharge. (NEW)***

13. ***Natural drainage patterns in areas designated as Conservation or Open Space and Recreation shall be maintained and restored where feasible. (NEW)***

14. Final designs for dredging and excavation projects shall: a) include measures to protect water quality in adjacent areas during construction and maintenance activities; b) shall be consistent with Section 404 of the Federal Clean Water Act and Section 10 of the Federal Rivers and Harbors Act of 1899; and c) shall not adversely affect water quality or marine habitats. *(County Policy 3.2.2.7)*

15. Turbidity barriers shall be used during construction ***located within the vicinity of any tidal areas,*** ~~of Full Tidal Areas~~ to limit the impacts of turbidity on ocean waters. A barrier ~~may~~ ***shall*** be used~~, if feasible~~, in the vicinity of ~~the Tidal Inlet~~ ***any tidal inlet*** during its construction to limit turbidity in the sea. *(County Policy 3.2.2.8)*

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16. ***Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided by the oil field operators in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided which minimizes the total volume of oil spilled and provides access to the most effective feasible containment and recovery equipment for oil spills.*** ***(NEW)***

~~Flood Control Policies~~

~~9. The EGGW Flood Control Channel shall be upgraded between Graham Street and the Full Tidal portion of Wetlands Ecosystem Area to provide combined extreme tide/100-year storm event protection to existing and future homes in the area~~. *(County Policy 3.2.2.9)*

~~10. The EGGW Flood Control Channel west of Planning Area 11 shall be removed in order to dilute contaminants and provide stormwaters for the Wetlands Ecosystem Area~~. *(County Policy 3.2.2.10)*

3.3.2 ' HYSICAL RESOURCES POLICIES

1. Structures for human occupancy, ~~which are~~ ***including those*** located in areas of liquefiable soils, shall ~~conform with all design mitigations required by the County of Orange to~~ minimize risk to life and property ***and shall***~~. Where appropriate, mitigation should~~ include ***foundation designs and*** measures to increase the resistance of the underlying soils to liquefaction. *(County Policy 3.3.2.1)*

2. In accordance with California's Alquist-Priolo Special Studies Zone Act, all development within Bolsa Chica shall be consistent with the site planning and engineering guidelines for the Earthquake Hazard Special Study Zones established for the Newport-Inglewood fault zone that traverses Bolsa Chica. *(County Policy 3.3.2.2)*

3. The risk to life and property from surface subsidence at Bolsa Chica shall be minimized by full compliance with oil extraction and monitoring techniques as regulated by the California Department of Mines and Geology. *(County Policy 3.3.2.3)*

4. Surficial subsidence shall be monitored and groundwater re-pressurization or other methods shall be used to limit potential subsidence impacts. *(County Policy 3.3.2.4)*

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5. Where development areas adjoin bluffs, all buildings and habitable structures shall be set back a sufficient distance from the bluff edge to be structurally safe from the threat of bluff erosion for ~~a minimum of 50 years~~. ***for a minimum of seventy-five (75) years.*** Geotechnical engineering reports shall be required ~~by the County of Orange~~ ***from all applicants at the time an application for development adjoining a blufftop is submitted*** to determine ~~this~~ ***the adequacy of any proposed*** setback. *(County Policy 3.3.2.5)*

~~6. Development above the coastal bluff facing Outer Bolsa Bay shall be engineered to ensure that surface/subsurface drainage will not contribute to the erosion or affect the stability of the bluff. Any drainage pipes and outlets shall be installed by auguring (i.e., "drilled" from behind the slope face to exit at or near the base of the bluff) not open excavations or trenching, to ensure bluff stability and minimize visual impacts. Any minor residual affects related to drainage improvements shall be mitigated by recontouring and revegetating to obtain a natural landform appearance.~~
(County Policy 3.3.2.6)

6. The 25- to 60-foot-high northeast-facing bluff below the Huntington Mesa shall be preserved and restored as set forth in ***this Land Use Plan's Public Access and Visitor Serving Recreation Component*** ~~the County-adopted General Development Plan/Resource Management Plan for Harriett Wieder Regional Park. This shall include the ESHA restoration set forth in the Wetlands Restoration Program~~. Any areas requiring remedial grading or slope stabilization shall be recontoured and revegetated with native plant material to restore the natural landform appearance. *(County Policy 3.3.2.7)*

7. The coastal bluff facing Outer Bolsa Bay and the steep bluff below the Huntington Mesa shall both be protected from human intrusion. Where bluff-top trails are permitted, they will be set back from ***the*** edge of the bluff and planted and signed to discourage pedestrians from leaving the trails. *(County Policy 3.3.2.8)*

8. ~~Pursuant to the County-adopted Resource Management Plan for Harriett Wieder Regional Park, a 10- to~~ ***A*** 100-foot ESHA/wetlands buffer zone shall be designated the length of ~~the park~~ ***Harriet Wieder Regional Park*** and provide separation between the park's equestrian trail on the Mesa and ESHAs along the bluff and the Seasonal and Perennial Pond areas below. *(County Policy 3.3.2.9)*

9. ~~The historically degraded slope between Bolsa Chica Mesa and the Lowland Pocket Area, that extends from the southern corner of the Mesa to the EGGW Flood Control Channel, shall be remedially graded for stabilization of the Mesa development. The base of the slope shall be protected from Muted~~

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~~Tidal flows related to wetlands restoration. Public Class I bicycle and pedestrian trails shall be included in the design of the stabilized slope.~~

Development shall assure stability and structural integrity and neither create nor contribute significantly to erosion, geologic instability or destruction of the site or surrounding area. Development shall be sited and designed to minimize the alteration of natural landforms and shall not require the construction of protective devices that would substantially alter natural landforms. Where permitted to be altered pursuant to the Conservation Land Use designation the bluff will be restored to a natural appearance through landscaping consisting of native drought-tolerant vegetation.
(County Policy 3.3.2.10)

3.4.2 CULTURAL RESOURCES POLICIES

1. ***Development within the*** ~~The~~ Bolsa Chica ~~Planned Community Program~~ ***LCP area*** shall ~~require compliance~~ ***comply*** with all ~~County-adopted~~ archaeological/paleontological policies and ***County*** Board of Supervisors Resolution No. 77-866 related to cultural and scientific resources, to ensure that all reasonable and proper steps are taken to either preserve archaeological remains in place, or alternatively, that measures are taken to assure the recovery, identification, and analysis of such resources so that their scientific and historical values are preserved. *(County Policy 3.4.2.1)*

2. ***In the event that any Native American human remains are uncovered; the County Coroner, the Native American Heritage Commission, and the Most Likely Descendants shall be notified.*** The recommendations of the Most Likely Descendants, as designated by the California Native American Heritage Commission, shall be obtained prior to the reburial of any prehistoric Native American human remains ~~that may be encountered during any archaeological investigation~~. *(County Policy 3.4.2.2)*

3. An archaeological research design ~~for Bolsa Chica~~ shall be ~~completed prior to approval of the first Coastal Development Permit for land use development~~ ***submitted along with any application for a coastal development permit for development within any planning area containing archaeological or paleontological resources*** ~~required by the Planned Community Program~~. The research design shall:

   a. contain a discussion of important research topics that can be addressed employing data from the Bolsa Chica sites; and

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b. be reviewed by at least three (3) County-certified archaeologists ***(peer review committee)***, ~~as required by the guidelines of the California Coastal Commission~~.

c. ***The research design shall be reviewed by the State Office of Historic Preservation and the Native American Heritage Commission.***

d. ***The research design shall be developed in consultation with affected Native American groups.***

e. ***The peer review committee shall assure the implementation of mitigation measures consistent with the archeological research design.***
(County Policy 3.4.2.3)

4. A systematic cultural resources survey ~~of the Lowland~~ ***of any planning area*** shall be initiated ***and completed before an application is submitted for any coastal development permit affecting that planning area*** to determine if there are any cultural deposits, and if so, to evaluate their significance. ***The determination of significance shall be based on the requirements of the California Register of Historical Resources criteria.*** If found to be significant, the site(s) shall be tested and preserved in open space~~, if feasible~~; or, if preservation cannot be accomplished consistent with the LUP, a data recovery plan shall be implemented in coordination with ~~the phasing of wetlands restoration and/or~~ development activities. *(County Policy 3.4.2.4)*

5. A County-certified ~~paleontological field observer, working under the direction of a County-certified~~ paleontologist***/archeologist***, shall monitor all grading operations on the Bolsa Chica Mesa and Huntington Mesa. ***Grading operations shall also be monitored by a Native American monitor.*** If grading operations uncover ~~significant~~ paleontological***/archeological*** resources, the ~~field observer~~ ***paleontologist/archeologist or Native American monitor*** shall ~~divert equipment~~ ***suspend all development activity*** to avoid destruction of ~~significant~~ resources ***until a determination can be made as to the significance of the paleontological/archeological resources. If found to be significant, the site(s) shall be tested and preserved until a recovery plan is completed to assure the protection of the paleontological/archeological resources***. *(County Policy 3.4.2.5)*

3.5.2 VISUAL AND SCENIC RESOURCES POLICIES

1. ~~Existing views of the coast from public areas shall be preserved.~~

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect public views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be

visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas shall be subordinate to the character of its setting. *(County Policy 3.5.2.1)*

~~2. The Wetlands Restoration Program shall be implemented to improve the visual and scenic character of Bolsa Chica. In particular, the contouring of tidal areas, the creation of dunes, and the planting of approved wetlands and ESHA vegetation shall be done to minimize the artificial "engineered" geometry associated with oil roads and drilling operations, as well as flood control channels, dams, and dikes. Final design and planting shall emphasize the restoration of the meandering and curvilinear patterns historically associated with natural processes and the Bolsa Chica wetlands prior to urbanization.~~ *(County Policy 3.5.2.2)*

~~3. As determined compatible with the Wetlands Restoration Program, public access to the Wetlands Ecosystem Area shall be improved and managed so as to provide a "close-up" visual experience for the public.~~
(County Policy 3.5.2.3)

2. ***Public*** ~~To the extent feasible, continuous public~~ viewing opportunities shall be provided from all trails within Bolsa Chica, including:

   a. ~~The~~ ***A*** Class I Trail within the Buffer ***separating the residential development on the upper portion of the Mesa from the areas designated as Conservation shall be provided within the buffer area as depicted in Figure 2.1-1. This trail shall be located within the twenty-five feet nearest the residential development.*** ~~which separates the Muted Tidal wetlands from the Bolsa Chica Mesa development;~~

   ~~b. The Class I Trail along the EGGW Flood Control Channel; and~~

   ~~c. The Class I Trail along the flood control berm that separates the most inland Muted Tidal wetlands from the Lowland development, and along the boardwalk that connects Harriett Wieder Regional Park with the Lowland.~~ *(County Policy 3.5.2.4)*

3. Viewing opportunities shall be provided from trails within Harriett Wieder Regional Park, including interpretive trails and the equestrian trail that connects (off-site) with Huntington Central Park. *(County Policy 3.5.2.5)*

4. New public viewpoints shall be established within the following new public parks:

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a. Three (3) viewpoints within Harriett Wieder Regional Park; ***and***

b. At least one (1) viewpoint within ~~Mesa Community Park~~ ***the buffer area*** on the Bolsa Chica Mesa ***as depicted in Figure 2.1-1***.~~; and~~

~~c. At least one (1) viewpoint within Lowland Community Park.~~
(County Policy 3.5.2.6)

5. The existing State Ecological Reserve overlook and exhibit area at the southerly corner of the Bolsa Chica Mesa shall be replaced with a new facility designed in consultation with the ***California Department of Fish and Game, and the*** State Coastal Conservancy ~~and the Amigos de Bolsa Chica~~. *(County Policy 3.5.2.7)*

6. The two (2) existing State Ecological Reserve parking areas and scenic overlooks (one along Pacific Coast Highway across from the State Beach and the other near the intersection of Pacific Coast Highway and Warner Avenue) shall be improved in consultation with the ***California Department of Fish and Game, and the*** State Coastal Conservancy ~~and the Amigos de Bolsa Chica~~. *(County Policy 3.5.2.8)*

7. To create a visually cohesive backdrop for the Wetlands Ecosystem Area, landscaping within development areas of Bolsa Chica shall predominantly utilize trees used in the regional and local parks~~, and in the Buffers~~. ***Landscaping in the Conservation, Open Space and Recreation, and buffer areas shall consist exclusively of native drought tolerant plants unless otherwise recommended by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.*** *(County Policy 3.5.2.9)*

8. Plant material within ***any buffer area*** ~~and/~~or adjacent to the ~~100-foot-wide Buffer between development and the~~ Wetlands Ecosystem Area shall provide significant visual softening of architectural facades and building mass when viewed from public areas. *(County Policy 3.5.2.10)*

9. Buffer areas between wetlands/ESHA habitats and development/recreation areas shall provide for a gradual transition in landscape materials to avoid visually abrupt edges and an artificial appearance. *(County Policy 3.5.2.11)*

10. The planting of trees within development areas and Harriett Wieder Regional Park shall utilize informal patterns and drifts which provide a visually soft and natural backdrop for the Wetlands Ecosystem Area - creating a sense of visual enclosure to the wetlands and shielding the Wetlands Ecosystem Area from oil operations and urban development. *(County Policy 3.5.2.12)*

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~~13. The planting of trees within Harriett Wieder Regional Park shall be consistent with provisions of the County-adopted General Development Plan (i.e., the Landscape Character Plan which defines tree plantings of appropriate heights and densities) and Resource Management Plan (i.e., the Visual Resources Section), in particular to protect views from existing and planned adjacent residences toward the Wetlands Ecosystem Area and Pacific Ocean, and to ensure a landscape maintenance program which utilizes tree trimming to maintain views.~~ *(County Policy 3.5.2.13)*

11. The Planned Community Program shall limit and regulate signage within all Recreation, Public Facility, and Conservation Planning Areas so that it is only a minor visual element essential for public safety, ~~welfare, and convenience,~~ ***resource protection, and to inform the public of the availability of the public recreational amenities***. Signage shall be of a consistent coastal theme. *(County Policy 3.5.2.14)*

12. Utilities for all new development shall be placed underground, ~~unless impractical or undesirable~~ ***to the maximum extent feasible*** from a comprehensive environmental perspective. *(County Policy 3.5.2.15)*

13. Existing above-ground utilities and oil equipment shall be removed from Bolsa Chica ***to the maximum extent feasible*** ~~wherever and whenever possible~~, without interfering with the oil operations. *(County Policy 3.5.2.16)*

14. Residential building heights shall be limited to ~~two (2)~~ ***three (3)*** stories (45 feet maximum) ~~along the bluff facing Outer Bolsa Bay~~ to reduce the visual appearance of development ~~from Pacific Coast Highway~~. *(County Policy 3.5.2.17)*

~~18. Building heights shall be limited to two (2) stories (35 feet maximum) along Los Patos Avenue to reduce the visual appearance of new development from existing development on the north side of Los Patos.~~ *(County Policy 3.5.2.18)*

~~19. Building heights and setbacks within the Northeast Lowland shall be regulated along the edge between new development and existing development so as to reduce the visual impact of new units on existing units.~~ *(County Policy 3.5.2.19)*

15. All fences shall be ***sited and*** designed to ***protect*** ~~be functional and to have a minimum impact on~~ coastal and scenic views ***and to be visually compatible with the character of surrounding areas*** ~~from public locations~~. This includes privacy fencing for residential areas, as well as environmental-control fencing used within the Wetlands Ecosystem Area for species protection.

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(County Policy 3.5.2.20)

C. PUBLIC ACCESS/VISITOR SERVING RECREATION COMPONENT

CHAPTER 4 OF THE LAND USE PLAN AMENDMENT

4.2 PUBLIC ACCESS AND VISITOR SERVING RECREATION POLICIES

Graphic Suggested Modification: Figures 4.3-1 and 4.3-2 and Tables 4-1 and 4-2 of the submitted LCP illustrate the public access and visitor serving recreation components contained in the Bolsa Chica Local Coastal Program of December 14, 1994 shall be modified as follows. The trails and public facilities shown in the lowlands shall be deleted. The trails and public facilities shown for Harriet Wieder Park, the State Ecological Reserve, along Pacific Coast Highway, and Planning Area 3C shall remain as depicted in the original submittal. In terms of the Bolsa Chica Mesa, these graphics shall be modified to conform to **Figure 1** (on page 5) of this staff report. Any other figure depicting the Coastal Access and Recreation Plan shall also be modified. Since this policy refers to a graphic revision, once the graphic revisions are made, this policy does not need to be included in the amended Land Use Plan.

COMPREHENSIVE POLICIES

1. ***The recreational needs of new residents shall not overload nearby coastal recreation areas.*** Public coastal access, ***and recreational opportunities,*** including opportunities for wetlands observation and passive recreation such as picnicking, shall be established ***by the private landowner/master developer prior to issuance of any coastal development permit authorizing residential construction other than grading.*** ~~within new recreation and visitor-serving facilities~~. ***Recreational facilities and uses shall be located and designed in such a manner that there will be no significant adverse impacts to wetlands or ESHA resources.*** *(County Policy 4.2.1)*

2. All visitor-serving interpretive facilities shall be designed to be compatible with wildlife habitats. Public trails and interpretive programs shall be designed to ensure they do not adversely affect the Wetlands Ecosystem Area, ***any Mesa wetlands, the Eucalyptus Grove ESHAs, Tarplant areas or any of the wetlands located between the EGGW Channel and the Mesa***. *(County Policy 4.2.2)*

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3. ***Adequate public parking shall be distributed throughout the Bolsa Chica LCP area in a manner which encourages public use of the various recreational facilities.*** *(NEW)*

4. ***Lower cost visitor and recreational facilities shall be protected, encouraged, and where feasible, provided. Developments providing public recreational opportunities are preferred.*** *(NEW)*

5. ***A comprehensive signage program for all public access/visitor serving recreation facilities shall be provided and shall inform the public of the availability of, and provide direction to, the on-site recreation amenities of the Bolsa Chica LCP area.*** *(NEW)*

6. ***Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*** *(NEW)*

TRAILS POLICIES

7. ***The public trail system shall be consistent with Figure 4.3-2 of the Land Use Plan which depicts the public trail system. Public trails within the buffer separating the upper and lower Mesa benches and along the portion of the upper Mesa overlooking the lowland shall be located within the twenty-five (25) feet nearest the urban development.*** **(NEW)**

8. A comprehensive network of bicycle and pedestrian trails shall be provided for public access. This network shall link Huntington Central Park, Harriett Wieder Regional Park, Bolsa Chica Wetlands Ecosystem Area, Bolsa Chica State Beach, ~~and~~ Bolsa Chica State Ecological Reserve***, and the Bolsa Chica Mesa bluff trail*** to surrounding residential, recreation, and public parking areas. ~~It shall include an elevated boardwalk (i.e., Lowland Trail Corridor) through the Seasonal Ponds, connecting Harriett Wieder Regional Park with the Northeast Lowland~~. *(County Policy 4.2.3)*

9. Opportunities for wetlands observation shall be provided by overlooks provided along public trails in Buffers between the residential areas and the ***Wetlands*** ~~restored wetlands~~ ***Ecosystem Area***. Consistent with ~~Policies 8 and 9 of~~ the Wetlands/Biological Resources Component, limited access interpretive trails shall be provided along ***portions of the Bolsa Chica Mesa and*** berms within the Wetlands Ecosystem Area ***as shown in Figure 4.3-2***. Public use of such trails shall be controlled to protect wildlife and habitat

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values. ***Public use trails other than interpretive trails shall not be limited.*** *(County Policy 4.2.4)*

10. All bikeways shall be consistent with the Orange County Master Plan of Regional Bikeways, and the ***City of*** Huntington Beach Master Plan of Local Bikeways. *(County Policy 4.2.5)*

11. The Landowner/Master Developer shall***, prior to issuance of any coastal development permit approving any subdivision of a Bolsa Chica LCP area, irrevocably*** dedicate to the County of Orange or other public agency, the land and/or easements within the Bolsa Chica LCP Area that are ***owned by the private landowner/master developer that are*** required for public trails indicated on the Coastal Access and Recreation Plan ***(Figure 4.3-2)***. *(County Policy 4.2.6)*

12. ***All new trails shown on the Coastal Access and Recreation Plan (Figure 4.3-2) that are required to be irrevocably dedicated to the County or other public agency prior to the issuance of any coastal development permit approving any subdivision of the Bolsa Chica LCP area under the ownership of the Landowner/Master Developer shall be graded by the private Landowner/Master Developer at the time grading for the roadways for the planning area occurs. All such trails shall be improved by the private Landowner/Master Developer concurrent with the construction of the roadways and prior to the issuance of any coastal development permit authorizing residential construction (except grading). (NEW)***

PUBLIC PARKING AND STAGING AREA POLICIES

13. The Harriett Wieder Regional Park, local parks, and other visitor-serving recreation facilities shall include ~~appropriate~~ ***adequate*** on- and off-street public parking and bicycle racks. *(County Policy 4.2.7)*

~~8. Approximately100 public parking spaces shall be provided within the Mesa Community Park, and in parking pockets along the Bolsa Chica Mesa Connector adjacent to the park to accommodate the parking needs of residents and visitors to Bolsa Chica's recreational and interpretive facilities~~. *(County Policy 4.2.8)*

~~9. Approximately 60 public parking spaces shall be provided within and adjacent to the Lowland Community Park to accommodate visitors to park facilities and Lowland trails~~. *(County Policy 4.2.9)*

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14. ***A public vehicular bluff edge scenic road shall be provided on the Bolsa Chica Mesa immediately landward of the buffer as required below. The purpose of the bluff edge scenic road is to maximize public access to the public buffer trail, separate private residential land use from public use areas, to preserve scenic views of the lowland and the ocean, and allow for public safety and emergency vehicle access to the public areas. Parallel public parking shall be provided along both sides of the bluff edge scenic road, and no red curbing or signs shall be permitted or any other structure of practice allowed to prohibit public parking except near street intersections where necessary for public safety reasons.*** **(NEW)**

15. ***Private roads which limit the public's ability to park within any residential areas shall not be allowed unless a public parking lot containing a minimum of thirty (30) parking spaces is provided adjacent to the public scenic roadway. Public roads will provide public on-street parking.*** **(NEW)**

HARRIETT WIEDER REGIONAL PARK POLICIES

16. ~~The~~ ***Prior to issuance of any coastal development permit for residential subdivision of the Bolsa Chica Mesa the*** approximately 49 acres of land owned by the Landowner/Master Developer on the Huntington Mesa, shall be irrevocably dedicated to the County of Orange for ***public park purposes and*** inclusion within the proposed 106-acre Harriett Wieder Regional Park ~~upon final certification of the LCP~~. *(County Policy 4.2.10)*

17. Harriett Wieder Regional Park~~, as described in the County-approved General Development Plan and Resource Management Plan,~~ shall provide a variety of interpretive and recreational opportunities for the public. Interpretive areas which emphasize the ecology and history of Bolsa Chica shall be the focal point of Regional Park facilities. *(County Policy 4.2.11)*

18. Visitor-serving concessions permitted within the Harriett Wieder Regional Park shall be located, designed and operated so as not to create unmitigable traffic congestion or vehicular/pedestrian hazards. *(County Policy 4.2.12)*

19. ~~The Harriett Wieder (formerly Bolsa Chica) Regional Park General Development Plan and Resource Management Plan is incorporated by reference in the LCP, and may be updated by the County of Orange consistent with the Bolsa Chica LUP policies~~. ***Harriett Wieder (formerly Bolsa Chica) Regional Park shall be devoted to open space/park use. Development shall minimize the alteration of land forms, landscaped in a manner compatible with the adjacent wetlands and environmentally sensitive habitat***

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areas, and provide adequate off-street public parking. Any General Development Plan and Resource Management Plan prepared for the regional park shall be in conformance with the land resources protection policies (wetland and ESHA resources, archaeological resources, landform alteration) and the public access (public parking) policies of the Coastal Act. The General Development Plan and Resource Management Plan may be incorporated into the LCP only through an LCP amendment certified by the Coastal Commission. *(County Policy 4.2.13)*

~~INTERPRETIVE KAYAK/CANOE FACILITY POLICIES~~

~~14. A small boat dock, small quiet water swimming beach, and related facilities shall be provided at an appropriate location within the Recreation and/or Conservation Planning Areas of the Bolsa Chica Planned Community to facilitate a ranger-managed interpretive kayak/canoe program of the wetlands for the general public. Interpretive kayaks/canoes shall be restricted to the Full Tidal Area under the jurisdiction of Orange County or other managing agency.~~ *(County Policy 4.2.14)*

~~15. The Bolsa Chica Planned Community Program, Recreation and Conservation Planning Areas shall permit facilities for small non-motorized boats (kayaks and/or canoes), and facilities for boats and dredges necessary to operate and maintain the Wetlands Ecosystem Area. Permitted ancillary uses shall accommodate dry storage for kayaks and/or canoes, a launching ramp, and other necessary related facilities (e.g., hoists, stacking, and staging areas) to provide safe public access to, and use, of coastal waters.~~
(County Policy 4.2.15)

~~16. The interpretive kayak/canoe facility shall be designed and operated so as to be compatible with wildlife habitats and water quality objectives established in this LUP. Public programs shall be designed to ensure that wetlands interpretation does not adversely affect the Wetlands Ecosystem Area.~~
(County Policy 4.2.16)

BOLSA CHICA STATE BEACH POLICIES

20. All recreation and circulation planning for ~~the Tidal Inlet~~ ***any proposed tidal inlet*** area of Bolsa Chica State Beach shall be done in coordination with the California Department of Parks and Recreation***, the California Department of Transportation, and the City of Huntington Beach. Any proposed tidal inlet shall require approval from the California Coastal Commission and shall be consistent with the Chapter 3 policies of the Coastal Act.***

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(County Policy 4.2.17)

~~22. Only the portion of Bolsa Chica State Beach affected by the Tidal Inlet is addressed by this LCP~~. The California Department of Parks and Recreation may prepare a separate "Public Works Plan" (or other LUP/IAP documentation) for any and all portions of Bolsa Chica State Beach~~, and this State plan may be certified by the Coastal Commission without amending this LCP~~. *(County Policy 4.2.18)*

LOCAL PUBLIC PARKS POLICIES

~~21. The Landowner/Master Developer shall prepare a Local Park Implementation Plan (LPIP) so as to fully satisfy the County's Local Park Code.~~
(County Policy 4.2.19)

~~22. All local public parks required by the LPIP shall be irrevocably offered for dedication to the County of Orange as a condition of subdivision approvals, in accordance with the County's Local Park Code.~~ *(County Policy 4.2.20)*

21. ***A signage plan shall be prepared to direct the public to the recreational amenities. Signage visible from Warner Avenue, Los Patos, Edwards Street, and Seapoint shall be provided to direct the public to the recreational amenities. (NEW)***

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D. REGIONAL CIRCULATION AND TRANSPORTATION COMPONENT

CHAPTER 5 OF THE LAND USE PLAN AMENDMENT

5.2 REGIONAL CIRCULATION/TRANSPORTATION POLICIES

REGIONAL CIRCULATION POLICIES

1. ~~An~~ ***Any*** Area Traffic Improvement Program (ATIP) ***that is prepared by the landowner/master developer*** shall ~~be created and~~ include the following elements:

   a. regional road improvements that enhance coastal access;

   b. improvements to Bolsa Chica Street, Warner Avenue, and Pacific Coast Highway which are the primary travel corridors serving the LCP Area;

   c. provision ~~of~~ ***for*** funding ~~for~~ ***of*** traffic improvements; and

   d. a traffic improvement phasing plan which ensures that road improvements are phased in conjunction with residential ***and commercial*** development.

   e. The ATIP shall be in conformance with the policies of the Coastal Act. The ATIP may be incorporated into the LCP only through an LCP amendment certified by the Commission. *(County Policy 5.2.1)*

ARTERIAL HIGHWAY POLICIES

~~2. The ATIP shall provide improvements at the interchange of the 405 Freeway and Warner Avenue.~~ *(County Policy 5.2.2)*

2. The ~~ATIP~~ ***landowner/master developer*** shall provide improvements at the interchange of the 405 and 22 Freeways with Bolsa Chica Street ***prior to issuance of any coastal development permit authorizing residential construction other than grading***. *(County Policy 5.2.3)*

3. An offer of dedication shall be made by the private landowner to achieve the ultimate Major Arterial width of Pacific Coast Highway within the Bolsa Chica LCP Area (i.e., to a 120-foot right-of-way). This shall entail a 15-foot-wide

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offer of dedication within the "Whipstock" (oil facilities) Area adjacent to Pacific Coast Highway. All other lands required for the potential Pacific Coast Highway widening are owned by either the State of California or the City of Huntington Beach, including parts of Bolsa Chica State Beach and the Bolsa Chica State Ecological Reserve. *(County Policy 5.2.4)*

~~5. An offer of dedication shall be made by the private landowner to achieve the ultimate Major Arterial width for Warner Avenue. This dedication shall include a 30-foot wide offer of dedication on the Bolsa Chica Mesa adjacent to Warner Avenue.~~ *(County Policy 5.2.5)*

4. The Warner Avenue/Pacific Coast Highway intersection shall be improved to facilitate circulation to and from Bolsa Chica State Beach. *(County Policy 5.2.6)*

~~ATIP FINANCING POLICIES~~

~~7. An ATIP funding program for those ATIP phases included within a subdivision shall be established at the time of tentative map approval. The funding program sh: l be satisfactory to the Director/EMA.~~
(County Policy 5.2.7)

~~8. Security for all "Full Construction" ATIP improvements within an ATIP phase shall be provided before the issuance of the first building permit for a residential unit within that phase. Security may consist of a bond, letter of credit, or establishment of a funding mechanism such as an assessment district or community facilities district.~~ *(County Policy 5.2.8)*

~~9. If not included within a financing district, a fee program to fund the "Fair-Share Participation" ATIP improvements within an ATIP phase shall be established at the time of the approval of the first tentative tract map including units within that ATIP phase. Fees for residential units within an ATIP phase shall be made before recordation of the final map which includes the residential unit~~. *(County Policy 5.2.9)*

~~10. An advisory committee will be established to monitor the implementation of ATIP. The County of Orange will be the lead agency and committee members will include representatives of the cities of Huntington Beach, Fountain Valley, and Westminster along with representatives from the Orange County Transportation Authority (OCTA) and the Landowner/Master Developer. Non-participation or lack of cooperation by public agency members in implementing ATIP improvements shall not result in the County withholding development approvals~~. *(County Policy 5.2.10)*

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ATIP PHASING POLICIES

5. ~~ATIP shall be phased as described in Table 5.1~~. A detailed phasing plan shall be submitted to the Director of ~~EMA~~ ***PDSD at the time of submittal of any coastal development permit application for the approval any subdivision*** ~~prior to recordation of a final map for residential development~~. Detailed phasing plans shall be developed in accordance with the County Growth Management Plan and the Congestion Management Plan, ~~and~~ identify the specific improvements necessary to accommodate new development and provide a schedule for completing the improvements***, and be consistent with the improvements as described in Table 5-1 of the Land Use Plan. The improvements necessary to accommodate the residential development shall be constructed prior to the issuance of the coastal development permit authorizing the residential development.*** *(County Policy 5.2.11)*

LOCAL CIRCULATION POLICIES

6. Impacts to surrounding neighborhoods shall be minimized by providing access routes to the Bolsa Chica Mesa development area on arterial roads including Warner Avenue and Bolsa Chica Street. *(County Policy 5.2.12)*

~~13. Lowland residential access shall be provided on three arterials to minimize traffic impacts on any one arterial access. Graham Street and Talbert Avenue will be connected by a Secondary (four lanes undivided) road to provide appropriate accessibility to both streets~~. *(County Policy 5.2.13)*

7. Non-auto circulation shall be provided within the Planned Community, including Class I and Class II bicycle, equestrian, and hiking trails linking community parks, Bolsa Chica State Beach, and ~~the~~ Harriett Wieder Regional Park. Pedestrian connections from residential subdivisions to these trails shall be provided. Surrounding communities shall also have access to these trails to facilitate non-vehicular access to local and regional recreational opportunities. ***Safe and secure bicycle racks shall be provided at appropriate locations within the community and regional parks, and along the trails on the Bolsa Chica Mesa***. (County *Policy 5.2.14)*

TRANSIT POLICIES

8. The arterial highway facilities implemented as part of the Planned Community shall include provisions for bus turnouts at appropriate locations. *(County Policy 5.2.15)*

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9. Pedestrian linkages from adjacent residential uses shall be furnished to accommodate access to the bus transit systems. *(County Policy 5.2.16)*

AIR QUALITY POLICIES

10. Project-level Coastal Development Permits shall, where feasible, incorporate vehicular trip reduction strategies including the following:

    a. Education and Information: A centrally-located commuter information area that offers information on available transportation alternatives, route schedules and maps, available employee incentives, and rideshare promotional material shall be provided in a community clubhouse ~~and/or Neighborhood Commercial areas~~.

    b. Telecommunications: A telecommunications center shall be established within the Planned Community. This center could be located within a community clubhouse ~~or Neighborhood Commercial area~~, and include Automatic Teller Machines, Modem/Fax stations, Teleservice facilities, government information and/or transaction machines, and other related communication facilities which reduce the necessity of travel outside the Planned Community.

    c. Bicycle Parking: Bicycle commuting shall be encouraged through the inclusion of amenities that address unique aspects of the bicycle commuter, including Class I and Class II Bicycle Trails and the provision of safe and secure bicycle racks ~~within the Neighborhood Commercial and~~ ***along the trails and within the*** community **and regional** park areas of ***the*** Bolsa Chica ***LCP area***. *(County Policy 5.2.17)*

E. DEVELOPMENT COMPONENT

CHAPTER 6 OF THE LAND USE PLAN AMENDMENT

6.2 DEVELOPMENT POLICIES

Residential Policies

1. A maximum of ~~3,300~~ ***1,235*** dwelling units shall be permitted within the ***portions of the*** Bolsa Chica Planned Community ***designated for residential development***. ~~The number of dwelling units for the Bolsa Chica Mesa shall~~

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~~not exceed 2,500. The number of dwelling units permitted for the Northeast Lowland (Planning Areas 10 and 11) shall not exceed 900.~~
(County Policy 6.2.1)

2. A wide range of residential densities and housing types shall be permitted on the Bolsa Chica Mesa. ~~A comparatively narrow range of Low-Density housing types shall be permitted in the Northeast Lowland. Although individual projects may vary, overall Planning Area densities shall not exceed the County General Plan's "Suburban" Residential Neighborhoods category (i.e., 0.5 to 18.0 DU/Ac.).~~ ***In no case will the residential density conflict with the "Planned Community Statistical Table" contained in the Planned Community Program.*** *(County Policy 6.2.2)*

3. ~~Residential development adjacent to the Wetlands Ecosystem Area shall be designed to avoid adverse impacts on habitat resources.~~

   Residential development shall be designed to avoid significant adverse impacts on wetlands or environmentally sensitive habitat resources. Residential development shall be distributed throughout the upper bench of the Bolsa Chica Mesa consistent with the Planned Community Statistical Table and shall not exceed a total of 1,235 residential units. All coastal development permits for the Bolsa Chica Mesa shall conform with the allocation of maximum dwelling units contained in the LCP's Planned Community Statistical Table both by Planning Area and in terms of the overall limit of 1,235 residential units. Development Areas created pursuant to any coastal development permit, as well as subsequent subdivision(s) of those Development Areas, shall not result in the creation of residential lots or parcels which do not have residential units associated with their future development. The intent of this policy is to ensure that no circumstance is created wherein the development of the Bolsa Chica Mesa would ever exceed the aforementioned 1,235 maximum residential units. This residential cap on the total number of units on the Bolsa Chica Mesa applies to and includes all current and subsequent ownerships on the Mesa, and any development rights that may accrue from the Edwards Thumb parcel. *(County Policy 6.2.3)*

4. Street lights and other lamps over twelve (12) feet high in development areas shall be shielded to reduce the amount of light straying into ***Conservation and buffer areas*** ~~the Wetlands Ecosystem Area~~. *(County Policy 6.2.4)*

5. ~~Neighborhood Commercial facilities shall be permitted within specified Medium-High Density Residential Planning Areas, up to a maximum of 10 acres, consistent with the Orange County General Plan. Any such facilities shall be regulated by the Planned Community Program, and shall be evaluated using the "Guidelines; Neighborhood Commercial," set forth in the County~~

~~General Plan. Neighborhood Commercial facilities shall not be permitted within the Low Density Residential Planning Areas in the Lowland~~.
(County Policy 6.2.5)

5. New residential development shall be compatible in terms of neighborhood character and scale with existing adjacent residential development in the City of Huntington Beach. *(County Policy 6.2.6)*

LOCAL PARK AND COMMUNITY FACILITY POLICIES

6. Community parks shall serve the recreational needs of ***the general public as well as*** local residents~~, and shall also supply~~ ***to provide*** public coastal access ***opportunities*** ~~and staging areas~~ for visitors to Bolsa Chica ~~where appropriate~~.
(County Policy 6.2.7)

7. Public schools shall be permitted within residential planning areas.
(County Policy 6.2.8)

8. ***A ten (10) acre school site shall be designated immediately adjacent to Warner Avenue and on the lower bench of the Bolsa Chica Mesa as depicted in Figure 2.1-2. Any school constructed shall be designed to protect the adjacent Conservation area to the maximum extent feasible. This site shall only be used as a school site. Design features which shall be used to protect the adjacent Conservation area shall include, but not be limited to, the following:***

   a. The portion of the ten acre school site immediately adjacent to the conservation area shall be kept in open space to the maximum extent feasible, by for example, locating ballparks and other open space uses on the perimeter of the site closest to the conservation area. The ten acre school site shall consist of (10) usable acres exclusive of any wetland or upland habitat buffers.

   b. The buffer between the school site and Warner Pond shall be a minimum of 100 ft.

   c. The entire school site shall be surrounded by fencing that precludes access to the surrounding conservation areas, but may be constructed to permit access and egress by students, faculty, and vehicles in emergency situations, and for access to the conservation areas for environmental education programs if allowed pursuant to an approved habitat management plan as required by Regulation 2.3.12 of the Planned Community Program (see page 145 of the staff report). The fencing shall be a minimum of seven (7) feet in height except where it is within 50 feet of the Warner Avenue access, and shall be

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constructed of solid block material which will minimize noise and create a visual shield between conservation areas and the school site. Within 50 feet of the Warner Avenue access, the fence may be stepped down to improve visual qualities and provide safe lines of sight for motorists. However, Warner Pond shall be shielded to the maximum extent feasible. Where necessary, chain link or other supplemental fencing materials may be used to prevent access to the conservation area. Native trees and shrubs shall be planted on both sides of the entire perimeter of the fence to reduce visual impacts and provide habitat. The specific design and plant pallet shall be determined in cooperation with the California Department Fish and Game and U.S. Fish and Wildlife Service.

d. Drainage for the school site shall not enter the conservation area.

e. No night lighting shall be utilized except for lighting that is necessary for safety and/or security purposes. Such lighting shall be low intensity and positioned downward. Playing fields shall not be lighted. (NEW)

LOCAL ROAD AND INFRASTRUCTURE POLICIES

~~9. The local road system for the Bolsa Chica Mesa shall include a Secondary Arterial Highway that connects Bolsa Chica Street with Warner Avenue. This road shall be the primary spine for the community, and include notched parking and a landscaped median~~. *(County Policy 6.2.9)*

~~10. The existing three Arterial Highways that dead-end along the edge of Bolsa Chica's Northeast Lowland, shall all be extended into the LCP Area as Secondary Arterials. The ends of Graham Street and Talbert Avenue shall be connected by a Lowland Connector, which shall also be a Secondary Arterial with a median.~~ *(County Policy 6.2.10)*

~~11. An emergency access route for police, fire, and paramedic vehicles, shall be provided across the EGGW Flood Control Channel, that links the Northeast Lowland with the Bolsa Chica Mesa. This emergency access shall accommodate a Class I Bicycle/Pedestrian Trail. However, it shall be designed so that the general public cannot use the emergency access or trail as a vehicular "cut-through" route between the Bolsa Chica Mesa and the Lowland~~. *(County Policy 6.2.11)*

9. Water supply for development and fire protection shall be established in cooperation with an existing water agency or through the creation of a new agency. *(County Policy 6.2.12)*

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10. Domestic and landscape water conservation devices shall be required in all new development, pursuant to State and County laws and guidelines. *(County Policy 6.2.13)*

11. Reclaimed water shall be used for public parkways and common area landscape irrigation within Bolsa Chica if the Orange County Water District and the Landowner/Master Developer reach agreement that it is economically feasible to provide reclaimed water through OCWD's Green Acres Project. *(County Policy 6.2.14)*

12. Consistent with sound civil engineering practices, utilities shall be principally located in road rights-of-way or, where necessary and feasible, in recreation and open space areas not primarily required for wildlife habitat. ***Any utilities located within recreation or open space areas shall be placed below grade where feasible. Where undergrounding is infeasible, utilities shall be designed in a manner which will not reduce useable recreation or parking area or be visually intrusive.*** New utilities shall not be located within ***ESHA, wetlands, or*** the Wetlands Ecosystem Area ~~unless~~ ***except to the extent the location of the utilities within a wetland constitutes an incidental public service and, in accordance with Coastal Act Section 30233(a)(5),*** there are no other feasible, less environmentally damaging alternatives as defined in the Coastal Act. Mitigation measures shall be provided to minimize adverse environmental effects of any new utilities located in this area. *(County Policy 6.2.15)*

13. New utilities to serve ***residential*** development shall be located ***within the residential development planning areas or existing road right-of-ways and*** outside of the Wetlands Ecosystem Area ~~unless~~ ***except to the extent the location of the utilities in the Wetlands Ecosystem Areas constitutes an incidental public service that is in accordance with Coastal Act Section 30233(a)(5) and*** there are no other feasible, less environmentally damaging alternatives as defined in the Coastal Act. Mitigation measures shall be provided to minimize adverse environmental effects of any new utilities located in these areas, including utilities directly related to petroleum production, wetlands restoration and maintenance, and water quality and flood control. *(County Policy 6.2.16)*

~~17. A local roadway system in the Northeast Lowland shall link Graham Street, Talbert Avenue, and Springdale Street.~~ *(County Policy 6.2.17)*

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COMMUNITY DESIGN POLICIES

14. The architecture of the Bolsa Chica community shall draw upon thematic characteristics found in traditional New England coastal towns, and adapt those characteristics to local conditions of climate, market, materials availability, density, and technology. *(County Policy 6.2.18)*

15. Community Transition/Urban Edge Treatment Plans shall be included as part of ***any coastal development permit application for development abutting a Conservation Planning Area*** ~~Coastal Development Permits required by the Planned Community Program~~, to illustrate the landscape edges, transitions, and interfaces between Bolsa Chica and existing residential neighborhoods in the City of Huntington Beach~~, as well as the 100-foot-wide Buffer between development and the various hydrologic regimes within the Wetlands Ecosystem Area~~. *(County Policy 6.2.19)*

~~20. The landscape transition between the habitat landscape of the restored wetlands/ ESHAs and the development shall be provided primarily by using native and low-maintenance plantings within the Buffer that adjoins each residential development area.~~ *(County Policy 6.2.20)*

16. Landscape screening (including low walls, shrubs, and/or drifts and groves of trees) shall be designed and installed along streets, trails, and the perimeters of residential and recreational developments to soften development edges visible from PCH and other public areas of Bolsa Chica. *(County Policy 6.2.21)*

F. OIL PRODUCTION COMPONENT

CHAPTER 7 OF THE LAND USE PLAN AMENDMENT

7.2 OIL PRODUCTION POLICIES

1. Oil production shall continue at Bolsa Chica until abandoned due to natural depletion of the recoverable oil or by early abandonment. This LUP does not preclude early public acquisition and abandonment of oil leases to facilitate accelerated ~~implementation of the Wetlands Restoration Program~~ ***wetlands restoration***. Otherwise, the productivity and legal status of oil operations at Bolsa Chica shall not be significantly diminished by the implementation of new land uses permitted by this LUP unless agreed to by the affected oil operator/lessee. *(County Policy 7.2.1)*

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2. Existing oil production shall be allowed to continue during and following implementation of wetlands restoration and development. *(County Policy 7.2.2)*

3. Oil production shall be managed to protect biological resources to the maximum extent feasible ***and shall be consistent with Sections 30260 through 30263 of the Coastal Act***. ~~Wherever possible, future oil facilities shall be sited so as not to conflict with the Wetlands Restoration Program~~. *(County Policy 7.2.3)*

4. In accordance with Federal, State, and local laws, and applicable agreements, oil operators shall be responsible for the clean up of areas to permit development and wetlands restoration. *(County Policy 7.2.4)*

5. As oil production within the Wetlands Ecosystem Area is phased out, the area shall be restored ***consistent with the Chapter 3 policies of the Coastal Act*** ~~in conformance with the Wetlands Restoration Program~~ and shall function as part of the wetlands system. *(County Policy 7.2.5)*

6. Adequate screening, setbacks, and aesthetic treatments shall be provided within development areas to minimize hazards and nuisances posed by the proximity of oil operations. These measures shall be implemented in conjunction with Coastal Development Permits, and by specific Oil Production Regulations that shall be set forth in the Bolsa Chica Planned Community Program. *(County Policy 7.2.6)*

7. All ~~new~~ development shall be designed in accordance with the provisions of California Public Resources Code Section 3208.1 and California Department of Conservation, Division of Oil and Gas Guidelines regarding specifications and standards for oil-related activities, and well abandonments and reabandonments. *(County Policy 7.2.7)*

8. Where oil production will continue within a development Planning Area or a ~~Wetlands Restoration Phasing Area~~ ***wetlands restoration area***, a plan shall be prepared indicating the continuing facilities and their relationship to ***the*** development area ***or wetland restoration***, and submitted to the County of Orange in conjunction with ~~the~~ ***any*** proposed ~~Coastal Development Permits~~ ***coastal development permit application involving the area*** ~~as set forth in the Bolsa Chica Planned Community Program~~. This plan shall facilitate ~~be consistent with the Wetlands Restoration Program~~ ***wetlands restoration to the maximum extent feasible***. *(County Policy 7.2.8)*

~~9. An Oil Spill Prevention Control and Countermeasure Plan (OSPCCP) and an Oil Spill Contingency Plan (OSCP) has been prepared by the current oil~~

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~~operators, and approved by the California State Lands Commission, the California Department of Oil Spill Prevention and Response, and the California Department of Fish and Game. The Wetlands Restoration Program shall incorporate the requirements of the OSPCCP and OSCP. As the Wetlands Restoration Program is implemented, the OSPCCP and OSCP shall be updated to reflect each implementation phase. Both initial incorporation of requirements and subsequent updates shall be accomplished without requiring an amendment to the Bolsa Chica LCP.~~ *(County Policy 7.2.9)*

G. FINANCING AND PHASING COMPONENT

CHAPTER 8 OF THE LAND USE PLAN AMENDMENT

8.2 FINANCE AND PHASING POLICIES

1. No County General Funds shall be used for the construction of infrastructure improvements within Bolsa Chica, other than funds for Harriett Wieder Regional Park, or for regional road and flood control improvements approved by the County. The Landowner/Master Developer shall be responsible for construction of local roads and other infrastructure not otherwise financed by Federal, State, or special assessment districts formed for the Bolsa Chica LCP Area. *(County Policy 8.2.1)*

~~2. The expenditure of public funds to provide services in conjunction with public community facilities shall be made only for those service areas where development plans are fully consistent with this LCP.~~ *(County Policy 8.2.2)*

2. Residential development shall be phased in conjunction with the capacity of public facilities and services ***and the availability of public access and public recreation. Public trails and public parks identified in the certified LCP that are required to be irrevocably dedicated to the County or other public agency prior to the issuance of any coastal development permit approving any subdivision of the Bolsa Chica Mesa shall be improved by the private landowner/master developer prior to the issuance of any coastal development permit authorizing residential construction other than grading.*** *(County Policy 8.2.3)*

~~WETLANDS RESTORATION PHASING AND FINANCING POLICIES~~

~~4. The Wetlands Restoration Program shall be phased in consideration of the natural depletion of oil. The location, size, and sequence of Wetlands Restoration Phasing Areas shall reflect the anticipated phase out of oil~~

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~~production facilities within Bolsa Chica. Access roads, drill sites, and other areas required for ongoing oil production shall be held out of larger areas otherwise suitable for wetlands restoration until they are no longer needed for oil production.~~ *(County Policy 8.2.4)*

~~5. A financial implementation framework for wetlands restoration shall be prepared as part of the Wetlands Restoration Program. This framework shall include:~~

~~a. Estimated capital improvement cost for each phase of wetlands restoration;~~

~~b. Comprehensive implementation plans, which include property acquisition and capital improvements, as well as requirements for:~~

~~i. construction-period monitoring and maintenance;~~
~~ii. post-construction period monitoring and maintenance; and~~
~~iii. long-term monitoring/maintenance.~~

c. ~~Definition of the financial responsibilities and institutional arrangements that will assure the funding of items (a) and (b) above.~~ *(County Policy 8.2.5)*

~~6. The financial assurance for the wetlands restoration shall be provided as set forth in Table 8-1~~. *(County Policy 8.2.6)*

H. GLOSSARY

CHAPTER 9 OF THE LAND USE PLAN AMENDMENT

9.1 GLOSSARY

The meaning and construction of words, phrases, titles, and terms used in this Land Use Plan shall be the same as provided in Orange County General Plan and Zoning Code, except as otherwise provided in this Chapter.

1. **100-year-flood** — A measure of carrying capacity for a flood control channel, dam, or other water facility. A 100-year-flood is the largest that, according to rainfall and hydrology discharge probabilities, might occur in any 100-year period.

2. **1973 Boundary Settlement and Land Exchange Agreement (1973 Settlement Agreement)** — The 1973 agreement between the State of California and Signal Bolsa Corporation giving the State fee title to a consolidated 300 acres, plus a lease option on

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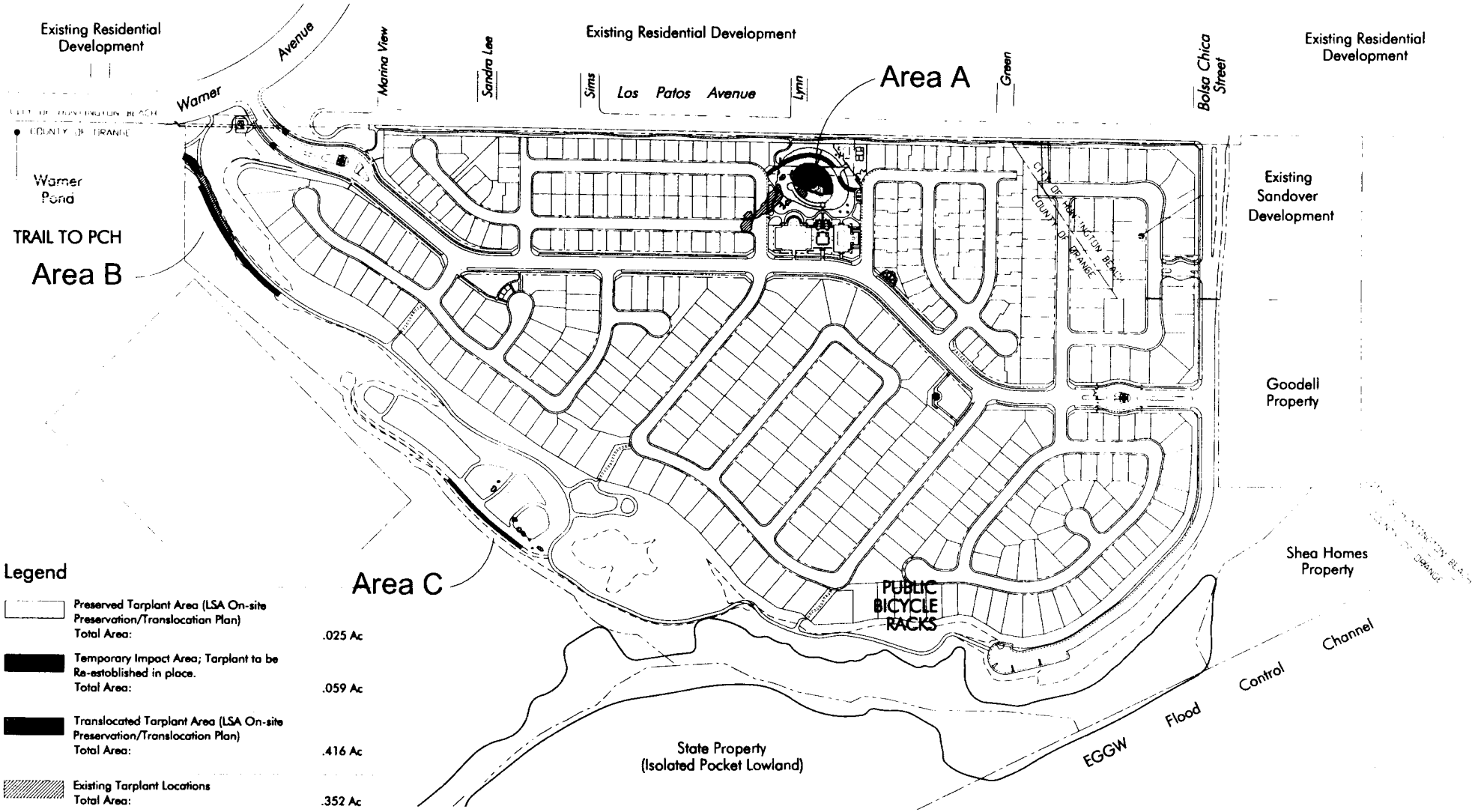

CDP Application 5-04-192

COASTAL COMMISSION

Southern Tarplant
On-Site Preservation/Translocation Plan

HEARTHSIDE HOMES

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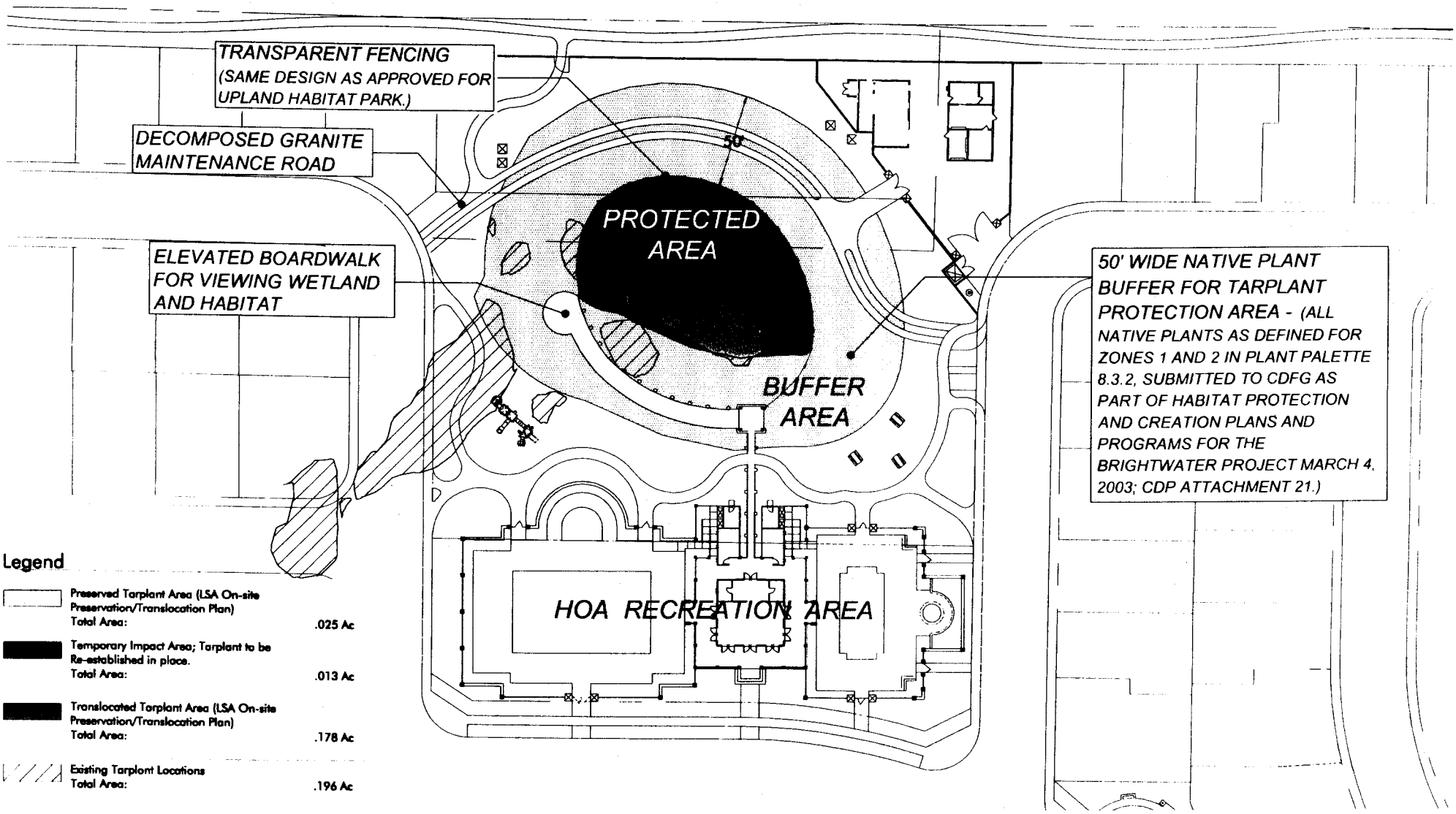

CDP Application 5-04-192

COASTAL COMMISSION

Area "A"-Southern Tarplant
On-Site Preservation/Translocation Plan

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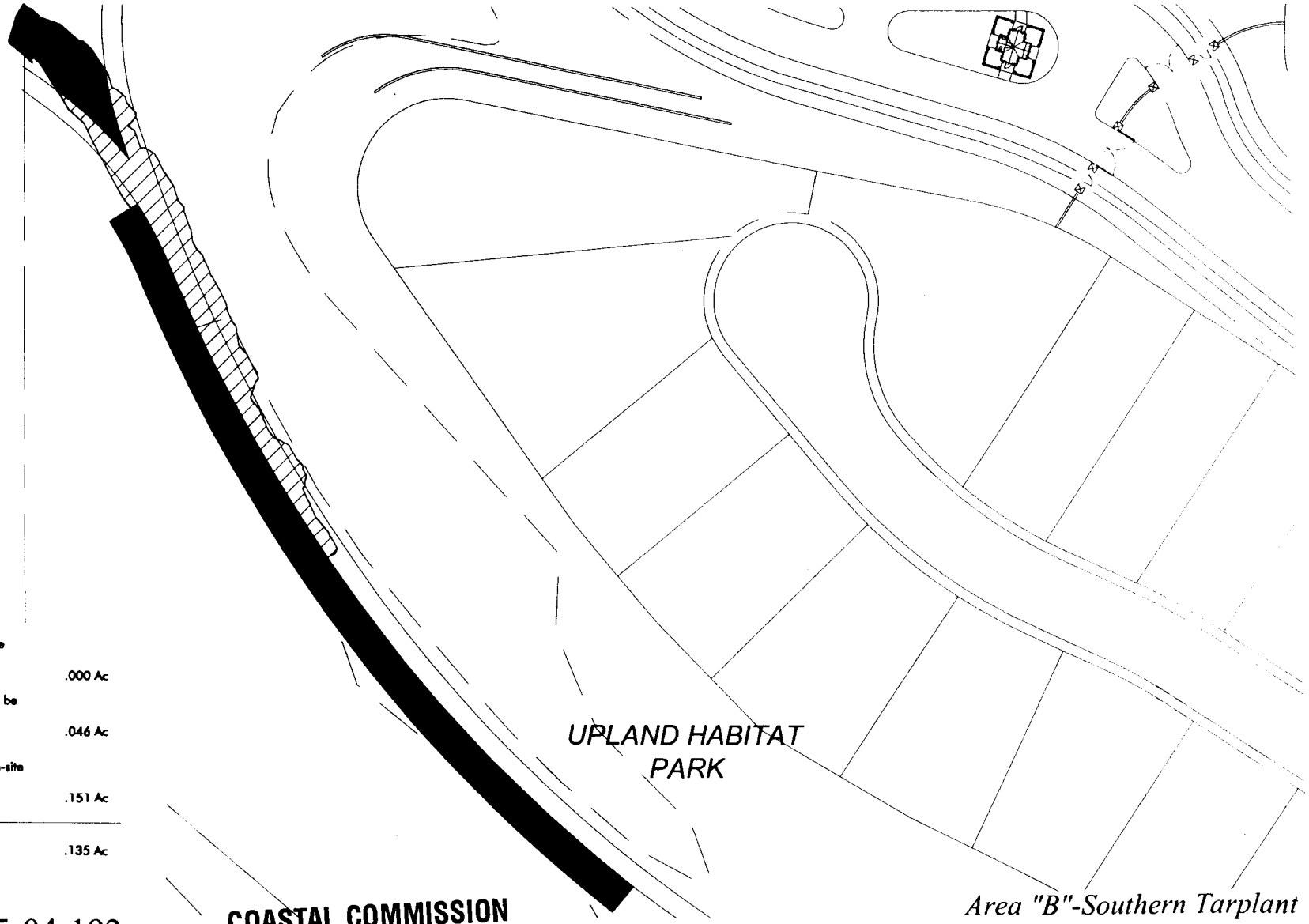

Legend

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	Temporary Impact Area; Tarplant to be Re-established in place. Total Area:	.046 Ac
	Translocated Tarplant Area (LSA On-site Preservation/Translocation Plan) Total Area:	.151 Ac
	Existing Tarplant Locations Total Area:	.135 Ac

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COASTAL COMMISSION

Area "B"-Southern Tarplant
On-Site Preservation/Translocation Plan

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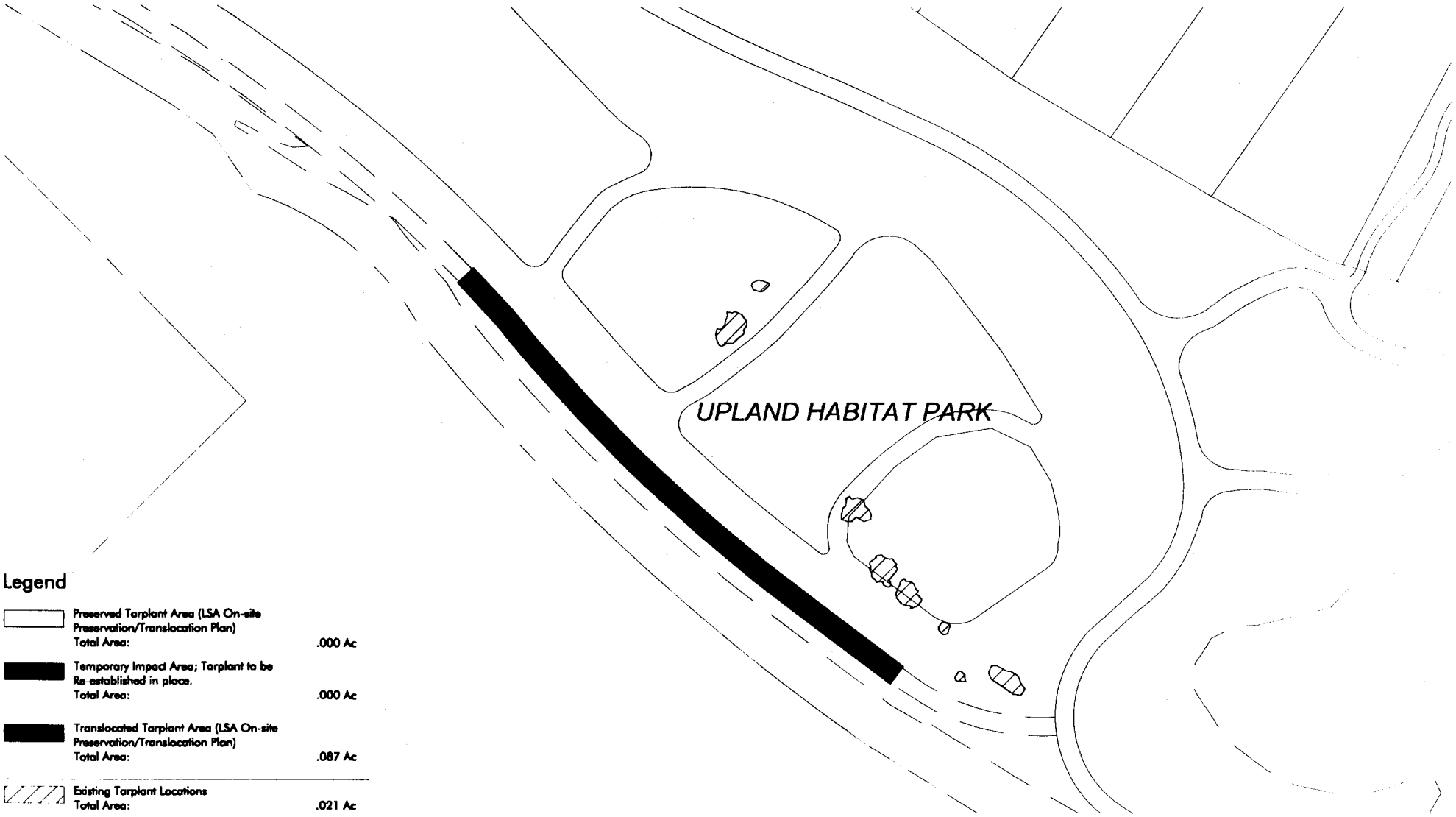

Legend

	Preserved Tarplant Area (LSA On-site Preservation/Translocation Plan) Total Area:	.000 Ac
	Temporary Impact Area; Tarplant to be Re-established in place. Total Area:	.000 Ac
	Translocated Tarplant Area (LSA On-site Preservation/Translocation Plan) Total Area:	.087 Ac
	Existing Tarplant Locations Total Area:	.021 Ac

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HEARTHSIDE HOMES

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Area "C"-Southern Tarplant
On-Site Preservation/Translocation Plan

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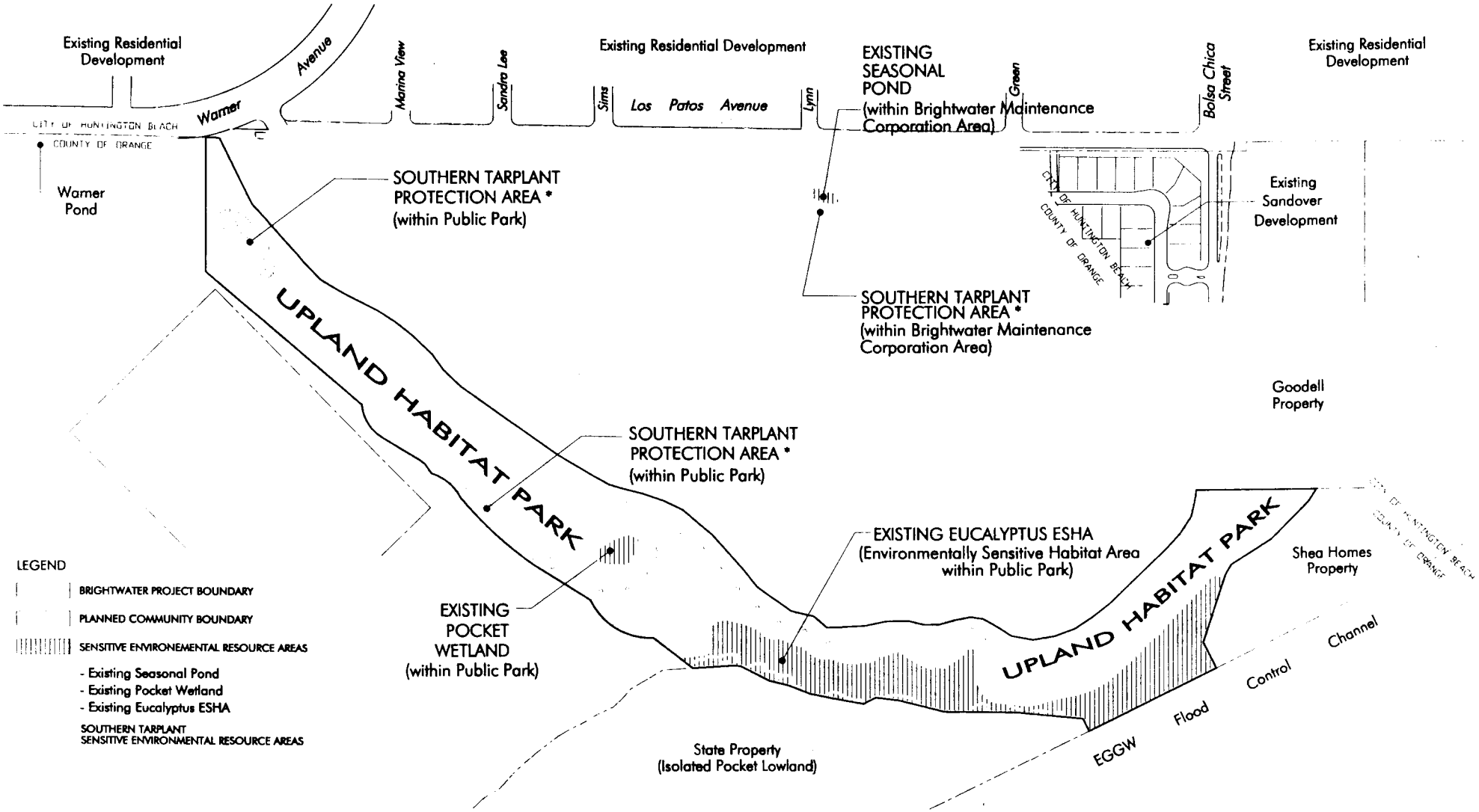
KORMA September 13, 2004



COASTAL COMMISSION

Exhibit "H"

Sensitive Environmental Resource Areas

BRIGHTWATER

Covenants, Conditions, and Restrictions

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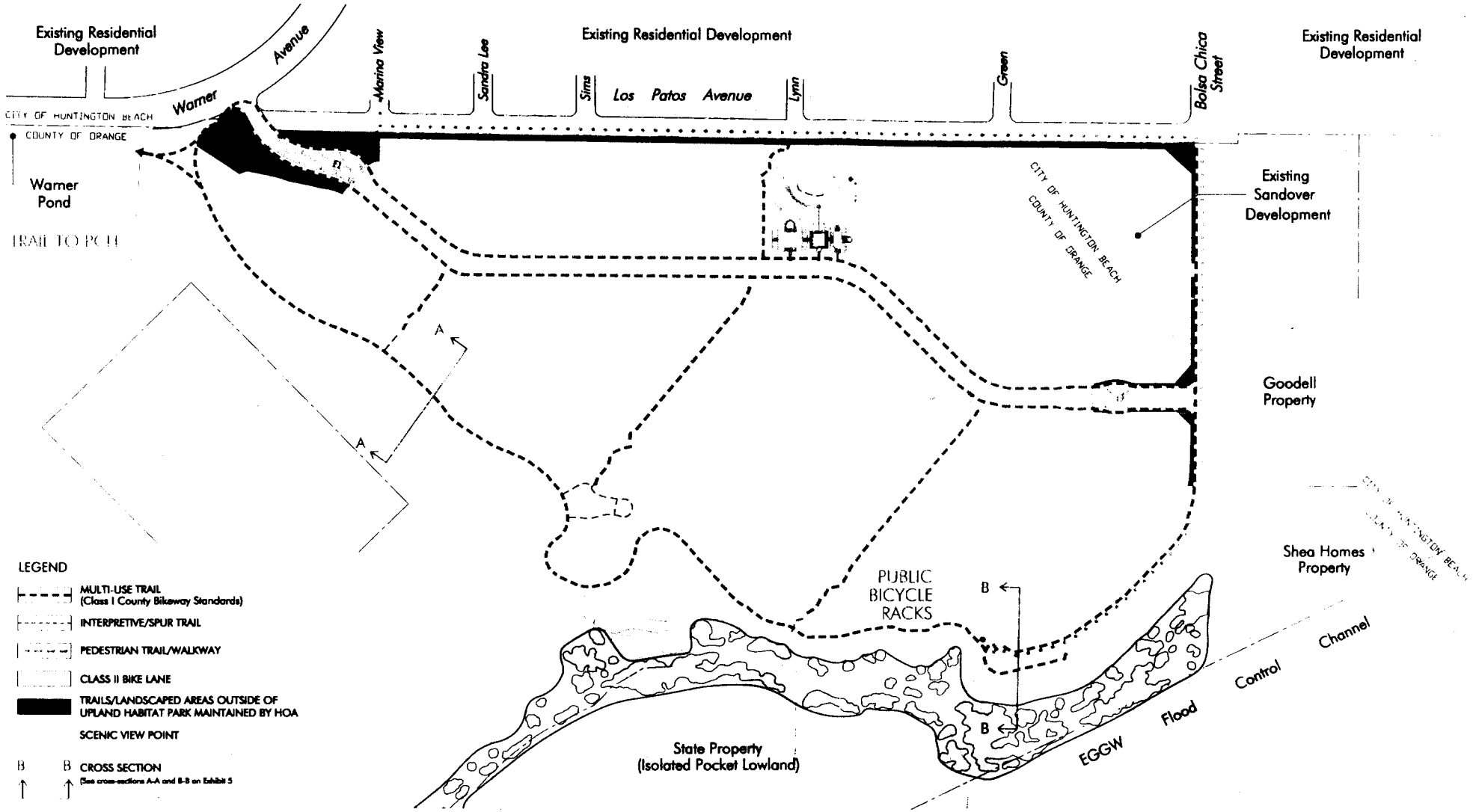

Exhibit 4

Expanded Public Trails Plan/ with Class I Trail Re-aligned away from Eucalyptus ESHA

UPLAND HABITAT PARK

BRIGHTWATER PROJECT

COASTAL COMMISSION

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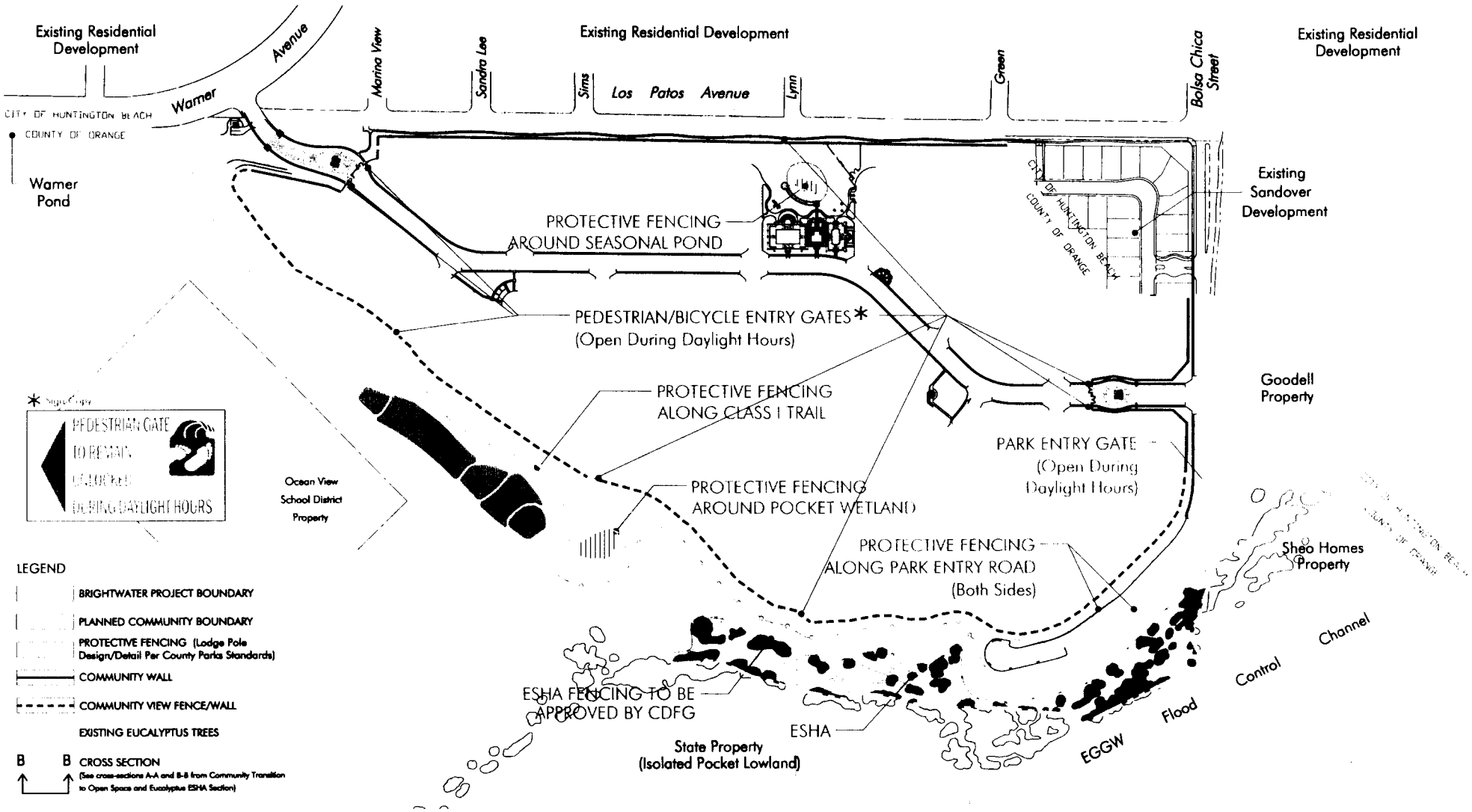

Exhibit 6

Expanded Public Visitation Management Plan

UPLAND HABITAT PARK

BRIGHTWATER PROJECT

COASTAL COMMISSION

EXHIBIT # 22

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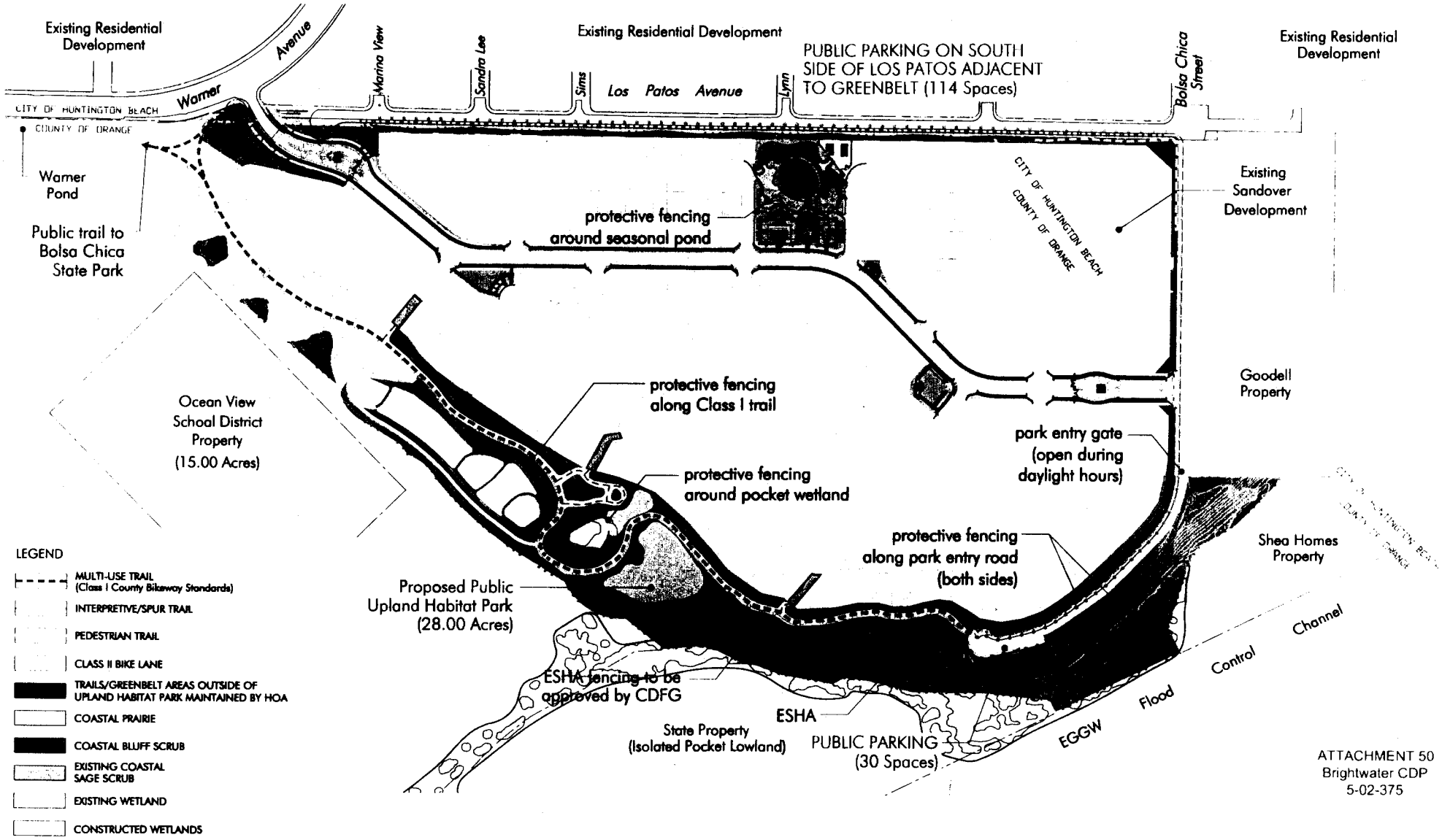


ATTACHMENT 50
Brightwater CDP
5-02-375

UPLAND HABITAT PARK

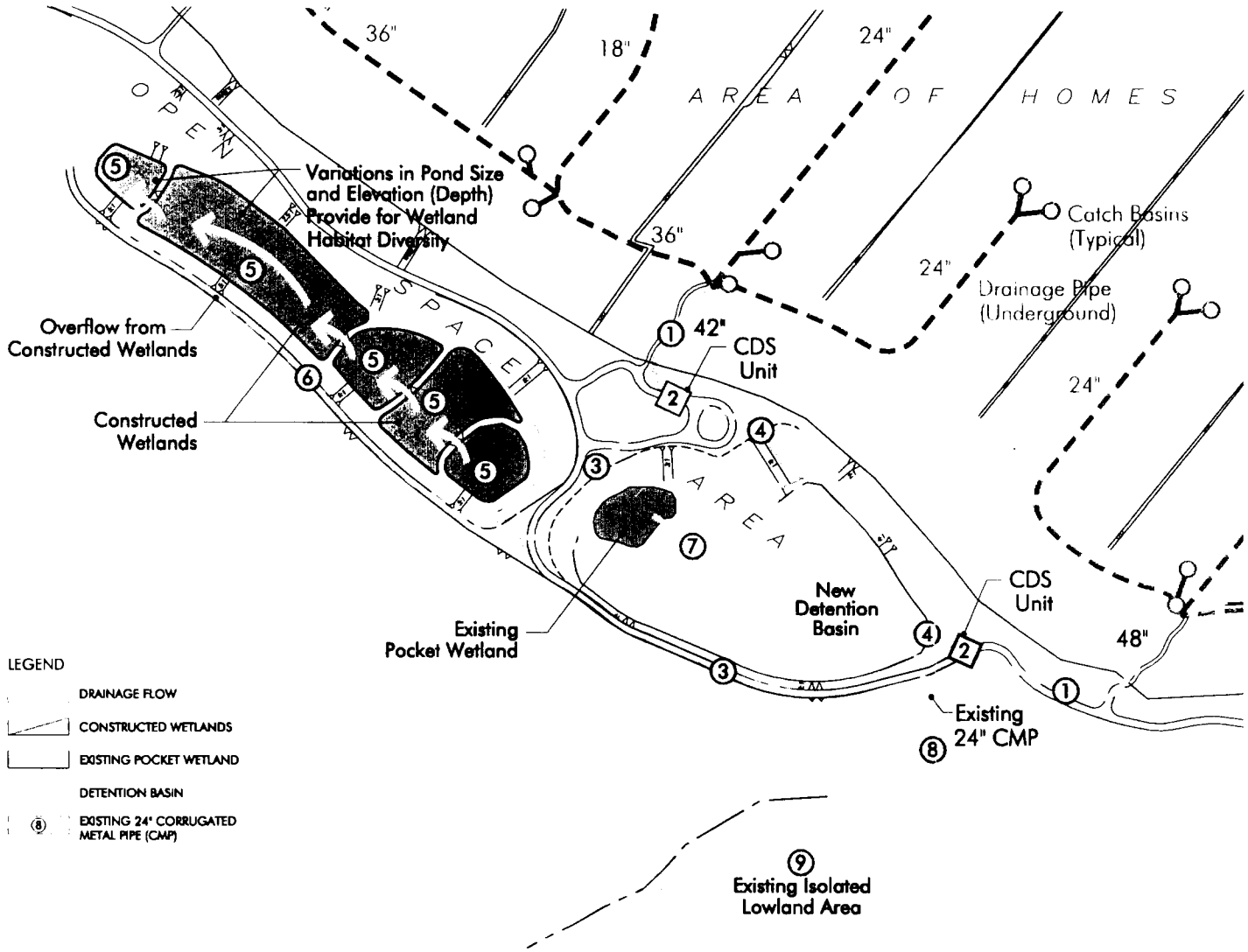
BRIGHTWATER PROJECT

COASTAL COMMISSION

EXHIBIT # 22
PAGE 8 OF 9

Public Parking, Trails, and Habitat Protection Plan

0 150 300 FORMA



1. Rainwater runoff is collected in streets, captured into catch basins, and conveyed by drainage pipes to the created wetland areas.

2. Continuous Deflection Separator Units divert flows from the smallest 85% of storms (0.8" in 24 hours). Through screening and swirl technology, floatable trash and coarse sediments (and the pollutants that adhere to them) are removed from the runoff.

3. Flows from the CDS Units are directed to the Constructed Wetlands.

4. Major storms (greater than 0.8" in 24 hours) bypass the CDS Units and flow directly into the Detention Basin, which is sized to accomodate a 100 year storm.

5. Water entering the Constructed Wetlands progressively fills a series of five freshwater wetland ponds. Pond bottoms vary in elevation thus providing wetlands with different water depth, vegetation, and wildlife habitat opportunities.

6. When the Constructed Wetlands Area reaches capacity, the uppermost pond overflows into a pipe that outlets into an existing Pocket Wetland to the south.

7. When the Pocket Wetland reaches capacity, it overflows into the Detention Basin.

8. The Detention Basin drains [illegible] an existing 24" diameter pipe [illegible] into the Isolated Wetland Area in the Lowland formed by the northerly embankment of the East Garden Grove Wintersburg Flood Control Channel and the southerly toe of Warner Mesa.

9. The Isolated Wetland Area in the Lowland is comparatively large and can contain any dense storm flow from the BrightWater Development, and has no hydrologic connection with Inner or Outer Bolsa Bay, or the Pacific Ocean.

Figure 3

Storm Water Flow within Constructed Wetland Areas

BRIGHTWATER

COASTAL COMMISSION

EXHIBIT # 22

PAGE 9 OF 9

FORMA

0 75 150

Letters from Organizations or Individuals Commenting on Aspects of the Project

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November 20, 2002

RECEIVED
South Coast Region
NOV 26 02
CALIFORNIA
COASTAL COMMISSION

Mr. Peter Douglas
Executive Director
California Coastal Commission
45 Fremont Street #2000
San Francisco, Calif.

Dear Mr. Douglas,

Enclosed you will find the scientific report that the Trust commissioned. The title is *Evaluation of the Biological Significance of the Bolsa Chica Mesa* ,by Reed Noss, Ted Case, and Robert Fisher.

The Trust has had many concerns about the lack of information regarding buffers and other issues at Bolsa Chica. We felt that the concerns needed to be addressed.

We hope that the Commission and staff will find this useful.

Sincerely,

Flossie Horgan
Executive Director

Endorsements:

Amigos de Bolsa Chica
Peninsula Open Space Trust
Sierra Club Angeles Chapter
Wildlands Conservancy
Sea and Sage Audubon
Surfrider Foundation
Coastwalk

City of Huntington Beach
Orange Coast League of Women Voters
Friends of Harbors, Beaches and Parks
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Huntington Beach Tomorrow
Huntington Beach Wetlands Conservancy
California Trails and Greenway Foundation
Rural Canyons Conservancy Fund
Ballona Wetlands Land Trust
Anza Borrego Foundation

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EVALUATION OF THE BIOLOGICAL SIGNIFICANCE OF THE BOLSA CHICA MESA

Reed Noss, Dept. of Biology, University of Central Florida, Orlando, FL 32816-2368, 407-823-0975, rnoss@mail.ucf.edu

Ted Case, Dept. of Biology, University of California – San Diego, LaJolla, CA 92093, case@biomail.ucsd.edu

Robert Fisher, U.S. Geological Survey, 5745 Kearny Villa Drive, Suite M, San Diego, CA 92123, 858-637-6882, rfisher@usgs.gov

EXECUTIVE SUMMARY

The Bolsa Chica wetlands and mesa contain unique ecological values and offer scientific and educational opportunities that are not present elsewhere in southern California. Perhaps most significantly, Bolsa Chica is one of the last remaining areas in coastal southern California with a reasonably intact upland-wetland gradient, which is of high ecological importance and generally lacking in representation in reserves in the region. The Bolsa Chica wetlands and mesa exist in one of the major biological hotspots of the nation and the world. Although the Bolsa Chica ecosystem is not as rich in rare and endemic species – nor as pristine – as some other sites in southern California, it surpasses other areas in its scientific and educational opportunities related to ecological restoration.

Preservation and restoration activities and proposals at Bolsa Chica have focused on the wetlands. We suggest that increased effort be made to protect the bordering mesa. The Bolsa Chica mesa serves as a buffer zone for the wetlands, which have been a focus of considerable public interest and state expenditures and are of extremely high value for birds and other wildlife. The width of upland buffer needed to protect wetlands from changes in water quality from urban or agricultural runoff, or to provide habitat for species that use both uplands and wetlands, have not been studied in this area. However, studies elsewhere have shown that substantial upland buffers – sometimes on the order of 1 or 2 km – are needed to maintain the ecological integrity of wetlands. Moreover, the upland habitat is also used as habitat by wetland species when extreme high water events take place.

In summary, we offer the following conclusions:

- The wetland is a breeding site for the federally endangered species of Snowy Plovers and California Least Terns and the state endangered Belding's Savannah Sparrow. With suitable habitat restoration, and protection from predators, the wetlands could potentially support breeding of Light-Footed Clapper Rails.
- Bolsa Chica provides values that other areas in southern California do not, in particular, an opportunity to protect and restore a relatively intact coastal upland-wetland gradient and, in so doing, provide unique opportunities for science and education.

- The width of terrestrial buffer zone necessarily to protect the ecological integrity of the wetlands of Bolsa Chica cannot be determined from available data. However, consideration of studies conducted elsewhere, combined with the precautionary principle, suggest that the currently undeveloped mesa adjacent to the Bolsa Chica wetlands should be protected in its entirety and restored to natural vegetation.
- Despite being dominated by non-native and ruderal vegetation that developed after agricultural abandonment in the 1970s, the Bolsa Chica mesa has relatively high wildlife values. Several species, among them fence lizards, rattlesnakes, and several raptors, have high population densities. Bolsa Chica may support critical coastal populations for these species in southern California.
- The abundance of several species on the mesa may produce a variety of ecological benefits, including reduced incidence of Lyme disease, reduced nest predation resulting from coyote predation on mesopredators, and reduced fire ant invasion.
- If the mesa, or a significant portion of it, is lost to development, a number of undesirable ecological effects are likely, including reduced buffering of the wetlands and loss of coastal populations of several wildlife species.
- The value of the Bolsa Chica mesa as an educational resource to the human community of the region may be its greatest asset, with attendant social, economic, and scientific benefits.

INTRODUCTION

Biodiversity is not distributed randomly or uniformly across the landscape. Rather, no matter how we measure it, biodiversity tends to be concentrated in certain areas, which conservation biologists call "hotspots." Southern California has been recognized in several analyses as a global hotspot of biodiversity, that is, a region with concentrated occurrences of rare and endemic species and communities whose continued existence is highly threatened by human activities (Noss and Peters 1995, Dobson et al. 1997, Ricketts et al. 1999, Chaplin et al. 2000, Myers et al. 2000).

For example, Chaplin et al. (2000) employed a rarity-weighted richness index to produce a contour map of the United States that highlights areas with large numbers of limited-range species – the peaks of rarity and richness. Southern California, including both coastal and inland habitats, is one of the five highest peaks in the U.S. Similarly, in a global analysis of biodiversity hotspots, Myers et al. (2000) located 25 regions that together comprise only 1.4% of the earth's land surface, but hold an estimated 44% of all species of vascular plants and 35% of all species of vertebrates. Only three regions in North America – the California Floristic Province, Mesoamerica (including tropical regions of Mexico) and the Caribbean (including southern Florida) – are included in these global hotspots.

With financial resources and political capital limited, it makes sense for conservation agencies and organizations to direct their efforts largely to areas where they can get the

most bang for their buck. By definition, hotspots fall into this category. But if southern California as a whole qualifies as a hotspot, how should conservation agencies decide among sites in the region in determining protection and restoration priorities? The conventional approach is to conduct a hotspots analysis at a finer scale, i.e., to look for concentrated occurrences of endemic and other rare species and natural communities within the region. This approach might be supplemented by protecting the most pristine or highest-quality examples of all other communities native to the region. This combined approach is exemplified by the "last of the least and the best of the rest" strategy pursued for many years by The Nature Conservancy (Noss and Cooperrider 1994).

Yet the conventional approach of focusing on hotspots and the highest-quality examples of natural communities would leave many ecosystem types unrepresented in a protected areas network. Some of these ecosystems have suffered major declines, such that few or no high-quality examples remain (Noss et al. 1995). Hence, these ecosystems will be represented in a reserve network only through intensive ecological restoration.

The Bolsa Chica mesa and the adjacent wetlands are a case in point. By southern California standards, Bolsa Chica has relatively few rare taxa and is far from pristine. Nevertheless, it is relatively rich in species – especially birds – and offers one of the last opportunities to represent a relatively intact coastal wetland-upland gradient in southern California. Moreover, it has high archaeological importance, is a significant population reservoir for several native wildlife species, and has enormous scientific and educational value as a land laboratory for restoration ecology. Bolsa Chica should not have to compete for conservation dollars with true hotspots in southern California. It offers a different kind of value and uniqueness and, as such, is in a class of its own.

The following report represents the observations and considerations of the authors, based on 1) a reasonably extensive review of the literature (most of it unpublished) on the Bolsa Chica area; 2) discussions with local experts; and 3) a field visit to the site on June 10, 2002. We recognize several key values, sensitivities, and opportunities for the Bolsa Chica mesa, which we discuss in subsequent sections:

- The importance of uplands contiguous to wetlands
- Current and potential wildlife values of the mesa
- Ecological costs of loss of the mesa
- Opportunities for educational, social, economic, and scientific benefits with restoration of the mesa

THE IMPORTANCE OF UPLANDS CONTIGUOUS TO WETLANDS

One of the fundamental principles of landscape ecology is that the flux of water, nutrients, energy, and organisms across what humans perceive as boundaries between ecosystems is often significant (Forman and Godron 1986, Wiens 1991). The significance extends to the ecology of the individual, recognized ecosystems and to the larger, heterogeneous mosaic – the landscape. Hence, if we are interested in protecting a particular wetland, we must pay attention not only to that wetland, but to the larger

ecological mosaic in which it exists. That is, we must pay attention to ecosystem *context* as well as *content* in determining protection, restoration, and management priorities (Noss and Harris 1986).

The context of the Bolsa Chica wetlands has not received as much attention from planners as the wetland area itself. As noted by Schoenherr (2001), throughout southern California "the land surrounding marshes has largely been ignored in wetland preservation or restoration efforts at great ecological cost." The state agencies and partners have spent many millions of dollars million purchasing the Bolsa Chica wetlands, recognized for their value as habitat for the California least tern and other species, and have proposed to spend millions more on restoration of the wetlands. Yet, these expenditures will be for naught if loss of the adjacent mesa leads to significant and irreversible degradation of the wetlands.

The concept of upland buffer zones to maintain the ecological integrity of wetlands is not new to ecologists. Aldo Leopold (1941) noted that aquatic ecosystems are affected by activities taking place upstream or uphill in the catchment. Since that time, vegetated buffer strips adjacent to aquatic ecosystems have been frequently recommended as a way to reduce the deleterious effects of human land uses. In California, buffer zones have been suggested as a means to protect the upstream portions of catchments that contain aquatic reserves (Moyle and Yoshiyama 1994). In addition, the Statewide Interpretive Guidelines (p. 33) of the Coastal Act state that:

> Wetlands are not isolated, independently functioning systems. Rather, they depend upon and are highly influenced by their associated watersheds and upland transition areas. Therefore, when the Commission determines that any adjacent area is necessary to maintain the functional capacity of the wetland, the Commission will require that this area be protected against any significant disruption of habitat values...These areas may be protected either by inclusion in a buffer area subject to land use restrictions or through provision of a buffer area around the ecological related adjacent area itself, or through other means.

The width of buffer zone needed to protect aquatic ecosystem integrity varies with many factors, including soil type, slope, and vegetation. Therefore, optimum buffer zone width must be determined on a site-specific basis (Saunders et al. 2002). This specificity has hampered the development of regulations to protect buffer zones. Hence, current federal and state regulations in the U.S. protect only the wetland itself or some arbitrarily defined portion of adjacent upland habitat. Ecologically meaningful designation of buffer zones must go beyond regulatory requirements, which generally means that land acquisition (both of uplands and wetlands) is a necessary component of wetlands protection.

One important function of terrestrial buffers adjacent to wetlands is to maintain water quality. Uplands often help filter nutrients such as nitrogen and phosphorous out of surface and subsurface waters draining into wetlands, thus helping prevent eutrophication. A review of Scandinavian studies showed that vegetated buffer zones decreased loads of total phosphorous from agricultural runoff water by 27-97%, with the

percentage retention increasing steadily with buffer zone width (Uusi-Kamppa et al. 2000). The status of particular species in wetlands can indicate whether or not an adjacent terrestrial buffer zone is functioning to maintain water quality. For example, in a North Carolina study, the fiddler crab (*Uca minax*) was discovered to be a good indicator of estuarine health, as it was found only in wetlands with low levels of nitrates due to the presence of adjacent upland buffers (George et al. 2001).

Species that use both aquatic and upland habitats, such as amphibians, turtles, and a variety of birds and mammals, have been used in several recent studies to determine desirable buffer widths. For example, Burke and Gibbons (1995) recommended terrestrial buffer zones of at least 275 m around an elliptical wetland to conserve populations of aquatic turtles. Dubois (1991) suggested that a buffer zone 100-500 m wide would protect the majority of amphibians using a watercourse. A summary of literature from many regions on terrestrial habitat use by pond-breeding amphibians concluded that a buffer zone of 164 m would protect 95% of the population of most species (Semlitsch 1998). However, the author suggested caution in applying this standard to more vagile species, which may require wider buffers. Moreover, because habitat conditions around most wetlands are not uniform, the directional component of animal movements should be considered in designing buffer zones, rather than simply drawing a circle of some width around a wetland (Dodd and Cade 1998).

Even species that are almost entirely marsh species (i.e. clapper rails) need the terrestrial habitat during times of high water levels. They often retreat to the edge of the uplands when the marsh is flooded and are at risk to predation by house cats and other mesopredators if there is no upland habitat refugium available.

Findlay and Houlahan (1997) summarized their findings on the effects of surrounding land use on species richness of plants, amphibians, reptiles, birds, and mammals in Ontario wetlands as follows:

> ...our results indicate that the strongest relationships between species richness and both road density and forest cover occur over distances up to 1000 to 2000 m from the wetland edge. Thus, we conclude that wetland policies, which either do not regulate adjacent land use or regulate only a narrow buffer zone around the wetland edge, are unlikely to adequately protect wetland biodiversity from certain types of human activities.

To our knowledge, scientific studies documenting the use of adjacent uplands by wetland-dependent species have not been conducted at Bolsa Chica. It is likely that critical ecological interactions such as pollination, seed dispersal, and predator-prey relationships depend on a reasonably intact upland-wetland gradient, yet these interactions have not been studied here or, very thoroughly, in similar systems. A precautionary approach in the absence of site-specific data is to consider the results from studies elsewhere and apply biologically conservative standards (i.e., risking to err on the side of the buffers too wide, rather than too narrow). Given the increasing evidence that very wide upland buffer zones are often required to maintain the ecological integrity of

wetlands and other aquatic ecosystems, we believe that the narrow (on the order of 100 m) buffer zones proposed by some people for Bolsa Chica are unlikely to be sufficient. Therefore, we recommend that the presently undeveloped mesa upslope from the wetlands be protected in its entirety and restored to natural vegetation.

CURRENT AND POTENTIAL WILDLIFE VALUES OF THE MESA

Our field observations confirmed previous reports that the mesa is dominated by annual grassland (predominantly non-native species) and ruderal (weedy) habitats, which replaced the agricultural fields that dominated the mesa until the 1970s. There is little native vegetation in the study area (LSA Associates 2001). However, the non-native habitats do hold value for wildlife. For example, the eucalyptus grove serves as nesting and roosting habitat for several species of raptors (e.g., nesting by the White-tailed Kite, a Species of Concern in California) and has been designated an Environmentally Sensitive Habitat Area by the California Department of Fish and Game, as has Warner Avenue Pond.

Birds are the best known species at Bolsa Chica, with abundant observations through Christmas Bird Counts and other amateur surveys. The bird species of greatest concern at Bolsa Chica are the wetland-breeding (1) western snowy plover, federally listed as threatened, which nests at South Island and the diked wetlands; (2) the California Least Tern, federally and state listed as endangered, which nests at South Island and forages in shoreline and open water habitats; and (3) the Belding's Savannah Sparrow, state-listed as endangered, which nests in pickleweed in the salt marshes (Chambers Group 2001). All of these species are shoreline and wetland birds, not birds of the uplands. Nevertheless, protection of the mesa undoubtedly would provide a buffer for these species against disruptive human activities and predation. Furthermore, with suitable habitat restoration, and protection from predators, the wetlands could potentially support breeding of Light-Footed Clapper Rails which breed nearby in the upper Newport Bay and the Seal Beach Wildlife refuge (Chambers Group 2001).

Generally, the wildlife values of the Bolsa Chica mesa, as opposed to the wetlands, have been little studied. Hence, we had to rely on a sparse gray (unpublished) literature and our own limited field observations to draw some tentative conclusions. For the most part, we were quite impressed with the wildlife values of the mesa, despite the disturbed and ruderal nature of the site. It is likely that the populations of several species on the mesa are regionally significant, such that the mesa potentially functions as a source population that sustains smaller, sink populations in the region (albeit, detailed demographic studies would be required to test this hypothesis). Source populations are defined by average annual reproduction exceeding mortality, such that the population grows and excess individuals (generally young) disperse out to other areas. Some of these other areas are sinks, where average annual mortality exceeds reproduction. By definition, sink populations are maintained only by immigration of individuals from sources (Pulliam 1988).

Among the species on the Bolsa Chica mesa with noticeably high population densities for the southern California coastal region are western fence lizard, Pacific rattlesnake, fiddler crabs (at Warner Pond), black-tailed jackrabbit, and several raptors. These high population densities are significant beyond the issue of viability for the species concerned. For example, fence lizards and alligator lizards are alternate hosts for the ticks that carry Lyme disease, yet they possess a chemical in their blood which kills the spirochete that causes the disease (Lane and Quistad 1998, Kuo et al 2000). A dense population of fence lizards may therefore reduce the incidence of Lyme disease in mammals, including humans. Raptors, rattlesnakes, and coyotes control populations of ground squirrels, which might otherwise expand to a level where they affect vegetation cover and increase erosion and exotic plant invasions. Ground squirrels also are reservoirs for plague and thus at high densities are a human health risk.

The red fire ant, *Solenopsis invicta*, has recently invaded southern California and has been spreading in out all directions, although it is still largely confined to urbanized or agricultural habitats which are more mesic. If the mesa were to be developed for housing, the increased irrigation and landscaping would favor fire ants. *Solenopsis invicta* has been implicated in nest failure for at least 7 species of birds and 9 species of reptiles (see Table 3 of Holway et al. 2002). Changes in arthropod communities associated with ant invasions may also contribute to declines of insectivorous vertebrates including loggerhead shrikes (Lymn and Temple 1991, northern bobwhites (Allen et al 1995), and horned lizards (Donaldson et al 1994, Suarez et al 2000, Fisher et al. 2002).

Because rodents are regular nest predators of ground-nesting birds, control of rodents by predators may also aid birds nesting within the Bolsa Chica wetlands, as well as on the mesa. Similarly, coyotes on the mesa likely control the opportunistic mesopredators (e.g., feral cats, raccoons, opossums, skunks, foxes) that have been shown to be serious predators of songbirds in southern California, to the extent that the local diversity of songbirds declines when they are not controlled (Soulé et al. 1988, Crooks and Soulé 1999). When coyote visitation to Seal Beach (or Anaheim Bay) National Wildlife Refuge was interrupted in the 1970s, the abundance of mesopredators (especially non-native red foxes) increased greatly, leading to heavy predation on Light-Footed Clapper Rails and other wetland birds (Żembal 1993, California Coastal Commission 2000).

Similarly, coastal southern California has seen an explosion in the population of American Crows (Unitt 1984, 2002), which are favored with increased urbanization. American Crows are known egg predators of least terns and other ground-nesting birds (Kruse et al 2001). Also, crows are able to cross the water barriers at Bolsa Chica to reach the small man-made islands where tern breeding is concentrated.

ECOLOGICAL COSTS OF THE LOSS OF THE MESA

It is unlikely that any species would go extinct globally as a result of the loss of the mesa. Only one sensitive plant species (southern tarplant, *Hemizonia parryi* ssp. *australis*) is known to occur in the area at present. This subspecies is considered imperiled (S2) by the California Natural Diversity Data Base. No species of plant or animal listed as threatened

or endangered by the U.S. Fish and Wildlife Service or the State of California is known to occur as a breeding population on the mesa at present (LSA Associates 2001, Chambers Group 2001). Nevertheless, the wildlife and biodiversity values reviewed in the preceding section would be greatly reduced if loss of habitat proceeds. It is not unlikely that populations of some species that we hypothesize are regional sources could be converted to sinks or go locally extinct. If so, this change could have regional-scale repercussions, in that other populations that are currently sinks would disappear altogether.

Most obvious, perhaps, if habitat take proceeds on the mesa, the wetlands that have been the focus of previous conservation efforts will be inadequately buffered. Nutrient levels can be expected to increase, causing eutrophication. The birds of concern in the wetlands, such as the western snowy plover and California least tern, can be expected to show declines due to increased nest predation and disturbance by human activities.

OPPORTUNITIES FOR EDUCATIONAL, SOCIAL, ECONOMIC, AND SCIENTIFIC BENEFITS WITH RESTORATION OF THE MESA

One of the potentially greatest values of the Bolsa Chica mesa is as an educational resource to the human community of Orange County and beyond. Along with the educational use of the area will come social and economic benefits in the form of employment in educational and service sectors. The restoration of the mesa will also provide scientific benefits for the young but rapidly growing field of restoration ecology.

Natural areas, protected for their biodiversity values and pristine qualities, offer well-documented educational opportunities. However, by definition such areas are sensitive to human uses, so cannot tolerate high densities of students. Bolsa Chica mesa, because it is not pristine, has a relatively higher capacity for educational uses. Moreover, restoration experiments open to educational use, besides individual graduate student research, are extremely rare. In Bolsa Chica, there is an opportunity to engage students from primary through graduate education in an ongoing experiment in restoration ecology. We are not aware of anyplace in southern California better suited for this educational opportunity.

The scientific value of the restoration on the Bolsa Chica mesa and wetlands is considerable. There are a variety of places in southern California with ongoing restoration of uplands or wetlands. Nevertheless, we know of no place better than Bolsa Chica for studying alternative restoration approaches along an upland-wetland gradient. We caution, however, that restoration and educational activities on the mesa and wetlands should be conducted prudently, so as to not diminish the biological values of the area. For example, restoration should be phased in slowly, site by site, to minimize disturbance to human-sensitive wildlife (e.g., coyotes, which require secure den sites). Such species should be provided with refugia in space and time where humans are not regularly present.

Adding to the educational and scientific values of the Bolsa Chica mesa is its archaeological significance. Indeed, site CA-Ora-83 is recognized as one of the most

important archaeological sites remaining in southern California, and has been recommended for the National Register of Historic Places. Hence, the Bolsa Chica mesa provides a unique opportunity to educate students on cultural as well as natural history. However, we were distressed to observe the highly intensive archaeological excavations currently taking place on the mesa, without concomitant reports of findings and specimens available to the public for research and education.

CONCLUSION

We summarize our findings in this report as follows:

- The wetland is a breeding site for the federally endangered species of Snowy Plovers and California Least Terns and the state endangered Belding's Savannah Sparrow. With suitable habitat restoration, and protection from predators, the wetlands could potentially support breeding of Light-Footed Clapper Rails.
- Bolsa Chica provides values that other areas in southern California do not, in particular, an opportunity to protect and restore a relatively intact coastal upland-wetland gradient and, in so doing, provide unique opportunities for science and education.
- The width of terrestrial buffer zone necessary to protect the ecological integrity of the wetlands of Bolsa Chica cannot be determined from available data. However, consideration of studies conducted elsewhere, combined with the precautionary principle, suggest that the currently undeveloped mesa adjacent to the Bolsa Chica wetlands should be protected in its entirety and restored to natural vegetation.
- Despite being dominated by non-native and ruderal vegetation that developed after agricultural abandonment in the 1970s, the Bolsa Chica mesa has relatively high wildlife values. Several species, among them fence lizards, rattlesnakes, and several raptors, have high population densities. Bolsa Chica may support critical coastal populations for these species in southern California.
- The abundance of several species on the mesa may produce a variety of ecological benefits, including reduced incidence of Lyme disease, reduced nest predation resulting from coyote predation on mesopredators, and reduced fire ant invasion.
- If the mesa, or a significant portion of it, is lost to development, a number of undesirable ecological effects are likely, including reduced buffering of the wetlands and loss of source populations of several wildlife species.
- The value of the Bolsa Chica mesa as an educational resource to the human community of the region may be its greatest asset, with attendant social, economic, and scientific benefits.

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RECEIVED
South Coast Region
CALIFORNIA
COASTAL COMMISSION

Bolsa Chica Land Trust
5200 Warner Avenue, Suite 108
Huntington Beach, CA. 92649-4029

January 19, 2004

Teresa Henry
District Manager
South Coast District Office
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, Ca. 90802-4416

RECEIVED

Subject: Brightwater Development (CDP Application No. 5-02-375)

Dear Ms. Henry:

Thank you for the opportunity to comment on the Coastal Development Permit for the Brightwater Development Project in Orange County, Ca. (CDP Application No. 5-02-375) These comments are submitted on behalf of the Bolsa Chica Land Trust.

Background

The proposed Coastal Development Permit (CDP) would allow the development of 379 residential units, an underground water reservoir, and recreation/conservation open space on approximately 105 acres on the upper bench of the Bolsa Chica Mesa in Orange County, California. In July 2002, the Orange County Board of Supervisors approved a Master Site/Area Plan, Project Site Development Plans, and Vesting Tentative Map No. 15460 in furtherance of the proposed development. At that time, the Board of Supervisors also certified Subsequent Environmental Impact Report (SEIR) No. 551, which is an attachment to the Coastal Development Permit application submitted by the applicant, Hearthside Development.

Over the years, numerous coastal planning efforts have ensued for the Bolsa Chica. Most recently, in November 2000, the Coastal Commission approved a modified Local Coastal Program (LCP) for the entire Bolsa Chica Mesa This approval permitted development of the upper bench of the Bolsa Chica Mesa while preserving the lower bench as open space. In its approval, the Commission recognized the value of resources on the upper bench, but weighed impacts on these resources against the benefit to be gained from preserving the lower bench. The County of Orange failed to accept the LCP as approved by the Commission, and the LCP approval therefore became of no effect

Current Application

The Current application fails to answer the question: What is the true scope of the proposed project? The applicant is now apparently seeking to gain approval of a development plan for just the upper bench, although the proposed project is located on legal lots that extend onto the lower bench. Because, on the one hand, the application only seeks approvals for upper bench development, but, on the other hand, the developer has for years consistently in court (including most recently in Signal Landmark; Hearthside Homes, Inc. v. California Coastal Commission and County of Orange, Superior Court of California, County of San Diego, Case No. GIC 764965), in public, and before this Commission repeated its intention to build on the entire Mesa, the Land Trust, the public and the Commission are left to wonder -- what exactly is the project here?

Lucy Dunn, executive vice president of Hearthside Homes, the project developer, was quoted in a *Los Angeles Times* discussion of Brightwater on August 14, 2001 stating: "We're not conceding the lower [tier]...This is a way to move forward with part of the project".

The developer advertises in its Petition in the above-referenced action that the entirety of the Mesa "is the ideal place for new development." (Petition p. 10 – emphasis in original)

The developer asserts many reasons why development on the entire mesa is so "ideal." Here excerpted are just two:

> it is ideal because:
>
> - the mesa is physically suitable, being comprised of two relatively flat plateaus which will require little grading...
> - Access is outstanding: the mesa fronts on a major arterial highway (Warner avenue) which intersects with pacific coast highway . . . " (Petition at p. 10-11)

Further, Orange County in its active support of the developer's claims in the above-referenced action states:

> The County remains committed to that program [the development for the Mesa reflected in its rejected LCP] and is ready to proceed with it." (Response of Real Party County of Orange to Demurrer, Nov. 26, 2001, p. 3)
>
> Maintaining the development as planned [meaning, as set forth in its rejected LCP] is important to the County. (Response of Real Party County of Orange to Demurrer, Nov. 26, 2001, p. 5)

Elsewhere, the County reiterates its knowledge that the developer wants to do more on the Mesa than build "Brightwater" and reiterates that it too wants more than the analyzed project to be built on the Mesa.

> The Commission wants severe restrictions on the use of the Mesa. The County wants homes there. (Response of Real Party County of Orange to Demurrer, Nov. 26, 2001, p. 6)

Thus, both the applicant and Orange County, which is the local planning agency, have verbalized a clear intention to develop homes on both the upper and lower benches of the Bolsa Chica Mesa.

As additional evidence of the true extent of the actual project, the developer sought and obtained, over the objection of the City of Huntington Beach and the Land Trust, Public Utilities Commission approval to extend a nearly seven mile long water and wastewater pipeline weaving through several jurisdictions (Seal Beach, Westminster and Huntington Beach) to serve over one thousand proposed homes on 183 acres; meaning, the entire mesa. (PUC Decision 01-02-043) Key to the PUC's decision to permit such a radical step (when the City of Huntington Beach literally has an available pipeline right across the street from the Mesa) was that

> [a]lthough the Coastal Commission's approval of the Bolsa Chica LCP significantly reduced the allowable acreage for the development, the number of residential units approved remained the same. Thus, the pipeline extension project continues to be appropriate to meet the public need for water.[1]

The current application apparently contemplates a reduced reservoir, from about 4 million gallons designed to serve over one thousand homes, to about 2 million – designed to serve 387 homes? This "reduction" is further evidence that the application as submitted constitutes only "part of the project", just as Lucy Dunn concedes.

Finally, the CDP application maps and makes reference to Areas 3A, 3B, 4B, 7-1 to 7-4 and 8. What of Areas 1, 2, 5, and 6? Aren't they "part of the project"? What of plans for these areas? Are they located on the lower bench?

As if in answer this last question, SEIR 551 asserts (P.2-11) that "No development is proposed on the lower bench or in the Bolsa Chica Lowlands." While this statement may be explained away as applicable only to the immediate time frame, other materials submitted by the applicant imply the precise opposite--that the developer intends to preserve the lower bench as open space.

For example, the May 1, 2003 Translocation Plan for Southern Tarplant, Brightwater Development Project, prepared by LSA Associates, Inc. (Brightwater CDP Attachment 23) states that

> this plan provides for the translocation of the southern tarplant from within the limits of the proposed development area to an identified open space area to be ***permanently preserved on the lower portion of the Bolsa Chica Mesa*** [emphasis added]

---

[1] Indeed, if it does not so clarify that point, at a minimum, the assumptions underlying the PUC's approval of the pipeline are moot, and a new PUC proceeding is required

How can it be asserted that open space for tarplant translocation will be "permanently preserved on the lower portion of the Bolsa Chica Mesa" when the lower portion of the mesa is not even included in this application? Does the applicant intend to commit to preservation of the lower bench as a part of this application? If that were indeed the case, the developer—and the Brightwater project application-- would certainly have the support of the Bolsa Chica Land Trust.

In the meantime, however, unless and until the developer definitively clarifies its intent as to the lower bench, the Commission cannot approve the proposed permit for the simple reason that it does not know what it is approving: A stand alone project that preserves the lower bench and brings final repose to Bolsa Chica planning or just the first phase of a broader mesa development that will raise the exact same issues as the prior LCPs?

The LSA Associates, Inc. Analyses of Potential Effects of Development of the Upper Terrace of Bolsa Chica Mesa on Avian Predation on Nesting Waterbirds in the Bolsa Chica Wetlands (Brightwater CDP Attachment 20) repeatedly refers to "a slight loss of habitat on the upper mesa" for raptors that "probably would be inconsequential" in its effects on predation of nesting waterbirds at Bolsa Chica. The study concludes that:

> Residential development of the upper terrace of Bolsa Chica Mesa would result in lost habitat for some of the predatory species and enhanced habitat for others...the proposed development on the Bolsa Chica Mesa is not expected to have a significant effect on nesting waterbirds in the wetlands.

This flies in the face of conclusions reached by the several raptor authorities reporting to the Coastal Commission in November 2000, as discussed below. The only way such a statement makes any sense at all, when considered in the light of the recognized authorities, is if the stated "residential development of the upper terrace" constituted the whole of any development ever contemplated for the entire Bolsa Chica Mesa. Is that what the applicant's biologist was given to understand?

The tract map itself appears to anticipate no future development of the lower bench. As currently proposed, the Brightwater project would provide no connection to the lower bench. No streets within the Brightwater project appear designed to extend to the lower bench. Thus, access would ostensibly be limited to Warner Avenue.

As stated in the attached October 4, 2001 letter from Howard Zelefsky, Huntington Beach Director of Planning

> The City has always maintained the position that only one vehicular access point from any development in the Bolsa Chica area to Warner Ave. would be acceptable. This reduces the points of ingress and egress along Warner Ave. minimizing impacts to traffic flow on this major arterial. As proposed, development on the upper mesa would have one connection to Warner Ave. and

> any future development on the lower mesa would have another connection. This is unacceptable...

In fact, public safety considerations require multiple access points for any residential development consisting of more than a very few homes. Thus, it is likely that residential development of the lower bench would require *more* than one additional connection to Warner Avenue. This would be difficult due to the location of Warner Pond adjacent to the road along a substantial portion of the lower bench. This is further complicated by the grade and the curve of the road.

On the other hand, could the applicant be anticipating provision of access to the lower bench via Bolsa Chica Road? Will the areas now designated for public parking, buffers for environmentally sensitive habitat areas and even the sensitive habitat areas themselves eventually be sacrificed to provide access to the lower bench? Will the proposed "multi-use trail" now planned for pedestrian and bicycle use be widened to serve as an access road for development on the lower bench?

Such a scenario is particularly jarring when one considers the following statements in SEIR 551 regarding a perimeter road which would, to a large extent, follow the same general alignment as any accessway from Bolsa Chica Road to the lower bench.

> In its recommendations on a Bolsa Chica LCP in November, 2002, the Coastal Commission proposed a similar [perimeter] road for the purpose of maximizing public access to the perimeter trail, to separate private residential land use from public areas, to preserve scenic views of the lowland and the ocean, and to allow for public safety and emergency vehicle access to the public areas, with parallel parking permitted along the road.
>
> Implementation of the perimeter access road will introduce a public road adjacent to the Eucalyptus ESHA and the pocket lowlands, resulting in greater noise and light intrusion impacts, and leaving less area for trails and pedestrian staging. Unfettered public access to the perimeter open space areas will also adversely impact the native plant revegetation that will take place on the perimeter of the project. Additionally, the size and use of the constructed wetlands would likely increase because of more runoff from a larger impervious surface area along the transition area. The impacts associated with the perimeter access road are more significant than the preferred circulation system for the proposed project, and the proposed project's circulation system will better meet the objectives identified by the County (and conceivably by the Coastal Commission). Therefore this project alternative will not be further analyzed.

One is left to wonder how, then, the applicant imagines access to any future development of the lower bench will be accomplished. This points up the folly of considering what is essentially one project in such a piecemeal fashion.

Balancing of Resource Needs

Planning for the Bolsa Chica Mesa as one entity--instead of using the present piecemeal approach-- would allow for greater balancing of environmental impacts and benefits. This could result in improved protection of coastal resources. As stated in Section 30007.5 of the Coastal Act:

> The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.

The Commission cited this policy in their November 2000 Coastal Commission staff report for the Bolsa Chica Local Coastal Program Land Use Plan Amendment No. 1-95/Implementing Actions. This policy created the framework for the Commission's decision to concentrate development on the upper bench of the Bolsa Chica Mesa. The negative effects on resources on the upper bench were balanced by the benefits to be gained by preserving the large intact area of the lower bench. For example:

> Concentrating residential development on the upper bench will have some adverse biological impacts...However...concentrating development on the upper bench of the mesa in close proximity to existing developed areas and conserving the lower bench of the mesa is more protective overall of significant coastal resources than protecting each specific habitat area in conjunction with development of the entire mesa.

And, as an explanation for requiring only minimal buffers:

> The 100 foot buffer and the fifty foot buffers are appropriate in this case for the following reasons. The Commission finds that residential development must be concentrated on the upper bench of the Bolsa Chica Mesa. Limiting residential development to the upper bench preserves the lower bench as a component of the overall Bolsa Chica wetland/upland ecosystem. The preservation of the lower bench as natural open space is vital to the functioning of the existing ESHA resources which are principally found on the lower bench. Though buffers on the upper bench will not totally eliminate the adverse impacts of the residential development, they will still minimize the disturbance that would be created...

This same balancing of resource impacts and opportunities was cited by Chuck Damm, Senior Deputy Director of the Coastal Commission, in his review of planning efforts for the Bolsa Chica speaking before the Commission on November 16, 2000.

> Back in early 1996 The situation then was staff was recommending that 900 acres of lowlands be dedicated We were recommending that the residential development be clustered on the entire mesa, upper bench, and lower bench, but we were doing so because we were recommending that there be 900 acres of lowlands dedicated...
>
> It should not be interpreted that meant staff did not feel that there was no environmental issue associated with the Bolsa Chica Mesa. In fact, the record will support that there was much testimony...as to the importance of the upland habitat on the Bolsa Chica Mesa... The staff simply felt, at that time, it was not reasonable to require further clustering of the development when we were already asking that the residential development in the lowlands be clustered on the mesa.
>
> This LCP also required the major property owner... to spend approximately $50 million on the actual wetland restoration for the lowlands.

Subsequently, the lowlands were purchased by the State of California. In addition, the principal property owner, now Hearthside Homes, successor to the Koll Company which was then the applicant, was relieved of the financial obligation for wetland restoration.

Thus, under conditions as they exist today, any balancing of resource values must be limited to that property the applicant or its predecessor, Koll, has not already sold. This would include the entire Bolsa Chica Mesa. However, the applicant has attempted to bisect consideration of the habitat units comprising the Bolsa Chica Mesa obviating the opportunity for balancing of resource values and resulting in a decidedly inferior development proposal.

Biological Resources and Coastal Act Requirements

Section 30240 of the Coastal Act requires:

> (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
>
> (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas

As noted by Steve Rynas, Coastal Commission Orange County Area Supervisor, in a January 17, 2002 letter to Grace Fong of Orange County Environmental and Project Planning Services Division:

> The fundamental problem with the preferred alternative of the DSEIR [Brightwater] is that it is inconsistent with Section 30240 of the Coastal Act, which protects environmentally sensitive habitat areas (ESHA)

Comments submitted to the Commission from the scientific community during the Bolsa Chica LCP process document that the Bolsa Chica Mesa and the adjacent lowlands constitute one integrated ecosystem. Consequently specific areas can not simply be protected based on one defined biological issue such as preservation of the Eucalyptus grove for the benefit of raptors. Therefore, to maintain the functionality of the Bolsa Chica Mesa as an integrated ecosystem (large enough to provide a wide range of habitat values) a sufficient area must be protected as natural open space. Furthermore, current research dictates that the area to be preserved for conservation must be connected to larger areas of habitat (such as the lowlands), that it should not be fragmented, and that it should be concentrated to minimize the perimeter to area ratio.

It is worth noting, based on this scientific evidence, that the Commission concluded, in its November 2000 decision on the Bolsa Chica LCP, that residential development must be concentrated on the upper bench of the Bolsa Chica Mesa in order to preserve the lower bench as conservation open space.

Commission staff strongly recommends that the FSEIR incorporate the Commission's decision on the Bolsa Chica LCP in its alternatives analysis. We note that it is an alternative that could be found consistent with the Coastal Act specifically, this new alternative requires concentration of residential development on the upper bench, with the lower bench preserved as open space within one comprehensive development plan. Moreover, this alternative must include provisions that no development can occur on the Mesa in the absence of a conservation plan for the entire Mesa. The Commission's environmental review process has been certified by the Secretary of Resources as functionally equivalent to the EIR process. Consequently, based on Section 21080.5(d)(2)(A) of the California Public Resources Code, the Commission cannot approve or adopt a proposed activity if there are feasible alternatives or feasible mitigation measures which would substantially lessen any significant adverse effect the activity may have on the environment. Based on the policies of the Coastal Act, concentrating residential development on the upper bench in order to preserve the lower bench as conservation constitutes a feasible alternative to the currently proposed project, containing mitigation that would substantially lessen any significant adverse effects on the environment.

Habitat Buffers

The proposed project provides fragmented habitat, habitat that generally maximizes the perimeter to area ratio due to its elongated configuration, minimal buffers and buffers of questionable value due to the placement of recreational uses in the buffer areas. The importance of adequate buffers has been repeatedly reiterated and cannot be reiterated too often.

As stated by Peter Bloom in his October 20, 2000 letter to Susan Hansch, Costal Commission Chief Deputy Director:

> The rigors of migration are hard on birds and in the case of predatory birds, being disturbed prematurely several times before capturing prey after hunting for several hours, can in the long term be terminal if it happens frequently enough ...If a hiking trail were placed within 50", paralleling the eucalyptus ESHA, I would predict that even the Red-shouldered Hawk, normally a very tolerant raptor would also stop nesting...

And Brian Walton in his October 20, 2000 letter to Susan Hansch, Costal Commission Chief Deputy Director:

> If raptor use is desired, then the original plan with passive recreation is unacceptable. The modified plan with no trails but with enhancement would still be subject to much fight/flight distance pressure and only the final modified plan [preservation of the lower bench] seems to offer hope of continued use of the area for breeding.

The applicant proposes to establish a supposed "Upland Habitat Park" adjacent to the eucalyptus and wetland ESHAs located along the bluffs on the upper bench. As discussed below, vegetation in the habitat park will be modified from its natural condition both as to species included and density of growth. Permitted activities within the "Upland Habitat Park" include hiking, bicycle riding, parking, and access for emergency and maintenance vehicles. At one location, the proposed multi-use trail/access road is mapped immediately adjacent to the eucalyptus ESHA, with no buffer at all.

The paltry nature of the proposed buffers is illustrated by the proposed fuel modification plans which designate areas near homes where fuel modification would be pursued to protect the proposed homes from brush fires. The fuel modification areas, as mapped in the applicant's CDP submittals, extend well into the proposed buffers, and even into the habitat itself.

Even worse, the buffer for the wetland near Los Patos Avenue is quite small and includes a boardwalk and gazebo barely fifteen feet from the wetlands. Picnicking areas are delineated approximately thirty feet from the wetland, a tot lot and wading pool are mapped within ninety feet, and a recreation building is to be provided at about one hundred feet from the resource. Not only does this fail to buffer the habitat consistent with the provision of Coastal Act Section 30240(b), but the provision of such minimal buffers also conflicts with Section 30231 which calls for natural buffers to reduce impacts on water quality and wetlands.

This is unacceptable and illegal. Buffers for all ESHAs must be a minimum of one hundred meters as previously recommended by the California Department of Fish and Game (Environmentally Sensitive Habitat Areas at Bolsa Chica, June 3, 1982) and the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service Special Report, Bolsa Chica Area, May 1979). Further, no recreational uses or fuel modification at all should be permitted in the fifty meters

closest to the resource, with any human activity within buffer areas to be avoided to the extent feasible.

Even a one hundred meter buffer may be considered ineffective by some standards. Professor Scott Findlay of the University of Ottawa has recommended that buffers of at least 150 meters be provided at Bolsa Chica, with the statement that a buffer of one hundred meters is not likely to be adequate. Findlay has also stated that research indicates that wetlands may be affected by development as far distant as a kilometer. This occurs due to water quality impacts and invasion by non-native species.

As noted in the attached report by Noss, Case, and Fisher, buffer zones of 275 meters, 100 to 500 meters and 164 meters have been recommended by various studies. The report stated:

> Given the increasing evidence that very wide upland buffers are often required to maintain the ecological integrity of wetlands and other aquatic ecosystems, we believe that the narrow (on the order of 100 m) buffer zones proposed by some people for Bolsa Chica are unlikely to be sufficient. Therefore, we recommend that the presently undeveloped mesa upslope from the wetlands be protected ***in its entirety*** [emphasis added] and restored to natural vegetation.

Although in its November 2000 action the Coastal Commission assented to lesser buffers in some locations, this was in recognition of the preservation of consolidated habitat on the lower bench. The proposed project contains no such guarantees and should not be permitted to piggy-back the reduced buffering onto the new project if it includes only a portion of the mesa.

Raptor Forage Areas

A primary concern has been the provision of adequate upland forage for raptor species, in order to minimize predation on sensitive wetland species. All three raptor biologists retained by the Coastal Commission in 2000, Brian Walton of the UC Santa Cruz Predatory Bird Research Group, Ron Jurek of the California Department of Fish and Game and Peter Bloom of the Western Foundation for Vertebrate Biology (reports attached), concluded on an independent basis that retention of a large, consolidated habitat at Bolsa Chica Mesa would best address problems with raptor predation and maintenance of high interest species. This led to the decision to move all development to the upper bench

Even if the eucalyptus ESHA were removed from the Brightwater property, this would still be an issue, because, as noted by Ron Jurek in his October 20, 2000 letter to the Commission, certain raptors such as kestrels have been noted to prey on chicks over a mile from the kestrel nesting site. Thus, elimination of the eucalyptus ESHA would not only leave the problem of predation in the wetlands unsolved it would eliminate habitat for sensitive species as well. Predation by crows and ravens has also been noted to be a problem.

In recognition of this impact, SEIR 551 recommended, and the Orange County Board of Supervisors adopted, the following measure

> Prior to issuance of grading permits, the applicant shall establish a trust fund in an amount to be determined in consultation with CDFG, to assist in the ongoing management of raptor predation upon nesting sensitive target species of other sensitive species after the implementation of residential development on the Bolsa Chica Mesa. This fund will be available to CDFG and USFWS if is can be demonstrated by DEFG and USFWS, to the satisfaction of the County Environmental and Project Planning Division, that the residential development results in an increase in raptor predation. If no such effect is demonstrated within five years of completion of project construction, the trust fund shall revert to the Applicant.

It should be noted that Department of Fish and Game personnel requested that the fund be maintained for seven years, longer than the five years specified in the SEIR.

Now, two years later, the applicant has submitted a study prepared by LSA Associates which indicates that the primary avian predators on wetland species at Bolsa Chica are kestrels, crows, and ravens. The study concludes that although development of the mesa could have some effect on certain predators, with continued trapping by the California Department of Fish and Game the problem can be controlled.

This information is used to justify non-implementation of the above condition. The applicant claims, in its Response to Requests from Commission Staff to Hearthside Homes in a Letter dated December 5, 2002, that:

> Mitigation Measure 9.1 was originally included in EIR 551 for the Bolsa Chica LCP. Certified in 1996, EIR 551 ... concluded that "the loss of raptor foraging habitat in the uplands may cause some raptors to prey on nesting birds in the wetlands." In order to maintain consistency between the two environmental documents, Mitigation Measure 9.1 was included in SEIR 551 for the 388-units Brightwater project. Since the certification of SEIR 551, additional research has been conducted...As a result of this additional research, Hearthside Homes believes that Condition # 35 [Mitigation Measure 9.1] is no longer necessary.

It should be noted that SEIR 551 was prepared at the direction of the applicant, was submitted on behalf of the applicant and subject to additional review by the applicant during the public review period. Now, long after SEIR 551 was certified, new information is presented to release the applicant from responsibility for implementing an adopted condition. The applicant suggests that no mitigation will be necessary on the applicant's part as long as the California Department of Fish and Game continues to trap at the public's expense.

The applicant claims that the mitigation measure was a "carryover" from the original EIR 551. They claim they were more concerned with maintaining consistency with an old, out-dated EIR than with accurately presenting and analyzing the environmental impact of their proposed Brightwater project—in the EIR they themselves commissioned. Has the applicant then knowingly presented information they believe to be inaccurate in other portions of SEIR 551 as well? In other documents as well?

In any case, other impacts and mitigation measures contained in EIR 551 were not carried over. These deal with factors as diverse as provision of utilities to oil spill cleanup. This "carryover" would certainly not be ascribed to an artifact of word processing inasmuch as the two documents were prepared by different consultants. Even stranger, a review of the old Revised EIR 551 for the Bolsa Chica LCP reveals that, while the potential for raptor foraging in the wetlands was acknowledged, mitigation was to be as follows:

> If raptors begin to prey upon nesting sensitive target species or other sensitive species, the Applicant shall consult with CDFG and USFWS and prepare a relocation program for these raptors.

Bolsa Chica Land Trust urges that, if the Commission were to vote to approve the Brightwater project, that adequate open space be maintained to provide for raptor foraging in order to minimize predation of in the wetlands, optimally through preservation of the lower bench, and that Mitigation Measure 9.1 above be adopted with the trust fund to be maintained for seven years as requested by Fish and Game.

Upland Values

The proposed project appears to dismiss the value of upland habitat. However, as noted in the November 2, 2000 Costal Commission staff report:

> The Bolsa Chica Mesa is considered ecologically valuable. According to both the California Department of Fish & Game and the US Wildlife Service, the Bolsa Chica Mesa and the lowland wetlands are biologically interdependent. These biological interdependencies are vital to maintaining biological productivity and diversity. Residential development on the Mesa will impair biological productivity of the Mesa itself and the adjacent lowland wetlands.

And:

> The maintenance of ecological links between uplands and wetlands is thought to be of extreme conservation importance...studies...have demonstrated that uplands and wetlands should be considered integrated parts of a larger ecosystem. The importance of upland pollinators for plants like saltmarsh bird's beak and saltmarsh goldfields has also become widely recognized. As more is learned about the biology of native solitary bees, more examples will no doubt be discovered. The presence of the wetland-upland complex is also critical for many species of insects. without the appropriate mix of habitats adjacent to one another, such species will disappear from coastal ecosystems. Therefore, significant blocks of upland habitat should be maintained adjacent to coastal wetlands.

Thus, apart from any intrinsic value in the uplands themselves, which value does indeed exist, preservation of uplands is necessary to fulfill the purposes of Section 30240 of the Coastal Act

which requires that habitat values be preserved and that development in areas adjacent to environmentally sensitive habitat areas be sited and designed to prevent impacts which would significantly degrade those areas and be compatible with the continuance of those habitat and recreation areas.

Coastal Sage Scrub

The uplands themselves provide useful habitat on their own. The upper bench contains 1.36 acres of coastal sage scrub habitat, which is widely recognized to be the fastest disappearing habitat in southern California, due to ongoing development pressures. In fact the U.S. Fish and Wildlife Service has characterized the Coastal Sage Scrub community as "the most threatened upland vegetation type in southern California".

Although definitions of the various plant communities vary, it is generally agreed that dominant shrub species in coastal sage scrub are California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), coastal prickly-pear (*Opuntia littoralis*), toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), sugarbush (*R. ovata*), and fuchsia-flowered gooseberry (*Ribes speciosum*). (Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California; Munz, P.A. 1974. A flora of southern California). Coastal sage scrub supports a diverse fauna, including many species that are in decline. Among these are the California gnatcatcher (*Polioptila californica*) and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). On the Brightwater site, the coastal sage scrub community is dominated by salt bush (*Atriplex* spp.), prickly pear and Encelia.

While most of the coastal sage scrub on-site is said to be "preserved", a review of grading plans reveals that coastal sage scrub on-site is located in an area slated for grading. Thus, it will be removed and replanted. If the project were to move forward, any removal and replanting should be conducted at typical re-planting ratios required for this habitat.

The applicant proposes to establish an open space area known as an "Upland Habitat Park" which will include 1.50 acres of coastal sage scrub and 12.36 acres of coastal bluff scrub. Coastal bluff scrub habitat is similar to the coastal sage scrub but subject to slightly more marine influence. The "Upland Habitat Park" will also include ESHA buffer areas, a multi-use trail and water treatment ponds.

A significant portion of the "Upland Habitat Park" is in the fuel modification zone, and thus certain species will be prohibited under the terms of Fuel Modification Plan submitted by the applicant as Attachment 34 to the CDP application. Although an unlabelled attachment to the CDP titled "Answers to CDFG Questions" indicates that with proper management and use of fire resistant construction techniques more flexibility may be appropriate, the Fuel Modification Plan included with the CDP application lists prohibited species to include California sagebrush, buckwheat, and black sage. These same species are prohibited under the proposed Covenants, Conditions and Restrictions for the Brightwater project. Although an *Opuntia* species is proposed for use, the species proposed is not the prickly pear already on the site, but Coast

Cholla Further, the areas will be subject to periodic thinning of vegetation and occasional irrigation.

The impact of this change in species composition and growth habit on habitat values is not known. This is of particular interest as it affects prey species. Unfortunately, the fuel modification plan was not studied or included in the public review for SEIR 551, despite requests from the Bolsa Chica Land Trust and others that it be provided. Thus, the "Upland Habitat Park" may be of value or it may not. It is suggested that, where sage scrub communities lie within buffer areas, the vegetation be allowed to remain undisturbed and that sage scrub species already existing in the area be allowed to remain. If adequate buffers and open space were provided, the overlap of fuel modification into buffer areas would not be a problem.

Grasslands

The bulk of the Brightwater site is in annual grassland or ruderal. Even this habitat is of value, a primary factor being forage areas for raptors. As stated by Senior Deputy Damm at the November 16, 2000 Commission hearing:

> The California Department of Fish and Game emphasized the importance of non-native grasslands to raptor habitat in their recent comments on the Hellman properties in Seal Beach. In that letter, they recommended a mitigation ratio of .5 to 1 for non-native grasslands that were going to be lost in that project.

The bulk of this habitat on the project site will be lost to residential development. Mitigation should be provided consistent with that required at Hellman Ranch.

Normally, even suburban residential areas would be expected to support populations of rodents and other small prey. However, the AMEC Earth & Environmental, Inc. report attached as Attachment 10.2 to the CDP Application includes the following as a critical, ongoing element in addressing soil issues on the site:

> Any burrowing rodents on the lots should be exterminated and their burrows should be filled and sealed at the ground surface with clayey soil...

Not only would this reduce available prey species, depending on how rodents were exterminated, additional impacts could result. Chemical poisons could move up the food chain to predator species. The proposed Covenants, Conditions and Restrictions for the Brightwater project prohibit large-scale use of pesticides by unlicensed applicators, but they are not prohibited altogether. Control measures for burrowing rodents should be reconsidered as a strategy, and use of poisons must be prohibited, especially in light of the proximity of the development to ecologically sensitive areas.

Introduced Flora

The applicant has submitted a list of invasive species that will be prohibited from the Brightwater project. However, the Covenants, Conditions and Restrictions for the Brightwater

project require landscape limitations only in front yards and common areas. Many of the invasive species listed broadcast their seeds over fences quite easily. Thus, the project C,C&Rs, absent a prohibition invasive exotics in all parts of the Brightwater development, do not provide adequate means to prevent planting of invasive species within the proposed residential development, and the project does not provide protection for invasions of such species in nearby ESHAs, whether on or off the subject property. The program also lacks an effective means of enforcement.

Predation by Pets

The Brightwater C,C&Rs require that dogs be leashed and that cats be kept inside. A detailed trapping program for feral cats is included. However, the C,C&Rs then go on to recommend that cat owners provide their pets with collars and tags to avoid being included with the trapped feral cats. This presents an inherent contradiction, since if the cats were inside as required, they wouldn't get trapped. This also points up the difficulty of enforcement. Reasonable enforcement responsibilities must be identified.

Lighting

Night lighting can disrupt sensitive species. Although project documents indicate that lighting will be controlled and will be directed away from sensitive areas, the Brightwater C,C&Rs contain no limitation on lighting by the individual homeowners. Such limitations should always be required for any development in such a sensitive area.

Additional Study

To verify the presence or absence of this sensitive invertebrate species, the project site must be re-surveyed for two rainy seasons or one wet and one dry season to investigate this possibility as well as to further delineate on site wetlands. U.S. Fish and Wildlife Service protocol assumes the presence of endangered and threatened vernal pool species where appropriate vernal pool, or "seasonal pond" habitat is found. Further, ponding has been observed in areas not designated as wetlands in project mapping. The two surveys must verify the presence of absence of wetlands in additional areas.

Water Quality

Section 30231 of the Coastal Act states that:

> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

A small portion of site runoff will be directed to Huntington Harbor. Huntington Harbor has been designated an impaired water body and as such is not to receive any additional pollutants at all. The applicant proposes that catch basin inserts be used to treat drainage to Huntington Harbor.

According to information contained in the Water Quality Management Plan (attachment 11.3 to the CDP submittal), such inserts would remove 69 to 90 percent of oil and grease, leaving 10 to 31 percent behind. The inserts trap a lesser proportion of suspended solids and heavy metals. Thus, even though some pollutants would be removed, others would make their way into the already impaired waters of Huntington Harbor. This is unacceptable.

The applicant proposes to direct the bulk of urban runoff from the project to a series of detention basins/constructed freshwater wetlands and then into the Bolsa Chica lowlands. The detention basins would be designed to capture low flows and first flush runoff. In larger storms, water would be diverted away from the treatment wetlands to the existing pocket wetland and a detention basin. The water would eventually he discharged into the isolated lowland area planned for restoration with as yet unknown affects.

Information contained in the Water Quality Management Plan indicates that this type of wetland detention and treatment system could be expected to remove 87 percent of petroleum residues, but only 67 percent of suspended solids, 49 percent of phosphorus and a mere 28 percent of nitrogen. Thus, a considerable proportion of pollutants will still remain.

Unfortunately, the Water Quality Management Plan does not provide information on total loading. Thus, one doesn't know whether almost clean water would be rendered nearly pristine or whether absolutely filthy water would be cleaned to the point where it's just fairly polluted.

Although the Brightwater C,C&Rs ban large-scale use of pesticides, fertilizers and other chemicals by unlicensed individuals, nothing prevents such use on a small scale by many individuals working in their own yards. Thus, it is probable that at least some pesticides and fertilizers will enter the drainage system along with at least some animal waste and other pollutants.

As discussed above, even under a best case scenario, the water will not be fully cleaned. This is of greatest concerns for the water which would be most polluted, typically low flows and first storm flush of the season. Directing low flows to the Orange County Sanitation District treatment plant would be consistent with the action of the Coastal Commission in November 2000. This would also cause drainage to more closely approximate natural conditions under which little or no moisture would enter the wetlands involved during the dry months. At no time should any project drainage be permitted to enter Warner Pond.

The applicant has indicated that the drainage improvements discussed above will be maintained by the homeowners' association and the City of Huntington Beach. Inasmuch as the project is located in an unincorporated Orange County, it appears that this may be an error.

In any case, some oversight of onsite drainage and water quality treatment facilities will be required to ensure compliance by the homeowners' association. It is suggested that the homeowners' water quality monitoring and maintenance of the wetlands and catch basin inserts be supervised by Orange County, with annual reports to be provided to the Coastal Commission for review if the Commission approves the proposed development.

Section 30231 does not limit issues involving water discharge to direct surface flows. Drainage reaching the pocket area adjacent to the Mesa eventually reaches Outer Bolsa Bay generally through subsurface or muted tidal action. Under certain restoration options, tidal flows would be extended to the pocket area, increasing direct effects of runoff on Outer Bolsa Bay. Thus, some very sensitive resources under the jurisdiction of the Coastal Commission could be involved. If the proposed development is approved, the Coastal Commission must reserve the right to review maintenance of water quality draining from the site and impose additional pollution control measures at any time.

In addition, the applicant should participate in funding for additional water quality studies as well as ongoing sampling efforts for affected resources, including studies of total maximum daily loads (TMDLs) for the Bolsa Chica Bay prior to any development at Bolsa Chica. These TMDLs are long overdue and are an essential component of determining the scope and impact of proposed development on the surrounding and adjacent protected coastal resources. These numeric criteria will certainly be impacted by any new development on the Mesa; and vice versa, the Project itself may be constrained by statutory requirements that do not permit increased loading into an already water quality limited Area. The U.S. Environmental Protection Agency (USEPA) has established regulations (40 CFR 122) requiring that National Pollutant Discharge Elimination System (NPDES) permits be revised to be consistent with any approved TMDL. Federal regulations, effective October 2001, require that implementation plans be developed along with the TMDLs.

The applicant has indicated that the project will be covered under the general permit to discharge storm water associated with construction activity, and has submitted a copy of a receipt of a notice of intent from the State Water Resources Control Board dated December 8, 1998, over five years ago. This was well before the project was designed and well before even the November 2000 hearing on the now-defunct Local Coastal Program. The notice of intent should be resubmitted if construction ever proceeds on the Bolsa Chica Mesa.

As stated in the attached January 21, 2000 letter from Gerald Thibeault, Executive Officer of the California Regional Water Quality Control Board, Santa Ana Region:

> The Regional Board at all times retains the right to issue waste discharge requirements where it is necessary to do so to protect water quality and beneficial uses. Board staff will consider the propriety of issuing individual requirements to Hearthside Homes when the project is finally defined and approved.

Thus, the December 8, 1998 document should not be considered to be a carte blanche for any development that may ensue on the Bolsa Chica Mesa.

The applicant has submitted an erosion control plan for the project. However, as submitted, the plan is inadequate. The plan consists solely of a map indicating where sandbags will be placed on the site once mass grading has been completed and building pads and street beds have been established. There is no information as to how erosion will be controlled during grading. This is inadequate, and project processing should not be permitted to move forward until such time as additional erosion control measures have been developed. It is especially critical that all erosions be controlled due to the sensitive resources in the surrounding area and the former use of the site for hunting and military purposes, leading to the potential deposit of lead from ammunition on the site.

The Water Quality Management Plan includes a potpourri of attachments including articles and flyers regarding water quality issues. It is not clear what, if any, measures mentioned in these attachments will actually be taken. This must be clarified.

As currently proposed, the Brightwater project fails to fulfill the purposes of the Coastal Act regarding water quality.

Cultural Resources

Section 30244 of the Costal Act provides that:

> Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

The Bolsa Chica Mesa includes a number of highly significant archaeological sites, including ORA-83 and ORA-85. Ora-83 is almost certainly the last major coastal habitation site remaining between Los Angeles and San Diego. The site has been nominated to the Register of Historic Places, and qualifies based on the value of the site, but cannot be listed due to the owner's refusal to agree to listing.

In the light of statements from recognized experts urging "complete avoidance", declaring that we must "do everything in our power to preserve", and mourning the potential loss of ORA-83 as a "tragedy" (attached), site avoidance must viewed as the only reasonable mitigation measure for ORA-83.

Although some materials from ORA-83 will be recovered under test programs, the remainder of the site must be preserved in perpetuity for future generations. Following data recovery, the site must be capped to reduce the potential for looting of potentially significant resources.

Even if only data recovery were necessary as mitigation, the currently proposed research design is not adequate. As noted in the attached comments by Patricia Martz:

> Part 2 Research Implementation is very general and superficial and lacks sufficient detail regarding the research questions and data requirements to address the themes and models discussed in Part 1. The majority of the questions that are

presented are about data requirements and not formulated to advance knowledge regarding past human behavior.

Thus, further refinement of the proposed archaeological research design is necessary.

Visual Resources

Section 30251 of the Costal Act provides that:

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

The proposed project will entail alteration of existing landforms and construction of hundreds of homes on a previously vacant site. As noted SEIR 551:

> Residential development will permanently alter the undeveloped appearance of the Bolsa Chica Mesa within the public viewsheds as seen from Pacific Coast Highway near Warner Avenue and Pacific Coast Highway at the State Ecological Reserve Overlook, adjacent to Inner Bolsa Bay and along Los Patos Avenue at Bolsa Chica Street.

This finding was also adopted by the Orange County Board of Supervisors as part of their Statement of Facts and Findings when they approved the Brightwater project.

However, the applicant has chosen to deny this finding of fact, instead averring that the statement in SEIR 551 was another "holdover" from the previous EIR 551. As noted above, SEIR 551 was prepared at the direction of the applicant, was submitted on behalf of the applicant and was subject to additional review by the applicant during the public review period. Further, the County's Findings of Fact were adopted as a separate document, which the applicant also had the opportunity to review

In fact, this impact has increased somewhat from the time SEIR was certified. Under current plans, grading will be balanced, with no export of soil off-site. This will result in one to six foot increases in building pad elevations, increasing the visual intrusion of homes on the raised pads.

If it is the desire of the Commission to approve the proposed project, additional open space should be required for visual buffering. This is important not only along the edge of the project adjacent to the lowlands, but along the bluff separating the lower bench and the upper bench.

The bluff must be fully delineated and preserved consistent with the provision of Section 30253 of the Coastal Act which states, in part

> New Development shall Assure stability and structural integrity and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

In addition, restrictions on night lighting must be adopted as a condition of approval and incorporated into the Brightwater C,C & Rs. Reflective materials should be prohibited. Both of these measures would also benefit wildlife.

Homes on the project site are projected to exceed thirty feet in height, equivalent to a three story structure. This can result in an imposing appearance for structures that rise straight up, but can and should be softened by a lower limitation on the heights of structures along the perimeter of the site.

Housing

Section 65590(d) of the Government Code imposes on local agencies, in this case the County of Orange, the duty to ensure that:

> "new housing developments constructed within the coastal zone shall, where feasible, provide housing units for persons and families of low or moderate income...Where it is not feasible to provide these housing units in a proposed new housing development, the local government shall require the developer to provide such housing, if feasible to do so, at another location within the same city or county, either within the coastal zone or within three miles thereof".

The local agency is also required to offer incentives for the provision of low and moderate income housing.

Section 65590 acts in concert with, but independent of, the previous sections (65580 through 65589.8) of the Government Code governing local housing elements, which by State mandate must address housing issues in all areas subject to County jurisdiction, including the Coastal Zone. Thus, the affordable housing provisions of Section 65590 must be implemented <u>whether or not</u> they are included within the local agency's adopted housing element or other locally adopted program.

As described by staff of the California Department of Housing and Community Development (HCD), local agencies are charged with implementation of Section 65590, for the legitimate government purposes established by the California State Legislature in Section 65580, specifically

"(a) The availability of housing is of vital statewide importance, and the early attainment of decent and a suitable living environment for every California family is a priority of the highest order...

(d) Local and state governments have a responsibility to use the powers vested in them to facilitate the improvement and development of housing to make adequate provision for the housing needs of all economic segments of the community."

Under Section 65590, low or moderate income housing must be provided in new residential development in the Coastal Zone where feasible. As defined under Section 65590(g)(3):

"'Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technical factors."

Staff of the California Department of Housing and Community Development (HCD) has indicated that they believe an assumption of feasibility must be made barring evidence to the contrary. This position has been upheld by the courts.

Thus, County government is responsible for ensuring that affordable housing is included in new developments such as the proposed Brightwater. Inasmuch as a ten percent exclusionary requirement is imposed by the City of Huntington Beach immediately adjacent to the project site, which is in the City's adopted sphere of influence, it is reasonable to conclude that it would be feasible to provide ten percent of ***all*** units in the project, i.e. thirty eight units, as affordable units. These units must be provided as part of the proposed project. The applicant and the County have yet to take steps to implement this requirement or address the feasibility of doing so.

Proposition 50

Proposition 50, passed in November 2002 added Section 79572 to the Water Code appropriating $750,000,000 to the Wildlife Conservation Board. Money appropriated is to be used for the acquisition, protection, and restoration of lands in or adjacent to urban areas. Eligible projects are limited to:

- Acquisition, protection, and restoration of coastal wetlands identified in the Southern California Coastal Wetlands Inventory as of January 1, 2001, published by the State Coastal Conservancy, located within the coastal zone, and other wetlands connected and proximate to such coastal wetlands, and upland areas adjacent and proximate to such coastal wetlands, or coastal wetlands identified for acquisition, protection, and restoration in the San Francisco Baylands Ecosystem Habitat Goals Report, and upland areas adjacent to the identified wet lands.
- Acquisition, protection, and restoration of coastal watershed and adjacent lands located in Los Angeles, Ventura, and Santa Barbara Counties
- Not less than three hundred million dollars ($300,000,000) for projects within Los Angeles and Ventura Counties

- Of the remaining funds available ***the Wildlife Conservation Board shall give priority to the acquisition of not less than 100 acres consisting of upland mesa areas, including wetlands therein, adjacent to the state ecological reserve in the Bolsa Chica wetlands in Orange County.***

The proposed project must be examined in the light of Proposition 50 and Section 30604(e) of the Coastal Act which states:

> No coastal development permit may be denied under this division on the grounds that a public agency is planning or contemplating to acquire the property on, or property adjacent to the property on, which the proposed development is to be located, unless the public agency has been specifically authorized to acquire the property and there are funds available, or funds that could reasonably be expected to be made available within one year, for the acquisition. If a permit has been denied for that reason and the property has not been acquired by a public agency within a reasonable period of time, a permit may not be denied for the development on grounds that the property, or adjacent property, is to be acquired by a public agency when the application for such a development is resubmitted.

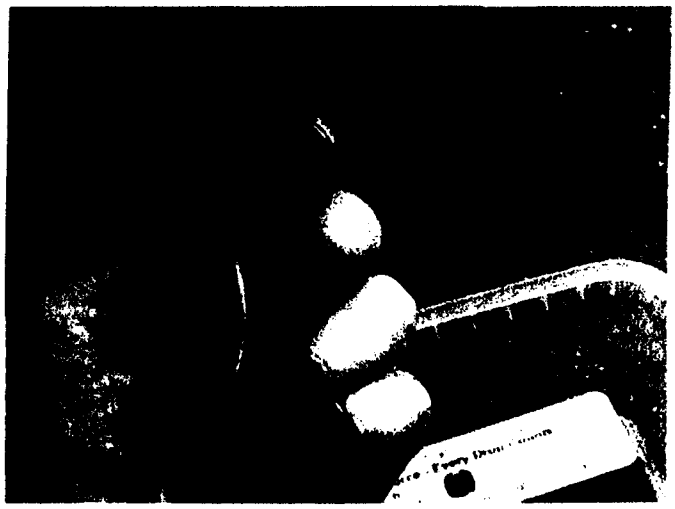
If appropriate in accordance with these provisions, the Commission should consider denial of the Brightwater project at this time with the proviso that it may return in one year, without prejudice.

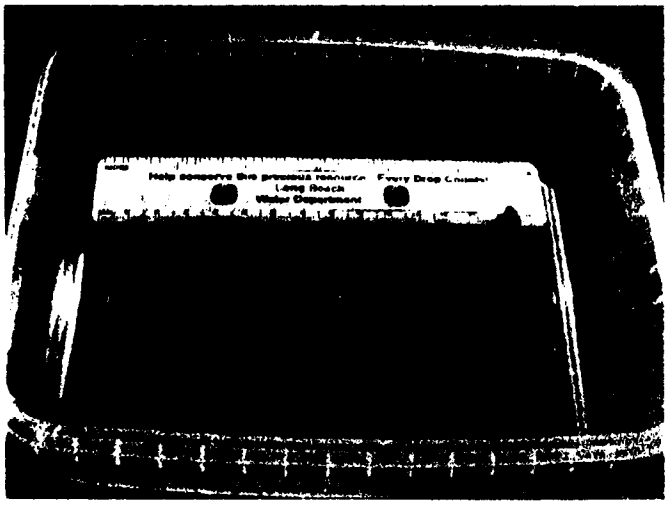
Yours Truly,

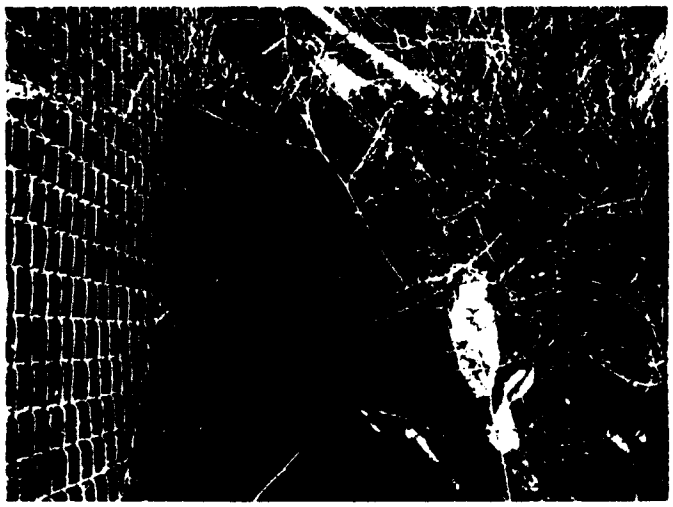
Sandra L. Genis
Bolsa Chica Land Trust Board Member

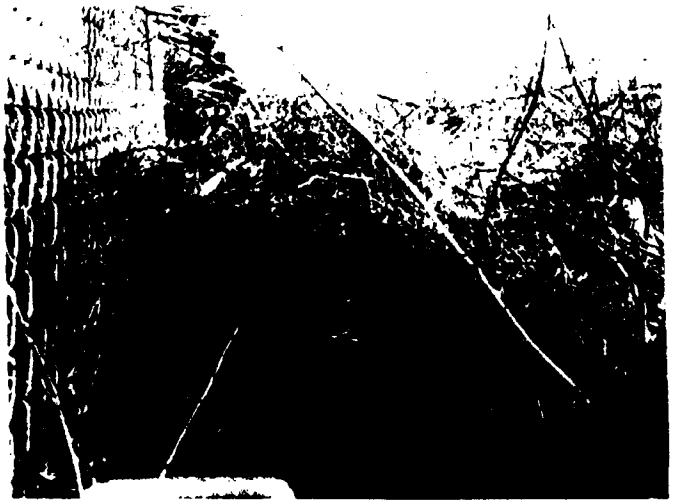
Attachments

SILVERY LEGLESS LIZARD PHOTOGRAPHS
Location: Bolsa Chica Mesa, January 9, 2001
Courtesy of Kelly Keller









CALIFORNIA NATIVE PLANT SOCIETY
Orange County Chapter
P.O. Box 54891
Irvine, CA 92619-4891

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South Coast Region

JAN 2 7 2004

CALIFORNIA
COASTAL COMMISSION

Mike Reilly, Chair
California Coastal Commission
c/o Teresa Henry, Coastal Program Analyst
200 Oceangate, 10th Floor
Long Beach CA 90802-4416

24 January 2004

RE: Southern Tarplant (*Centromadia parryi* ssp. *australis*) Translocation Plan for the Brightwater Development Project, Bolsa Chica Mesa, Orange County, California

Dear Mr. Reilly:

The California Native Plant Society (CNPS) is a non-profit volunteer organization that acts to preserve California's native flora. The Orange County Chapter of CNPS (OC CNPS) works to increase public awareness of the significance of native plants, and to preserve the remaining areas of native vegetation in Orange County.

We have been asked by the Bolsa Chica Land Trust to review the southern tarplant translocation plan prepared by LSA Associates for the Brightwater Development Project on the Bolsa Chica Mesa, Orange County. Southern tarplant (*Centromadia* [formally *Hemizonia*] *parryi* ssp. *australis*) is a mildly scented, prickly-stemmed, yellow-flowered annual. Southern tarplant favors alkaline soils and is found most frequently in association in areas that receive irregular shallow flooding such as depressions, seasonal ponds and vernal pools, shallow arroyos, or the margins of coastal estuaries, or brackish seeps and mesic grassland habitats. It also favors successional or disturbed habitats and will persist in areas that have been shallowly disced. Southern tarplant is restricted to southwestern California and northwestern Baja California, Mexico. In the United States, this plant has been reported from 47 locations from Eagle Canyon Bluffs west of Goleta in Santa Barbara County, south through the Los Angeles Basin and coastal Orange County to the vicinity of Ramona and San Dieguito Lagoon in western San Diego County. There are only four widely scattered records for this species have been reported in Mexico.

Of the United States locations, over 35 percent have been extirpated. About 40 percent of the remaining populations have quantifiable threats. Only about 20 percent of the remaining populations are within lands designated as preserves. Of the known 31 reported populations in southern Los Angeles and western Orange County, over 40 percent have been eliminated. Of the remaining populations, nearly half are at risk from quantifiable threats. This level of decline and threat is comparable to several species that are protected under the State and Federal Endangered Species Act. Therefore, we believe that addressing the conservation of southern tarplant within the coastal zone should be a major concern to the California Coastal Commission. This level of concern has been demonstrated by previous California Coastal Commission actions at Bolsa Chica. As a result, development on the mesa north of the marsh has been limited to the upper mesa as indicated in the reviewed document.

Overall, the translocation plan proposed by LSA Associates is reasonable as it addresses the annual nature of the plant (seed collection vs. actual moving of individuals), top soil collection, and identifying a nearby receiver site. We also believe that it is helpful to have the three years worth of survey data used here to better understand

the plant's distribution on the site. It is evident from this data that the distribution of southern tarplant does have significant population dynamics and suggests that multiple year surveys should always be conducted prior to any translocation plan implementation to better understand the distribution and population status of a population on site.

Our comments are few but important. The California Native Plant Society strongly opposes translocation in general for rare plants and believes avoidance is the method that should most frequently be adopted. However, we acknowledge that southern tarplant and its cousins present a somewhat different situation. Because these species thrive on minor disturbance and successional situations, translocation has a significantly higher chance of success. We agree with the Department of Fish and Game (letter from William Tippets to Ed Mountford, 245 Apr 2003) request that the performance standards not apply to the first two years of monitoring. Because of the nature of seeding or transplanting, the first year or two can yield a false positive. The viability of freshly moved bulbs or seed can be high but is not very meaningful if the plants do not reproduce well. Therefore, several years are required to really measure success. This appears to have been incorporated into the Plan we have reviewed. Five years is a reasonable period for active monitoring of annual populations. However, we suggest that one additional monitoring season be implemented in the seventh year. This will measure the success of the population's establishment without human oversight. One major problem with other translocation programs we have reviewed is too short a monitoring period. The plants do fairly well when first established, particularly with oversight and management. However, once left to their own devices, the population suffers from exotic competition and other factors that can rapidly eliminate, or significantly reduce, the vigor of translocated populations.

We are encouraged that the plan requires the population at the receiving site to achieve 100 percent of the the origin site. Because of the annual nature of the plant populations, as demonstrated by LSA Associates data, these can vary significantly from year to year. Therefore 100 percent level should be attained at least twice during the monitoring period. Despite three years worth of surveys, the 1,800 individuals may still only represent a fraction of a still larger potential. While the document states that the receiving site will be permanently preserved, it does not indicate who will manage this property nor does it indicate how large the "permanent" preserve will be. One might assume that the whole lower mesa will be protected but is that the case? The upper and lower mesa populations of tarplant are clearly linked by proximity and habitat. We believe that as part of this specific project the entire lower mesa should be set aside under a conservation easement or dedicated to a conservation entity prior to grading the upper mesa. This is in part because the land and existing populations surrounding the receiving site will play an important and necessary roll in future population dynamics, pollination, and overall health of the receiver site. Additionally, the populations of the lower mesa are extremely significant on regional scale and should be protected in perpetuity.

If you have any questions regarding this, I can be reached at 760-439-6244.

Respectfully

Fred M. Roberts, Jr.

Fred Roberts, Jr.
Conservation Co-Chair

cc:
Karen Merickel, Bolsa Chica Land Trust
Ceilia Kutcher, Orange County CNPS

SANDRA GENIS, PLANNING RESOURCES
1586 MYRTLEWOOD COSTA MESA, CA. 92626 PHONE/FAX (714) 754-0814

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South Coast Region
JAN 27 2004
CALIFORNIA
COASTAL COMMISSION

To: Teresa Henry
California Coastal Commission
Fax (562) 590-5084

From: Sandra Genis, Bolsa Chica Land Trust

Date: January 27, 2004

Subject: Brightwater Development (CDP Application No. 5-02-375)

Unfortunately, there were a few critical typos in the memo submitted yesterday from Ed Howard regarding nexus requirements as they apply to the proposed Brightwater development at the Bolsa Chica Mesa in Orange County California. Attached is a corrected version. We would appreciate it is you would please discard the previous memo and place this one in the record instead.

Thank you.

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COASTAL COMMISSION

MEMORANDUM

Date: **January 23, 2004**

To: **Coastal Commission Planning and Legal Staff**

From: **Ed Howard, Counsel for the Bolsa Chica Land Trust**

Re: **Issues of "Nexus:" Why The Commission By Law Must Either Reject The Proposed Brightwater Permit Outright Or, Alternatively, Reach The Question Of Whether The Lower Bench (Or Some Other Similarly Sized Contiguous Portion Of The Mesa) Must Be Preserved To Prevent Harm To Bolsa Chica ESHAs, And Why Neither Of These Statute-Mandated Outcomes Is A Taking.**

The Bolsa Chica Land Trust ("Land Trust") has asked me to comment on whether the proposed Brightwater project requires the Commission, once more, to address whether it must by law preserve some large and fully contiguous portion of the Mesa to compensate for the harm residential development will cause to nearby Environmentally Sensitive Habitat Areas ("ESHAs").

The Land Trust as well has asked me to address whether there is a sufficient "nexus" under Nollan v. California Coastal Commission, 438 U.S. 825 (1987) ("Nollan") between the proposed Brightwater permit and the need to preserve the lower bench, or some other equally large, fully contiguous portion of the Mesa, such that addressing the preservation issue in the context of evaluating this permit would not constitute a taking under Nollan.

To summarize my conclusions:

- As already decided by the Bolsa Chica Land Trust v. California Coastal Commission (1999) 71 Cal.App.4th 493, decision ("Bolsa Chica"), and as required by Public Resource Code ("PRC") §30240, the Commission may not lawfully approve any development that evidence shows will harm an ESHA. Period. There are no qualifications or exceptions.

- Evidence in this record presented by independent experts demonstrates that significant residential development on the Mesa such as the proposed Brightwater development will inevitably and illegally cause a reduction in the number and kind of raptors living in the Eucalyptus Grove ESHA.

- Evidence in this record presented by independent experts demonstrates that significant residential development on the Mesa such as the proposed Brightwater development will, by redirecting raptor predation to the lowland wetlands, inevitably

and illegally cause harm to the ESHA's bird population, even while the state has committed to a massive $100 million state-funded lowlands restoration effort.

- Therefore, either the Commission must abide by statute and reject the Brightwater proposed permit outright or it must, at the barest minimum, address how much of the Mesa must be preserved to ensure that the forecast harmful impacts of Brightwater to these two ESHAs do not occur.

- That is not to say that §30240 forbids all kinds of or all levels of development on the Mesa. It is as wholly yet untested whether other kinds of development (i.e., non-residential or even different residential, such as assisted living) or smaller levels of development (i.e., significantly fewer homes) or development located in different locations (e.g., entirely clustered along Warner Avenue) would be as clearly in violation of §30240 as this proposed development.

- And the Nollan nexus requirement is easily met here. In Nollan, the Supreme Court held that requiring a property owner to dedicate an easement for the public to pass to the ocean had an insufficient nexus to the asserted legitimate interest at risk; namely, protecting public views of the ocean.

- The independent experts in this record opine that all of the Mesa must be preserved to prevent illegally harming the Eucalyptus Grove and lowland wetland ESHAs. Because the loss of any open space on the Mesa will harm the ESHAs, it is at best unclear whether any significant development on the Mesa may be legally permitted. Two things are clear, however: (1) if the whole Mesa is not preserved, at the barest minimum the evidence establishes that a very large, fully contiguous portion of the Mesa must be preserved if approval of Brightwater is to be lawful; and (2) requiring Hearthside to dedicate some large balance of its property beyond the Brightwater footprint to minimize the project's harm to the ESHAs has the tightest possible Nollan nexus to the legitimate state interest of protecting ESHAs embodied by §30240. This is because the permit condition -- preservation of open space -- seeks to remedy exactly the cause of the unlawful harm that would require the rejection of the Brightwater permit -- the loss of that very same open space. Or, in the words of the Nollan court: " [T]he permit condition serves the same governmental purpose as the development ban[.]" Id. at 837.

DISCUSSION

I. A Step-By-Step Analysis And Application Of The "Nexus" Requirement Of Nollan

Let us apply Nollan in a step-by-step manner.

A. Identifying the contours of the Nollan "nexus" requirement.

The Court first acknowledges that a takings analysis requires a two part review:

"We have long recognized that land-use regulation does not effect a taking if it 'substantially advance[s] legitimate state interests' and does not 'den[y] an owner economically viable use of his land[.]"

Id. at 834.

Let us address the first prong first -- the "legitimate state interest" requirement. The Court next discusses it:

"Our cases have not elaborated on the standards for determining what constitutes a 'legitimate state interest' or what type of connection between the regulation and the state interest satisfies the requirement that the former 'substantially advance' the latter. 3 They have made clear, however, that a [483 U.S. 825, 835] broad range of governmental purposes and regulations satisfies these requirements. See Agins v. Tiburon, supra, at 260-262 (scenic zoning); Penn Central Transportation Co. v. New York City, supra (landmark preservation); Euclid v. Ambler Realty Co., 272 U.S. 365 (1926) (residential zoning); Laitos & Westfall, Government Interference with Private Interests in Public Resources, 11 Harv. Envtl. L. Rev. 1, 66 (1987)."

Id. at 834-35

Let us now review the Court's analysis of the "nexus" in Nollan:

"The Commission argues that among these permissible purposes are protecting the public's ability to see the beach, assisting the public in overcoming the 'psychological barrier' to using the beach created by a developed shorefront, and preventing congestion on the public beaches. We assume, without deciding, that this is so - in which case the Commission unquestionably would be able to deny the Nollans their permit outright if their new house (alone, or by reason of the cumulative impact produced in conjunction with other construction) would substantially impede these purposes, [483 U.S. 825, 836] unless the denial would interfere so drastically with the Nollans' use of their property as to constitute a taking."

Id. at 835

We know from this passage two things: (1) that the asserted government interest in Nollan was protecting scenic views of the beach, beach access, and congestion; and (2) that, assuming denial of the Nollan's proposed permit still would have left the door open to other kinds of future improvements, the Commission could have lawfully denied the permit outright without inversely condemning their property (more on this later, but the same is true with the proposed Brightwater permit).

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The Court then considered the Commission's "greater includes the lesser" theory. The Commission argued that if it had the right to deny the permit outright because it unlawfully obstructed views and the like, then it also had a right to impose permit conditions that also sought to advance the same values. The Court agreed, but -- in essence -- found that the permit condition requiring public access to the beach had no nexus to asserted state interest; namely, protecting ocean views, overcoming psychological barriers to access, and the like:

> "The Commission argues that a permit condition that serves the same legitimate police-power purpose as a refusal to issue the permit should not be found to be a taking if the refusal to issue the permit would not constitute a taking. We agree. Thus, if the Commission attached to the permit some condition that would have protected the public's ability to see the beach notwithstanding construction of the new house - for example, a height limitation, a width restriction, or a ban on fences - so long as the Commission could have exercised its police power (as we have assumed it could) to forbid construction of the house altogether, imposition of the condition would also be constitutional."

Id. at 836

Importantly for the proposed permit here, the Court acknowledges that imposing a permit condition that would require the Nollans (or Hearthside) to dedicate some of their actual property would be constitutional -- *if* the dedication actually promoted the asserted state interest in promoting scenic views:

> "Moreover (and here we come closer to the facts of the present case), the condition would be constitutional even if it consisted of the requirement that the Nollans provide a viewing spot on their property for passersby with whose sighting of the ocean their new house would interfere. Although such a requirement, constituting a permanent grant of continuous access to the property, would have to be considered a taking if it were not attached to a development permit, the Commission's assumed power to forbid construction of the house in order to protect the public's view of the beach must surely include the power to condition construction upon some concession by the owner, even a concession of property rights, that serves the same end. If a prohibition designed to accomplish that purpose would be a legitimate exercise of the police power rather than a taking, it would be strange to conclude that providing the owner an alternative to that prohibition which accomplishes the same purpose is not."[1]

Id. at 836-37

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[1] There is thus under Nollan nothing per se unconstitutional about requiring the dedication of land as a condition of granting a permit, so long as the dedication satisfies the nexus requirement and leaves the property owner with economically viable use of the rest of his land.

The Court goes on to identify and find lacking the nexus between a permit condition requiring public access to the beach itself and the asserted interest in protecting public views of the beach:

> "The evident constitutional propriety disappears, however, if the condition substituted for the prohibition utterly fails to further the end advanced as the justification for the prohibition. ... In short, unless the permit condition serves the same governmental purpose as the development ban, the building restriction is not a valid regulation of land use but 'an out-and-out plan of extortion.'"

Id. at 837

The Court elsewhere with equal candor summarizes its view of the asserted nexus between the permit condition and the asserted public interest:

> "It is also impossible to understand how [the permit condition] lowers any 'psychological barrier' to using the public beaches, or how it helps to remedy any additional congestion on them caused by construction of the Nollans' new house. We therefore find that the Commission's imposition of the permit condition cannot be treated as an exercise of its land-use power for any of these purposes."

Id. at 838-39

B. What Is The Nexus Between The Brightwater Proposal And Preservation Of Some Large, Fully Contiguous Portion Of The Mesa?

Here, the governmental interest is at least as compelling as the "scenic zoning" and "landmark preservation" purposes singled out as "legitimate" in Nollan. The asserted state interest is embodied in PRC §30240, which provides:

> "(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
>
> (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas." (Emphasis added)

So, where Nollan "nexus" issues are concerned, a proposed permit condition attached to a Brightwater approval will be judged simply on whether it "serves the same governmental purpose as" would a "development ban;" that is, an outright rejection of the Brightwater permit altogether.

If the Brightwater housing tract permit must lawfully be denied because it would "significantly degrade" or "significantly disrupt" the ESHAs or be "incompatible" with

their "continuance," then conditions may constitutionally be imposed on granting the permit -- but only if the conditions serve the same purpose as the denial; namely, ensuring that development is "compatible" with the "continuance" of the ESHAs.

Therefore, if the evidence in this record shows that a large, fully contiguous portion of the Mesa must be preserved to ensure that Brightwater is "compatible" with the "continuance" of the raptor habitat and lowland wetlands ESHAs (and the evidence of this is vast and uncontradicted by independent experts; see below), then the Commission may under Nollan require that such open space be preserved as a condition of granting the Brightwater permit.

Such a requirement would even more transparently meet the "rough proportionality" test of Dolan v. City Tigard, 512 U.S. 687 (1994) because the required dedication would evince "some sort of individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development." Id.

C. The Substantial Evidence In This Record Demonstrating That Any Significant Development On The Mesa Is "Incompatible" With The "Continuance" Of The Raptor ESHA And, Hence, The Lowland Wetlands ESHA.

(1) Evidence that any significant residential development will harm the Eucalyptus Grove raptor habitat ESHA.

It must be recalled that while Brightwater's proposed 379 residences are less than the truly vast "mini-cities" previously sought by the developer, that does not mean it is not a very significant proposed development, especially given that there are literally ESHAs and wetlands all around it. If another developer at another location in the zone had come to the Commission with such a proposal, it would be recognized as a massive proposal. Just as "[r]ejection of exceedingly grandiose development plans does not logically imply that less ambitious plans will receive similarly unfavorable reviews" (MacDonald, Sommer & Frates v. Yolo County, 477 U.S. 340, 353, fn. 9 (1986)), neither should Hearthside's prior pursuit of gigantic and illegal development lessen the Commission's will to address the still harmful impacts of less titanic -- but still significant -- proposals like Brightwater.

All independent raptor experts in this record agree that any significant development on the Mesa will significantly harm the raptor habitat Eucalyptus Grove ESHA.

Mr. Peter Bloom -- perhaps the nation's foremost raptor expert -- predicts that fully six different species of raptors would be driven off the Mesa and wetlands entirely "were any significant development [on the Mesa] allowed." (AR3 5572-5580, 5573) Self-evidently, this result would be an unlawful "significant disruption" or "degradation;"

development "incompatible" with the "continuance" of the ESHA, and violative of §30240.

Mr. Bloom adds that the entire Mesa should be an ESHA, so essential is it to support the numerous raptor species that live there:

> "[T]he grasslands at Bolsa Chica are the principal reason for the abundance of raptors, and therefore could be considered an environmentally sensitive habitat area."
>
> (AR3 5575)

Mr. Bloom's scientific conclusion that all open grasslands on the Mesa have to be preserved just to have the potential of maintaining the current diverse raptor population at Bolsa Chica is not novel. Mr. Bloom's 1982 report Raptor Inventory and Habitat Assessment for the Bolsa Chica Area AR3 1929-1975, echoes his more recent conclusions, and also scientifically supports the preservation of the entire Mesa as habitat area to maintain raptor diversity and densities:

> "The mesas provide the most valuable nesting habitat and also support large populations of rodent prey species...Loss of either lowland or mesa habitat will result in lowered raptor densities in both."

(AR3 1969)

In his letter to Mr. John Dixon, Mr. Bloom observes:

> "From a biological and ecological perspective, the estuary and grassland at Bolsa Chica **must remain intact in as large a contiguous parcel as feasible** . . . This would be an important step in ensuring at least some raptor use continues on the Mesa if development of the Upper Mesa is permitted, and that the number of birds using the marsh are not reduced any further."[2]

(AR3 5572-5580, 5573 – emphasis supplied)

Mr. Bloom forecasts significant reductions in uses by raptors even if the lower bench is entirely preserved .(AR3 5075) This includes losing fully one-third of the red tail hawks; again, even with the entire lower bench preserved as open space. (AR3 5077).

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[2] Mr. Bloom's letter also, in detail, conclusively refutes any contention that buffers around the eucalyptus grove ESHA of less than 100 meters are scientifically supportable. As he explains, numerous Mesa raptor species flush if human activity occurs within 100 meters. See, e.g., Bloom discussion of the Osprey, Red Tailed Hawk, Rough Legged Hawk, White Tailed Kite, etc.

The other independent raptor experts agree. Any significant development like Brightwater on the Mesa will do significant harm both the Eucalyptus Grove raptor ESHA and the wetlands below. For example, Mr. Ronald Jurek with the California Department of Fish & Game opines, "[t]he loss of any of the current open-space raptor foraging habitat would result in a change in foraging behavior for all local predatory bird and mammal species, including the raptor species that hunt rodents, insects and other small animals in the open ground ... Since all predators on the mesa would increase their foraging on the remaining upland habitat, those prey resources would likely be depleted and the raptors forced into other suitable hunting areas, including the Bolsa Chica wetlands. This increased hunting pressure in the lowlands have ramifications for local endangered birds in the wetlands" (AR3 5069 --Ronald Jurek, DF&G expert)[3]

Mr. Brian Walton, Hearthside's former expert, echoes these conclusions: "Even without any development plan, the future use of the Bolsa Chica area by breeding raptors is in jeopardy." (AR3 5086) "The area of open space is so limited at this time, that most conservationists and raptor biologists would suggest preservation of all remaining open space in the coastal zone if maintenance of breeding territories for raptors is desired." (AR3 5085) In other words, to ensure the "continuance" (§30240) of the raptor ESHA for breeding, no development can be permitted on the Mesa. (See also AR3 5090 "negative effects" of all three plans).

Mr. Walton concludes that even preservation of the entire lower bench would have the same negative impacts as the other proposals, but just less severely. (AR3 5081) And Mr. Walton explains why any significant development like Brightwater will inevitably harm the ESHAs: "When development occurs, it is nearly a simple linear effect. The number of territories will decrease. Eventually, there will be no breeders... It is not speculative, but based on experiences seen in 30 years of raptor habitat loss and raptor declines." (AR3 5090)

Tierra Madre Consultants forcefully sums up the point that any significant development on the Mesa such as Brightwater is "incompatible" with the "continuance" of the Eucalyptus Grove raptor habitat ESHA: "The importance of raptor habitat on the Bolsa Chica Mesa may be considered at the local, regional, and state levels ... Bolsa Chica is important both locally and regionally for many species, and is of critical importance at the state level for the Peregrine Falcon and the Short-eared Owl. Raptor habitats in Southern California ... are being lost at an alarming rate ... It is the opinion of TMC that the entire Bolsa Chica Mesa is raptor habitat and meets the criteria for designation as an ESHA ... Loss of Eucalyptus grove or grassland habitat will impact

[3] The record of the Signal Landmark v. Coastal Commission litigation (GIC 764965) has been made a part of the record of this permit proceeding by reference. The "AR" citations are to that record. Likewise, these citations can be used to look up pages of the Appendix accompanying the Land Trust's submission titled, "California's $100 Million Restoration Investment In Peril, Setting The Record Straight: The Bolsa Chica Land Trust's Comments Establishing The Legal And Environmental Framework For Analysis Of The Proposed 'Brightwater' Permit")which has the same numbering as the record.

resident, migratory, and wintering raptors, including species considered sensitive by the state and federal resource agencies." (AR3 7281-82)

Mr. Roberts, opining about the needs of the rare Southern Tarplant, concludes:

> "Isolated preserves of less than 10 acres in size frequently fail...forty acres is the preferred minimal size...[s]etting aside the entire lower Mesa and the eastern portion of the upper Mesa would preserve known populations...Alternatively, minimum preservation should include the entire lower Mesa...."

(AR3 9067)

In sum, the evidence is clear: any significant development such as Brightwater on the Mesa is "incompatible" with the "continuance" of the raptor ESHA and the Brightwater permit must be rejected as unlawfully in conflict with §30240. That is, it must be rejected unless there is some permit condition that could make Brightwater lawful under §30240 by reducing the harmful impacts to "insignificance" thereby making the project "compatible" with the "continuance" of the ESHAs.

(2) <u>The evidence in this record and the Commission's own authorities show that any significant residential development harming the Eucalyptus Grove raptor habitat ESHA will harm the lowland wetlands</u>.

Evidence. Each of the three independent raptor experts as well as Mr. Robert Hight opine that, to the extent there is less upland Mesa foraging space, the raptors will feed on the endangered birds in the wetlands. (AR3 5065-5094 -- included in the Appendix). As Mr. Bloom is quoted as saying: "With less habitat at Bolsa Chica the majority of the birds would be lost and some would start feeding in the wetland area." (AR3 6036)

Undisputed evidence in the record shows that if there is significant development on the Mesa, there will be fewer coyotes. This in turn will mean more house cats and red foxes preying on the endangered birds in the wetlands; this on top of the re-directed raptors.

Professor Emeritus of Environmental Studies, University of California Santa Cruz, Dr. Michael Soule, in his October 23, 2000 letter to the Commission, Dr. Soule emphasizes:

> "If the mesa habitat is developed, the likelihood that coyotes will persist is decreased. The same would apply to raptors. If the uplands in the Bolsa Chica watershed are developed, the remaining natural areas are likely to enter a spiral of extinction during which the less resilient native species will disappear."

(AR3 9808-9808) Thus, he opines:

"Thus, my best guess about the fate of Bolsa Chica, absent the upland mesa habitat, is that is would slowly degrade as a viable ecological system."

(AR3 9809)

Wayne Ferren, Department of Ecology, Evolution, and Marine Biology, University of California, Santa Barbara, also wrote to the Commission,

"Another important link in the entire system is upland habitat that support and provide corridors to estuaries for upper level predators such as coyotes that prey on various animals that eat endangered ground nesting marsh birds...without the predator prey balance that exists when ecosystems are intact, mid level predators that focus on prey such as birds can reach large enough numbers to seriously threaten or even extirpate species from coastal wetlands."

(AR3 9879)

The California Department of Fish & Game in Natural Diversity Database for 1999 shows that a plant "species of concern" (likely to be listed by the federal government in the near future – rare, threatened, or endangered in California and elsewhere) and a California native Plant Society 1b species (rare, threatened or endangered in California and elsewhere - AR3 5557, 5561) exists in three colonies in the middle of the Mesa lower bench, covering an area of approximately 15 acres. AR3 5557, 5561. That species is known as the Southern Tarplant. AR3 7274 (Southern Tarplant exists in three colonies in the middle of the Bolsa Chica lower bench, covering an area of approximately 15 acres). The record states:

"[D]ue to the declining status of the Southern Tarplant...all populations are considered significant and impacts to these populations should be avoided. While small in terms of the reported individuals, the Bolsa Chica Mesa population may be crucial to the overall recovery of this species."

(AR3 9066 report on southern Tarplant beginning at AR3 9058 -- emphasis supplied).

As early as 1979, the US Fish & Wildlife Service recognized:

"protection and preservation of the entire Mesa area is also desirable for there exists a mutually beneficial ecological relationship between coastal wetlands and their associated upland habitats."

(AR3 5538-5543)

Authorities. The Commission's own authorities and the law require the Commission to evaluate Mesa development like Brightwater in light of its impacts on the wetlands as well as the Mesa's resources. In its 1981 Statewide Interpretive Guidelines for Wetlands and Other Environmentally Sensitive Habitat Areas, ("Guidelines"), the

Commission has published a detailed road-map for builders and the public discussing how it will evaluate development near wetlands. These Guidelines observe and require:

> "**Wetlands are not isolated, independently functioning systems**. Rather, they depend upon and are **highly influenced by their associated watersheds and upland transition areas.** Therefore, when the Commission determines that any adjacent area is necessary to maintain the functional capacity of the wetland, the Commission **will require** that this area be protected against any significant disruption of habitat values consistent with Section 30240(a). These areas **may be protected either by inclusion in a buffer area subject to land use restrictions or through provision of a buffer area around the ecological related adjacent area itself, or through other means.**"

Guidelines, Section I(B), p. 33 -- emphasis added, AR3 11076.

Observe the mandatory "will" and "require." The Commission "will require" "protection" of any "adjacent area" that is "necessary to maintain the functional capacity of the wetland[.]"

Likewise, observe the last sentence of this Guidelines excerpt. Not only must "adjacent areas" themselves "be protected," so must a "buffer area around" the "related adjacent area" be preserved to ensure that the buffer can operate as a buffer.

Furthermore, the Guidelines recognize that "where a significant functional relationship exists, the land supporting this relationship should also be considered to be part of the [ESHA], and the buffer should be measured from the edge of these lands." See, Guidelines, p. 50-52; AR3 11078. (This Guideline bolsters the independent experts' opinion that the entire Mesa should be considered an ESHA.)

As the evidence above persuades, this means that some large portion of the Mesa beyond the Grove must itself be considered an ESHA not just for the raptor habitat to "continue" but for the wetland lowlands to "continue" as well.

As mentioned in the margin, similar to the Guidelines, the Commission has since 1995 published its Procedural Guidance For Evaluating Wetland Mitigation Projects In California's Coastal Zone. That authority too amply alerted Hearthside that land nearby wetlands may have to be preserved to ensure the survival of the wetland itself. For example, the Procedural Guidance states:

> "All project designs should consider the movement of food and energy **between habitats** as well as the life cycles of organisms that feed or reproduce in the wetland but generally reside outside the wetland."

Procedural Guidance, Chapter One, Section V, Paragraph 4 – emphasis added; AR3 11077.

Likewise, the Procedural Guidance (Chapter Two, Section V, B-3; AR3 11077) observes:

> "Wetland connections should not be severed by development. These connections are vitally important as migration corridors and transition zones between wetlands and adjacent habitats."

PRC § 30250(a) mandates:

> "New residential...development...**shall** be located...where it will not have significant adverse effects, either individually or cumulatively, on coastal resources."

(Emphasis added).

Finally, the Court of Appeal in the Bolsa Chica case also acknowledged that the ability of an ESHA (like a wetlands) to survive depends upon what happens nearby. The Court of Appeal admonished the Commission that § 30240 "protect[s] habitat values by placing strict limits on the uses which may occur in an ESHA and by carefully controlling the manner uses in the area around the ESHA are developed." Bolsa Chica, supra, 71 Cal.App. 4th at 507.

As the record shows, it has been sadly demonstrated in practice that wetlands cannot be circumscribed by residential development; that there must be some significant distance between such development and wetlands:

> "The largest remaining patch of natural wetland in Southern California is the 740 acre ecological preserve in Upper Newport Bay, **which is bordered on all sides by development and fraught with environmental problems.**"

(AR3 1295 – emphasis added)

Because only the "wet" part of the upper Newport Bay wetland was protected, and residential development permitted to line its borders, the reserve is rife with "environmental problems," including storm water run-off carrying high filtration loads, toxins such as pesticides, and inorganic matters, such as chemical fertilizers. (AR3 1299) Pesticides accumulated to such record concentrations that, by the 1980s, mussels in the Bay contained levels of ddt up to 2.9 parts per million, three times the allowable limit set by the state Department of Health Services. (AR 1295-1302)

Foreshadowing how Brightwater could inflate the cost of the wetland's $100 million restoration, the state was forced to spend nearly $8 million to dredge and then re-dredge Newport Bay as a result of the immediately adjacent residential development. (AR3 1299)

Tierra Madre Consulting, in its 1999 report Raptor Habitat Assessment for the Bolsa Chica Mesa (AR3 2013) agrees:

"The Mesa is not a separate biological entity; impacts to the Mesa will affect the adjacent Bolsa Chica Ecological Reserve and the wetlands outside of the Reserve."

D. Nollan Summary: The Nexus Requirement Is Easily Fulfilled

- PRC §30240 prohibits development near ESHAs that are "incompatible" with the "continuance" of the ESHA or that "significantly degrade" or "disrupt" them.

- There is vast, substantial, and expert evidence in this record that any significant development on the Mesa -- such as fully 379 residences -- is unlawfully "incompatible" with the "continuance" of not one but two ESHAs, and will "significantly degrade" and "disrupt" both the Eucalyptus grove raptor habitat ESHA and the lowland wetland ESHA.

- The Commission under Nollan would be well within its constitutional rights to deny the Brightwater permit based upon all this substantial evidence alone.

- If the Commission would be within its rights to deny the permit, it would also be entitled under Nollan to approve the permit with conditions that seek to reduce the harmful degradations and disruptions to insignificance and make the approved development "compatible" with the "continuance" of the ESHAs.

- Vast, unrebutted, and expert evidence in this record persuades that one way to help ensure the "compatibility" of Brightwater with the "continuance" of the ESHAs is to preserve as large a contiguous portion of the Mesa as possible.

- Therefore, any condition imposed upon approval of the Brightwater project that does just that clearly satisfies the Nollan nexus test.

- But the evidence is equally clear: the preserved Mesa area must be as large as possible to have a hope of passing muster under §30240.

II. According To The Developer, The Commission May Not Lawfully Approve A Permit That The Evidence Shows Will Harm An ESHA, Even To Avoid A Taking.

If the Commission is contemplating approving the Brightwater project and thinking about avoiding the issue of how much of the Mesa must be preserved because the Commission is "litigation gun shy" or is worried about taking the developer's property, Hearthside has itself argued forcefully that this a train of thought the Commission may not lawfully board at this stage.

As the developer argues in its recent litigation:

> "**[T]he Commission lacks discretion to allow development which would degrade an ESHA -- even to avoid a taking.**" (Signal Landmark's and Hearthside Homes, Inc.'s Opposition to the Coastal Commission's Motion for Summary Judgment, GIC 764965, p. 14 (Nov. 5 2002) -- emphasis added)

The developer likewise argues:

> "In Sierra Club v. California Coastal Com., 12 Cal.App.4th 602 (1993) the Coastal Commission argued that in deciding not to classify the Pygmy Forest as an ESHA, one of its concerns was to do so might constitute a taking. The Court found no statutory authority that would permit such an assessment by the Commission:
>
> > 'We agree that there were no actual takings concerns for the Commission to have "balanced" at the ESHA-designation stage. The County relies on section 30010, which expresses a legislative intent that the Coastal Act not grant the Commission or any county "the power to grant or deny a permit in a manner which will take or damage private property, without the payment of just compensation therefor ..." ***However, that does not support the anticipatory sort of takings balancing advocated by the County***. The section appears designed to foreclose any claim that the Coastal Act authorizes takings without compensation, a construction that would leave the Act open to a facial challenge.[Citations.] ***It does not ask the Commission to balance takings concerns in ESHA decisions***.'"

Id., at p. 13 -- emphases supplied by Hearthside

Similarly, citing California v. Superior Court (Veta) (1974) 12 Cal.3d 237, Hearthside argues that "the Supreme Court held that an administrative agency is not a proper forum to address constitutional issues." (Id.) The developer with its customary vehemence argues:

> "Determining constitutional issues is a matter for the courts, not for regulatory agencies. The case law prohibits the Commission from engaging in constitutional adjudication when carrying out its functions; that task is beyond the statutory authority given to the Commission, and beyond the experience and training of the Commissioners and their staff."

Id. at pp. 13-14

III. No Development May Be Allowed If It Will Violate Section 30240. There Is No Exception Or Leeway In This Rule.

PRC §30240 (governing ESHAs) provides:

"(a) Environmentally sensitive habitat areas **shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.**

(b) Development in areas **adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas."** (Emphases added)

Accord; Sierra Club v. California Coastal Commission (pygmy forest) (1993) 12 Cal. App. 4th 602, 611 ("development in ESHA areas themselves is limited to uses dependent on those resources, and development in adjacent areas must carefully safeguard their preservation"); Bolsa Chica, *supra*, 71 Cal.App. 4th at 507.

Observe the mandatory language used in the statute; diction leaving little room for Commission discretion. ESHAs "*shall be* protected against any significant disruption of habitat values." "Development in areas adjacent to [ESHAs] *shall be* sighted and designed to prevent impacts" and "*shall be* ... compatible with the continuance of those habitat ... areas."

For this reason, if, as here, there is evidence in the record that proposed development is "incompatible" with the "continuance" of an ESHA as it is now, or if it will "significantly degrade" or "significantly disrupt" an ESHA, the project must either be rejected or curative conditions for approval must be imposed.

IV. Based On This Record, The Commission Must By Law Either Reject The Brightwater Permit Entirely Or Consider How Much Of The Mesa Is Needed To Prevent -- At Least Mitigate – Harm To The ESHAs.

The evidence summarized above demonstrates that any significant residential development on the Mesa will illegally harm the raptor ESHA and, thus, the lowland wetlands ESHA. The evidence thus impels the conclusion that no significant residential development such as Brightwater may be permitted at all on the Mesa.

Given these authorities showing inevitable harms to ESHAs if any significant residential development is approved, if the Commission approves Brightwater nevertheless, the Commission would at the barest minimum be smartly advised also to determine how much nearby land is required to mitigate the project's identified harmful impacts to ESHAs.

Phrased differently, it is illegal to approve development that harms ESHAs. It adds legal insult to that injury for the Commission not even to consider how to mitigate such harms to the maximum practical extent possible.

And to reiterate: in light of the authorities and evidence in this record demonstrating that any significant development like Brightwater will violate §30240, the

only curative permit condition that could hope to pass muster under §30240 is preserving the largest portion of the Mesa possible.

V. The Fifth Amendment's Prohibition Against Uncompensated Takings Need Not Be Offended By Outright Rejection Of The Proposed Brightwater Permit. This Is Because, While The Applicant Has A Constitutional Right To Obtain Some Economically Viable Use From Its Property, It Has No -- *Repeat, No* -- Constitutional Right To Insist Upon This Exact Kind Of Or Level Of Residential Development.

As the developer argues, takings issues are not at stake when denying the Brightwater permit. Even so, the second prong of the Nollan court's test is whether the regulation would "den[y] an owner economically viable use of his land." Nollan, supra, at 834, citing Agins v. Tiburon, 447 U.S. 255, 260 (1980).

But rejection of this development -- 379 units and residential in character -- does not mean or even imply that §30240 forbids all kinds of and levels of development on the Mesa.

What remains -- and what has yet to be tested by any of the developer's hyper-ambitious development proposals -- is whether there exists a level and kind of development that, while not so environmentally "significant" (to use Mr. Bloom's phrase) to be illegally harmful to the ESHAs, nevertheless still allows the developer "economically viable use of his land."

The Commission may lawfully reject the massive Brightwater proposed permit based upon a specific and tailored finding that the kind of and amount of residential development proposed for the Mesa is simply incompatible with the continuance of the ESHAs on the Mesa and the lowland wetlands.

The Commission can also find, as it should, that such a conclusion does not foreclose any and all other kinds or levels of development on the Mesa. The Commission would be well advised to find formally that there certainly exists some level and kind of development that will not harm the ESHAs, but that the developer has yet to put forward a proposal that comes close to achieving that balance.

Indisputably, Hearthside has a constitutional right to exploit its property. But, crucially, the developer does not have any more of a constitutional right to exploit its property through massive, 379-unit residential development than it has a constitution-based right to build, say, an amusement park, garbage dump, or paper manufacturing plant on the Mesa.

The United States Supreme Court's recent Palazzolo v. Rhode Island, ___ U.S. ___, 121 S.Ct. 2448 (2001) decision is instructive. In that case, the Court held that a takings claim became ripe when the regulating authority adopted policies that forbade literally any development on a developer's property. However, in concluding that there

was no taking, the Court found that even the ability to build but a single residence meant that the regulator had not deprived the owner of "economically viable use" of his property:

> "[The lower court] held that all economically beneficial use was not deprived because the uplands portion of the property can still be improved. On this point, we agree with the court's decision. Petitioner accepts the Council's contention and the state trial court's finding that his parcel retains $ 200,000 in development value under the State's wetlands regulations. He asserts, nonetheless, that he has suffered a total taking and contends the Council cannot sidestep the holding in Lucas 'by the simple expedient of leaving a landowner a few crumbs of value.' Assuming a taking is otherwise established, a State may not evade the duty to compensate on the premise that the landowner is left with a token interest. This is not the situation of the landowner in this case, however. A regulation permitting a landowner to build a substantial residence on an 18-acre parcel does not leave the property 'economically idle.'" Id.

It is therefore clear that a taking cannot be established by the rejection of the proposed Brightwater permit if the Commission (1) finds based on the ample evidence before it that the proposed 379 multi-family residential homes violate PRC §30240 but that (2) the Commission also finds that not all levels and kinds of development will be forbidden by the statute; that a smaller and/or less invasive kinds of development could very well be consistent with the §30240.

Respectfully submitted,

Edward Howard
Counsel for the Bolsa Chica Land Trust

Keane
Biological Consulting

January 27, 2004

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CALIFORNIA
COASTAL COMMISSION

Teresa Henry
Deputy Director
South Coast District Office
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

SUBJECT: "Analysis of Potential Effects of Development of the Upper Terrace of Bolsa Chica Mesa on Avian Predation on Nesting Waterbirds in the Bolsa Chica Wetlands," Coastal Development Permit Application Number 5-02-375

5546 Parkcrest Street
Long Beach, California
90808-2030

Dear Ms Henry:
On November 14, 2000, I submitted a letter to the California Coastal Commission regarding a previously-proposed residential development project by Hearthside Homes on the Bolsa Chica Mesa. At that time, Hearthside Homes claimed that because their proposed project would remove important raptor foraging habitat, it would benefit the ecological function of Bolsa Chica Lowlands (lowlands) by reducing populations of raptors that potentially prey upon nesting birds in the lowlands. While it is encouraging that Hearthside Homes is now attempting to more fully address the effects of their currently proposed project on nesting birds in the lowlands, the conclusion drawn by their consultant, LSA Associates, in the above-referenced document (LSA document) — "Under current conditions, which include substantial trapping of avian predators in the lowlands, the proposed development on the Bolsa Chica Mesa is not expected to have a significant on nesting waterbirds in the wetlands"— is based upon false assumptions and is not supported by the data presented or by other available information.

The above-referenced statement is analogous to stating that because existing traffic signals manage traffic flow in the project vicinity, the proposed project would not have a significant effect on local traffic.

My comments on the LSA document are derived from over 20 years of experience as an ornithologist monitoring and managing nesting areas for the California Least Tern (Least Tern) at the Port of Los Angeles, Camp Pendleton, Batiquitos Lagoon, and other nesting sites and serving as statewide coordinator of Least Tern Monitoring for the California Department of Fish and Game three of those years. I also authored the bird section, including the impacts discussion, of the Bolsa Chica Lowlands Restoration Project EIR/EIS, which evaluated the status of nesting birds in the Bolsa Chica Lowlands. Thus, I am very familiar with species nesting in the lowlands as well as with the project area.

The LSA document is well-researched in its presentation of data on birds nesting at the Bolsa Chica lowlands and on avian predators removed from the lowlands in recent years. However, the document:

Phone (562) 425-8565 Fax (562) 425-2265

- assumes, without stating so, that the existing predator management program in the wetlands will continue in perpetuity, at similar levels every year. In reality, however, funding for predator management is provided by the California Department of Fish and Game (CDFG), and the availability of such funds varies from year to year. For example, CDFG will have restricted funds in 2004 due to the current state budget crisis (Lyann Comrack, CDFG, [pers. comm.);
- assumes, without stating so, that existing predator management is always successful in minimizing predation on lowland nesting birds. In reality, however, data provided in reports cited by LSA clearly shows that ongoing predator management in the lowlands has not always ensured the nesting success of Least Terns, Snowy Plovers, and other non-listed species such as Elegant Terns and Caspian Terns nesting at Bolsa Chica. For example, during the four years from 1999 through 2002, Least Tern productivity in the lowlands was zero, even though 57 American Kestrels and 250 American Crows were removed from the lowlands during those years. Thus, predator management is not 100% successful in removing avian predators, and in fact may fail to remove the most offending individuals, as these individuals are the most difficult to trap (W.L. Ross, pers. comm.);
- ignores documented information that Least Tern nesting sites adjacent to residential development projects are susceptible to predation by birds supported by residential development such as American Crows, and by birds who have lost traditional foraging habitat to residential development. For example, following creation of five nesting sites for Least Terns and Western Snowy Plovers at Batiquitos Lagoon in 1996, and subsequent completion of several new residential development projects adjacent to the lagoon from 1997 through 2001, predation by American Crows, Common Ravens and Red-tailed Hawks increased. Predation was so intensive that even with an ambitious predator management program (daily visits by a predator manager dedicated solely to Batiquitos Lagoon), Snowy Plover nest numbers at the lagoon decreased from an maximum of 39 in 1996 to 8 in 2001, and productivity for Least Terns declined from an average of 0.97 fledglings per nest from 1994 through 1996 to 0.34 fledglings per nest from 1997 through 2001;
- presents data and cites reports by W.L. Ross, who has conducted predator management in the lowlands and four other Least Tern nesting areas for 12 years, but cites no personal interviews with Mr. Ross, Mr. Jack Fancher of the U.S. Fish and Wildlife Service, or individuals with U.S. Department of Agriculture Wildlife Services, all with many years of experience observing and managing predators on Least Terns and Snowy Plovers. These individuals could have provided additional citations, personal observations and objective opinions regarding the potential effect on predator populations of residential development projects adjacent to nesting sites;
- though it states that the existing predator management program will continue to be "the most important factor influencing the population" of potential predators in the lowlands, it fails to analyze the extent to which the proposed development may increase numbers of predators in the lowlands, simply stating, for example, that "a slight loss of habitat on the upper mesa would be inconsequential."

Thus, the conclusion that ongoing predator management will render inconsequential the contribution of the Brightwater Project to predation in the lowlands is erroneous.

I further discuss below the LSA document's discussion of two species that have had a major influence on Least Tern productivity during the past decade.

American Kestrel

The LSA document states, "Given the perennial reduction in kestrel numbers resulting from trapping, development of the upper mesa is not expected to have any significant effect on kestrels, either in terms of numbers present or the location of their activities. As long as trapping continues, empty kestrel habitat is expected at Bolsa Chica." However, American Kestrels are known to nest in palm trees, included in most coastal residential projects and likely to be included in landscaping for the Brightwater project; thus, the project has a potential to increase the number of kestrels in the project area.. Even if the Brightwater Project will refrain from using palm trees in its landscaping, kestrels are known to prey on insects, small mammals and reptiles, and potential foraging habitat and roosting perches for kestrels will be removed by the proposed project, which will likely lead to increases of kestrel perching and foraging in the lowlands, including foraging on Least Tern and Snowy Plover chicks. In recent years, American kestrels have been one of the primary predators on Least Terns and Snowy Plovers chicks and fledglings; e.g., "Chick losses to American kestrels were higher than for other reported predators." (Keane 2000); "highest chick/fledgling losses were to American kestrels, coyotes and peregrine falcons" (Keane 2001).

American Crow

For Least Terns, the greatest egg losses in 1999 were attributed to coyotes, crows and ravens (Keane 2001), and the lack of any successful nesting attempts and nesting site abandonment at Venice Beach in 2002 was due to crows (Taylor 2002). In addition, as stated above, ample anecdotal evidence suggests that predation by American Crows on Least Terns increased following residential development at Batiquitos Lagoon.

Thank you for considering my comments on the LSA document. Please feel free to contact me if you would like additional information or clarification on any of the information provided in this letter.

Sincerely,
KEANE BIOLOGICAL CONSULTING

Kathleen M. Keane

Kathleen (Kathy) Keane
cc: John Dixon, biologist, California Coastal Commission

References Cited

Keane, K.M. 2000. California least tern breeding survey, 1998 season. Calif. Dep. Fish and Game, Habitat Conservation and Planning Branch Report 2000-01, Sacramento, CA. 43 pp.

Keane, K.M. 2001. California least tern breeding survey, 1999 season. Calif. Dep. Fish and Game, Habitat Conservation and Planning Branch Report, Species Conservation and Recovery Program Report 2001-01, Sacramento, CA. 16 pp. + app.

Taylor, M. 2003. Breeding biology of the California least tern at Venice Beach, 2002 breeding season. Prepared for the California Department of Fish and Game, Lands Management Office, San Diego, CA. January 29, 2003.

SANDRA GENIS, PLANNING RESOURCES
1586 MYRTLEWOOD COSTA MESA, CA. 92626 **PHONE/FAX (714) 754-0814**

To: Teresa Henry
California Coastal Commission
Fax (562) 590-5084

From: Sandra Genis, Bolsa Chica Land Trust
(714) 754-0814

Date: February 18, 2004

Subject: Brightwater Development (CDP Application No. 5-02-375)

Attached are statements from Juan Mueller regarding the photo of a burrowing owl previously submitted to the Coastal Commission; a summary of resources observed by biologist Robert Hamilton, including a burrowing owl on the mesa; and a statement from Marinka Horack and Marge Allen regarding a pair of white-tailed kites observed at Bolsa Chica. They have also supplied a photo, although this is not the photo of white-tailed kites previously submitted. That photo was taken by Clair de Bouvoier, who will be submitting separate documentation. He indicated by telephone that he has observed a pair of kites nesting near the heron nest on the mesa.

The faxed materials are also being submitted by mail. Hope this helps the Commission in the review of existing resources at Bolsa Chica.

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DOCUMENTATION

Burrowing Owl in Bolsa Chica Ecological Reserve
Sunday, October 8, 2000
Between 11:00 AM & 2 PM

Witnesses:

- Aishah Al-Sehaim - 8th grade student at Lake Center Middle School, Santa Fe Springs
- Rebecca Vallejo-Palagyi -parent of Aishah, Teacher at La Mirada Hi School, phone (H) 714-377-0586
- Mark Vallejo-Palagyi - parent
- Marinka Horack, birder
- Lois Vackar, birder
- Steven Mueller, photographer
- Juana Mueller, chronicler – Juana R Mueller

About 11:00 AM Aishah and her mother set off on a walk following a path in back of the Intrerpretive Center at the Bolsa Chica Ecological Reserve on Warner and PCH. Just before they came to a sign indicating the trail was going off limits they were startled by a bird flying out right by them. Aishah was able to discern that it was a little owl although neither she nor her mother knew what kind. They were interested that an owl would be out and about in broad daylight.

They turned back and took the mesa trail along the wetlands and ended up in the PCH Reserve parking lot where they were to be picked up by Mr. Vallejo-Palagyi. There they encountered Marinka Horack and the Land Trust educational table. They recounted their siting of the little owl to Marinka who became excited that it might be a Burrowing Owl. At one time Burrowing Owls had been found on Bolsa Chica Mesa but had not been seen near the Mesa in at least a decade, even though it's perfect habitat for them. Marinka took out her bird book and they tried to identify the owl. Marinka also got on her cell phone and phoned several knowlegeable people to see if they could come have a look.

Lois Vackar came and brought her birding scope, Steven Mueller came with his photographic equipment, and Juana came to document the siting.

The Bourrowing Owl was hiding in the depression outside a burrow and eyeing all of us with great interest. Lois had the owl in her scope for a perfect view of its movements. It moved out of the depression and up on a little mound of dirt. Finally it flew off about 25 -30 feet. In a few minutes it returned to the burrow and stood outside it watching us. There was no mistaking it was a Burrowing Owl. It seemed to be using the burrow as "home" during the time we were observing.

The location was about 10 - 15 feet off PCH & maybe 25 - 30 feet in front of the "off limits" sign behind the Interpretive Center. Steve was able to get a complete set of photos of this siting.

PHOTO OF TWO WHITE-TAILED KITES

DATE: February 5, 1999

TIME: Mid-day

PLACE: Upper Bolsa Chica Mesa, a little south of the D.E. Goodell property, but inside the chain-link fence on Hearthside land.

WHAT WE OBSERVED: Two White-tailed Kites were flying together and actually linked up in the air. The photo was taken when they flew down to perch on some dead tree branches.

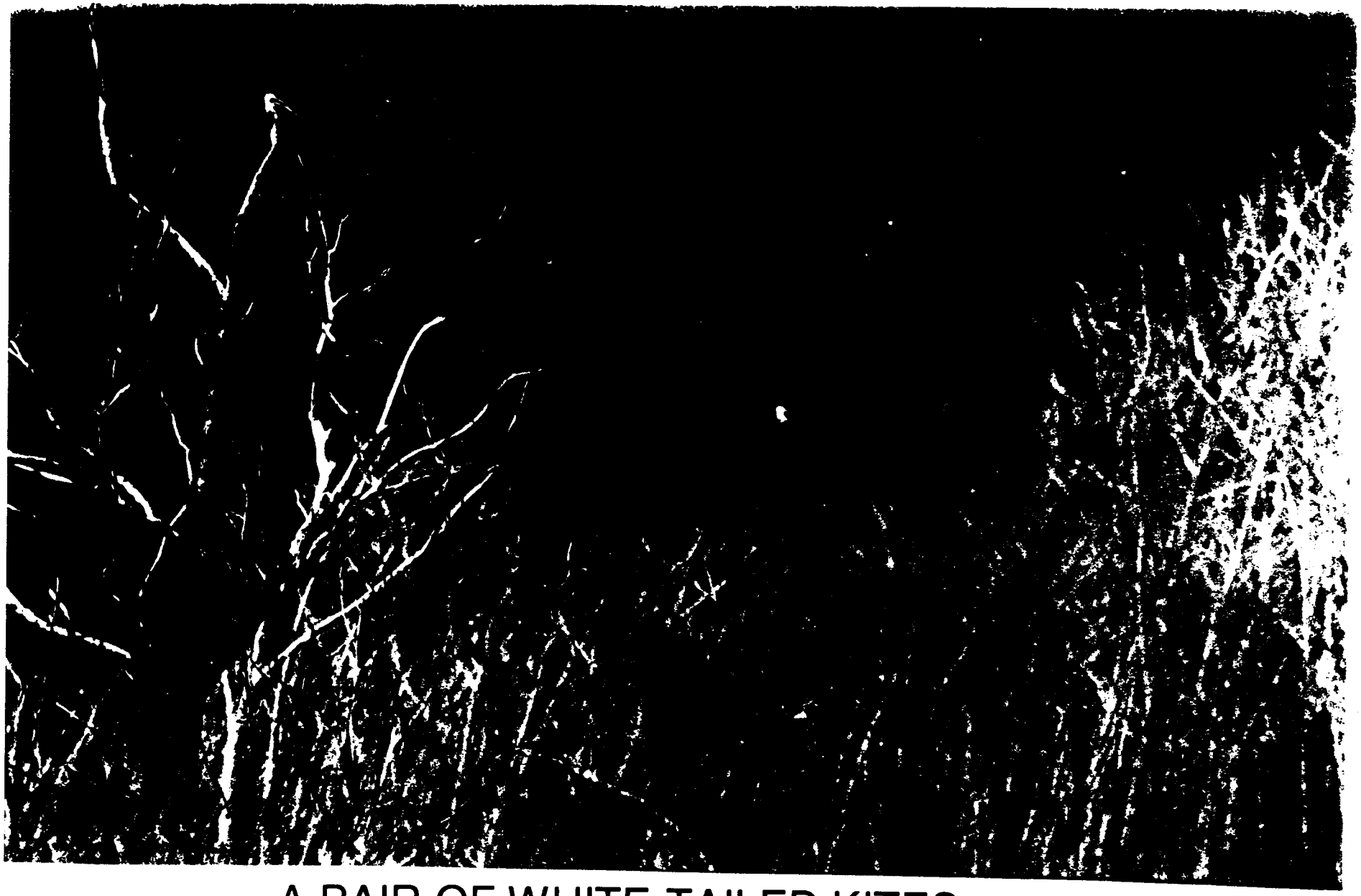
WITNESSED BY:

Marinka Horack
[took the photo]

Marinka Horack

Marge Allen
(Marjorie Allen)

Marjorie Allen



A PAIR OF WHITE-TAILED KITES
AT BOLSA CHICA MESA
(A species of concern)
February 5, 1999

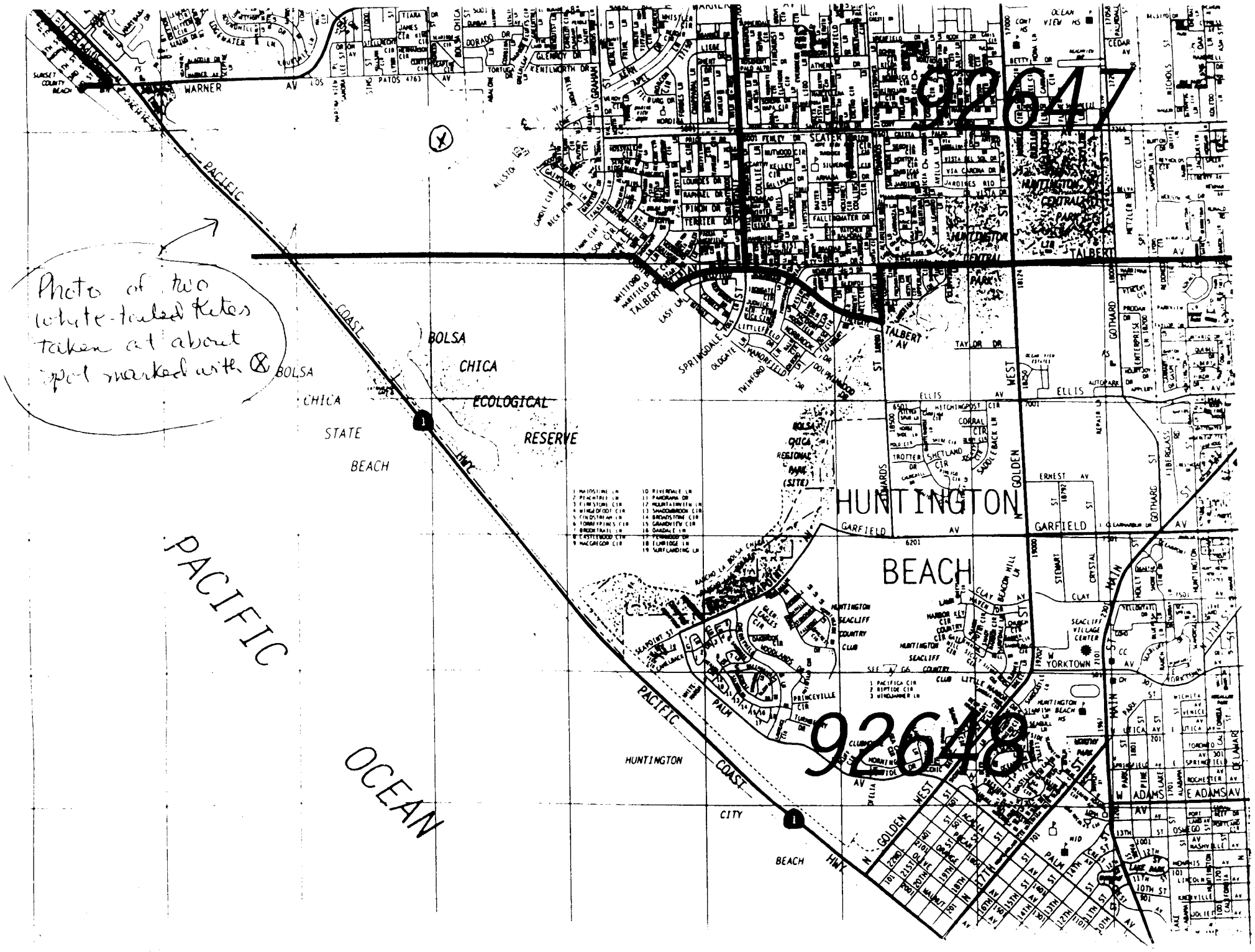


Photo of two white-tailed kites taken at about spot marked with ⊗
92647
92648
PACIFIC COAST HWY
BOLSA CHICA STATE BEACH
BOLSA CHICA ECOLOGICAL RESERVE
HUNTINGTON BEACH
PACIFIC OCEAN
HUNTINGTON CITY BEACH
WARNER AV
TALBERT AV
ELLIS AV
GARFIELD AV
YORKTOWN
ADAMS AV
N GOLDEN
N WEST
N MAIN
N PALM
N 17TH
GOTHARD
HUNTINGTON CENTRAL PARK
HUNTINGTON SEACLIFF COUNTRY CLUB
SEACLIFF VILLAGE CENTER
HUNTINGTON BEACH HS
OCEAN VIEW HS
BOLSA CHICA REGIONAL PARK (SITE)

Robert A. Hamilton

January 26, 1998

Nancy Donovan
Bolsa Chica Land Trust
4831 Los Patos
Huntington Beach, CA 92649

Subject: Animal Species Observed at Bolsa Chica Mesa

Dear Nancy,

This letter report describes the methods and provides the results of two biological surveys that I conducted at Bolsa Chica Mesa in coastal Orange County, California. Species considered sensitive by state and/or federal resource agencies are denoted as such in the Appendix A species list.

Methods

I walked the upper mesa with you and Jan Vandersloot from on 16 January 1998, and walked the entire Bolsa Chica mesa and associated upland slopes on 21 January. During each survey, I searched for primarily for birds and other wildlife; during the second survey, I searched for the Coastal California Gnatcatcher (*Polioptila californica californica*) in areas of coastal bluff scrub, dried Black Mustard (*Brassica nigra*) and Sweet Fennel (*Foeniculum vulgare*). I also inspected two ponded areas covering approximately 0.1 to 0.2 acre located on the upper mesa near the intersection of Los Patos and Lynn roads, and smaller wet areas in this general area.

Table A - Survey Summary

Survey Date	Time	Start Conditions	End Conditions
16 January 1998	1300-1530	wind 1-3 mph; clear; ~75°F	wind 1-3 mph; clear; ~75°F
21 January 1998	0900-1130	wind 1-3 mph; clear; ~75°F	wind 1-3 mph; clear; ~75°F

Results

I detected three butterfly species, one reptile species, 38 bird species, and four mammal species (please refer to the species list in Appendix A); I also observed fairy shrimp of undetermined species in tire tracks located on the upper mesa, near the small ponded areas referred to previously.

During the 16 January survey, I observed one Burrowing Owl on the upper mesa. This raptor has declined dramatically in Orange County and elsewhere in coastal southern California, and now primarily occurs in Orange County as a fall and winter visitor. However, raptor biologist Peter H. Bloom (pers. comm.) suggests that Bolsa Chica mesa may be near enough to the county's last substantial resident population, at the Seal Beach National Wildlife Refuge, for dispersing birds to establish residence at Bolsa Chica mesa. Directed spring surveys would be required to ascertain whether the Burrowing Owl presently occurs at Bolsa Chica mesa as a fall and winter visitor or a breeding resident.

P.O. Box 961 — 20611½ Sycamore Drive — Trabuco Canyon, CA 92678
(714) 459-2875 (Phone/Fax) — robbham@flash.net

During each surveys, a pair of White-tailed Kites were observed in apparent courtship behavior in eucalyptus trees at the southeast margin of the mesa, suggesting that this pair may attempt to nest in these trees.

Discussion

The bird sightings reported here are essentially consistent with baseline information reported in the Setting section of Draft EIR No. 551 for the "Bolsa Chica Project," prepared by the County of Orange, dated 20 December 1993. It is not clear, however, that focused spring surveys for the Burrowing Owl have been completed in a manner consistent with California Department of Fish and Game policy.

In addition, discovery of seasonally ponded areas and unidentified fairy shrimp appears to represent new biological information that was not considered in the preparation of environmental documentation for the proposed project.

Conclusion

Please call me at (714) 459-2875 if you have any questions regarding this report, or wish to further discuss any issues.

Sincerely,

Robert A Hamilton

Robert A. Hamilton
Consulting Biologist

Attachments: Appendix A, List of Animal Species Observed

cc: Jan Vandersloot

APPENDIX A
ANIMAL SPECIES OBSERVED
BOLSA CHICA MESA

The following invertebrates, amphibians, reptiles, birds and mammals were noted during walks of the Bolsa Chica mesa on 21 January 1998. Each species was observed, rather than being detected by indirect means (tracks, scat, etc.). Numbers of each species observed during the 21 January survey are indicated in parentheses; Red-shouldered Hawk, Cooper's Hawk, Burrowing Owl, and Palm Warbler were observed only during the 16 January 1998 survey; numbers indicated for these species pertain to the earlier survey date.

In addition to species conclusively identified, I observed five fairy shrimp of unknown genus and species in water ponded in tire tracks on the upper mesa during the 21 January survey.

*Introduced species

LEPIDOPTERA
Nymphalidae
Danaus plexippus
Vanessa atalanta rubria
Nymphalis antiopa antiopa

REPTILIA
Iguanidae
Sceloporus occidentalis

AVES
Ardeidae
Ardea herodias
Ardea albus

Accipitridae
Elanus leucurus
Circus cyaneus
Accipiter striatus
Accipiter cooperii
Buteo lineatus
Buteo jamaicensis

Falconidae
Falco sparverius

Columbidae
Zenaida macroura

Strigidae
Athene cunicularia

Trochilidae
Calypte anna

Alcedinidae
Ceryle alcyon

BUTTERFLIES
Brush-footed Butterflies
Monarch (2)
Red Admiral (1)
Mourning Cloak (1)

REPTILES
Iguanid Lizards
Western Fence Lizard (3)

BIRDS
Herons
Great Blue Heron (3)
Great Egret (5)

Hawks
White-tailed Kite (2)
Northern Harrier (2)
Sharp-shinned hawk (1)
Cooper's Hawk (1)
Red-shouldered Hawk (1)
Red-tailed Hawk (3)

Falcons
American Kestrel (3)

Pigeons, Doves
Mourning Dove (5)

Typical Owls
Burrowing Owl (1)

Hummingbirds
Anna's Hummingbird (12)

Kingfishers
Belted Kingfisher (1)

Picidae
Picoides nuttallii
Picoides pubescens
Colaptes auratus

Tyrannidae
Sayornis nigricans
Sayornis saya

Laniidae
Lanius ludovicianus

Corvidae
Corvus brachyrhynchos

Monarchidae
Turdus migratorius

Aegithalidae
Psaltriparus minimus

Regulidae
Regulus calendula

Mimidae
Mimus polyglottos

Sturnidae
* *Sturnus vulgaris*

Motacillidae
Anthus rufescens

Parulidae
Vermivora celata
Dendroica coronata
Dendroica palmarum
Geothlypis trichas

Emberizidae
Pipilo crissalis
Passerculus sandwichensis
Melospiza melodia
Melospiza lincolnii
Zonotrichia leucophrys
Zonotrichia atricapilla

Icteridae
Agelaius phoeniceus
Sturnella neglecta

Fringillidae
Carpodacus mexicanus

Woodpeckers
Nuttall's Woodpecker (1)
Downy Woodpecker (1)
Northern Flicker (3)

Tyrant Flycatchers
Black Phoebe (4)
Say's Phoebe (4)

Shrikes
Loggerhead Shrike (2)

Jays, Crows
American Crow (30)

Monarch Flycatchers
American Robin (1)

Bushtits
Bushtit (30)

Kinglets, Gnatcatchers, Thrushes, Babblers
Ruby-crowned Kinglet (1)

Thrashers
Northern Mockingbird (1)

Starlings
European Starling (40)

Pipits
American Pipit (30)

Wood Warblers
Orange-crowned Warbler (1)
Yellow-rumped Warbler (8)
Palm Warbler (1)
Common Yellowthroat (5)

Sparrows and Buntings
California Towhee (6)
Savannah Sparrow (25 [migratory])
Song Sparrow (4)
Lincoln's Sparrow (2)
White-crowned Sparrow (60)
Golden-crowned Sparrow (5)

Meadowlarks, Blackbirds and Orioles
Red-winged Blackbird (5)
Western Meadowlark (100)

Finches
House Finch (150)

MAMMALIA	**MAMMALS**
Leporidae	**Hares, Rabbits**
Sylvilagus audubonii	Audubon Cottontail (2)
Lepus californicus	Black-tailed Jackrabbit (1)
Sciuridae	**Squirrels**
Spermophilus beecheyi	California Ground Squirrel (20)
Canidae	**Wolves, Foxes**
Canis latrans	Coyote (1)

Taxonomy and nomenclature follow Mattoni (1990)[1], Stebbins (1966)[2], American Ornithologists' Union (1983)[3] and supplements and Ingles (1965)[4].

---

[1]Mattoni, R. 1990. Butterflies of Greater Los Angeles. Identification poster published for the Los Angeles County Museum of Natural History by the Center for the Conservation of Biodiversity/Lepidoptera Research Foundation, Beverly Hills.

[2]Stebbins, R.C. 1966. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin, Boston.

[3]American Ornithologists' Union. 1983. Check-list of North American Birds, sixth edition. Washington, D.C. and supplements.

[4]Ingles, L.G. 1965. Mammals of the Pacific States. Stanford University Press.

SANDRA GENIS, PLANNING RESOURCES
1586 MYRTLEWOOD COSTA MESA, CA. 92626 **PHONE/FAX (714) 754-0814**

To: Teresa Henry
District Manager, South Coast District Office
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, Ca. 90802-4416

From: Sandra Genis, Bolsa Chica Land Trust
(714) 754-0814

Date: February 18, 2004

Subject: Brightwater Development (CDP Application No. 5-02-375)

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Also enclosed is a copy of *Miracles of the Marsh: A Field Guide to Bolsa Chica,* which was prepared as part of the Bolsa Chica Land Trust Education Project. This includes general information on the resources of the Bolsa Chica.

I hope this is helpful. Please do not hesitate to contact me if you have any questions or need further information.

DOCUMENTATION

Burrowing Owl in Bolsa Chica Ecological Reserve
Sunday, October 8, 2000
Between 11:00 AM & 2 PM

Witnesses:

- Aishah Al-Sehaim - 8th grade student at Lake Center Middle School, Santa Fe Springs
- Rebecca Vallejo-Palagyi -parent of Aishah, Teacher at La Mirada Hi School, phone (H) 714-377-0686
- Mark Vallejo-Palagyi - parent
- Marinka Horack, birder
- Lois Vackar, birder
- Steven Mueller, photographer
- Juana Mueller, chronicler – Juana R Mueller

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They turned back and took the mesa trail along the wetlands and ended up in the PCH Reserve parking lot where they were to be picked up by Mr. Vallejo-Palagyi. There they encountered Marinka Horack and the Land Trust educational table. They recounted their siting of the little owl to Marinka who became excited that it might be a Burrowing Owl. At one time Burrowing Owls had been found on Bolsa Chica Mesa but had not been seen near the Mesa in at least a decade, even though it's perfect habitat for them. Marinka took out her bird book and they tried to identify the owl. Marinka also got on her cell phone and phoned several knowlegeable people to see if they could come have a look.

Lois Vackar came and brought her birding scope, Steven Mueller came with his photographic equipment, and Juana came to document the siting.

The Bourrowing Owl was hiding in the depression outside a burrow and eyeing all of us with great interest. Lois had the owl in her scope for a perfect view of its movements. It moved out of the depression and up on a little mound of dirt. Finally it flew off about 25 -30 feet. In a few minutes it returned to the burrow and stood outside it watching us. There was no mistaking it was a Burrowing Owl. It seemed to be using the burrow as "home" during the time we were observing.

The location was about 10 - 15 feet off PCH & maybe 25 - 30 feet in front of the "off limits" sign behind the Interpretive Center. Steve was able to get a complete set of photos of this siting.

PHOTO OF:
PUBLIC VIEW OF SAN GABRIEL MOUNTAINS
FROM BOLSA CHICA MESA & WETLANDS
This view would be obliterated if Brightwater project were to be built.

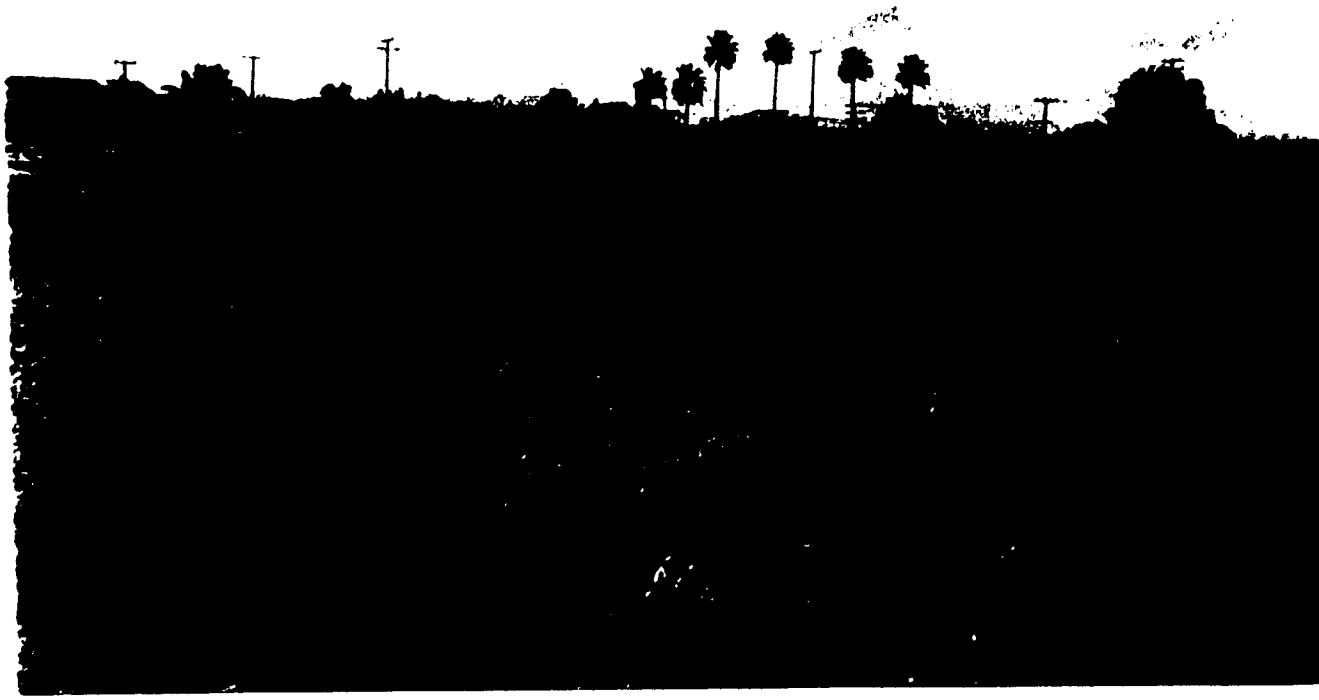
DATE: November 25, 2001

TIME: Morning

PLACE OF OBSERVATION: From Bolsa Chica trail
along bluff edge - area just west of the old gun club.
[see attached map]

Photo by Marinka Horack

Marinka Horack



BOLSA CHICA MESA & SAN GABRIEL MOUNTAINS
This public view would be obliterated by Hearthside project.

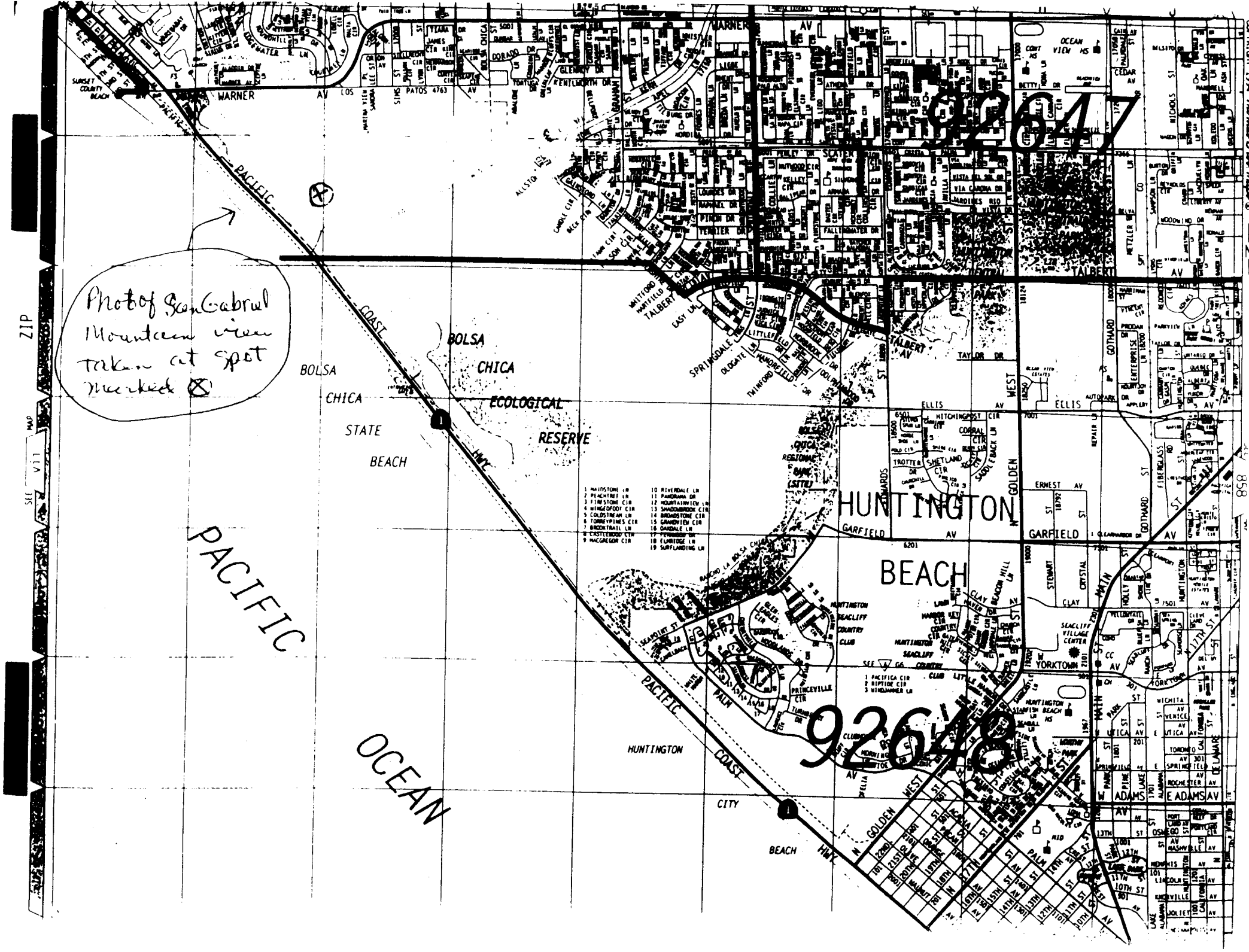


Photo of San Gabriel Mountains view taken at spot marked ⊗
92647
92648
PACIFIC OCEAN
PACIFIC COAST HWY
BOLSA CHICA STATE BEACH
BOLSA CHICA ECOLOGICAL RESERVE
HUNTINGTON BEACH
HUNTINGTON CITY BEACH
WARNER AV
TALBERT AV
ELLIS AV
GARFIELD AV
YORKTOWN
ADAMS AV
GOLDEN WEST
GOTHARD ST
MAIN ST
BEACH BLVD
SEACLIFF VILLAGE CENTER
HUNTINGTON SEACLIFF COUNTRY CLUB
HUNTINGTON STARFISH BEACH HS
OCEAN VIEW HS
SUNSET COUNTY BEACH
ZIP
MAP
VII

PHOTOS OF SOUTHERN TARPLANT (Hemizonia australis)
ON LOWER BOLSA CHICA MESA

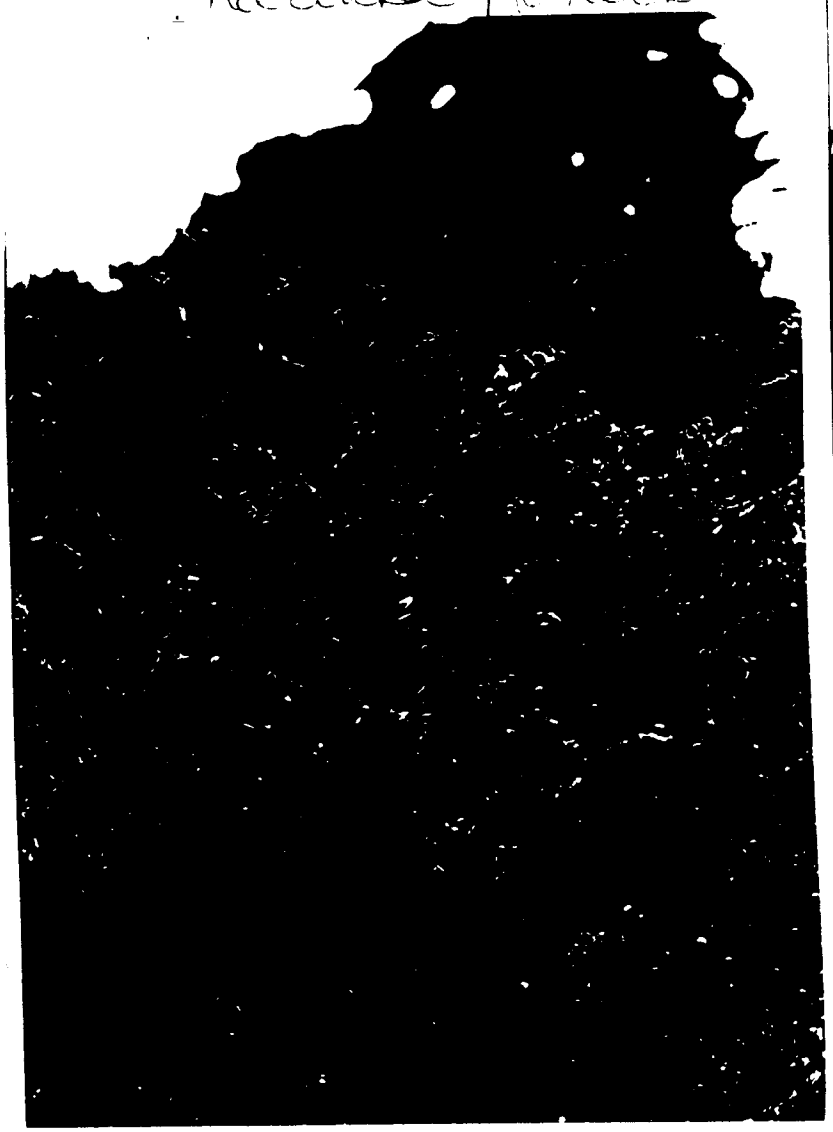
DATE: August 2003

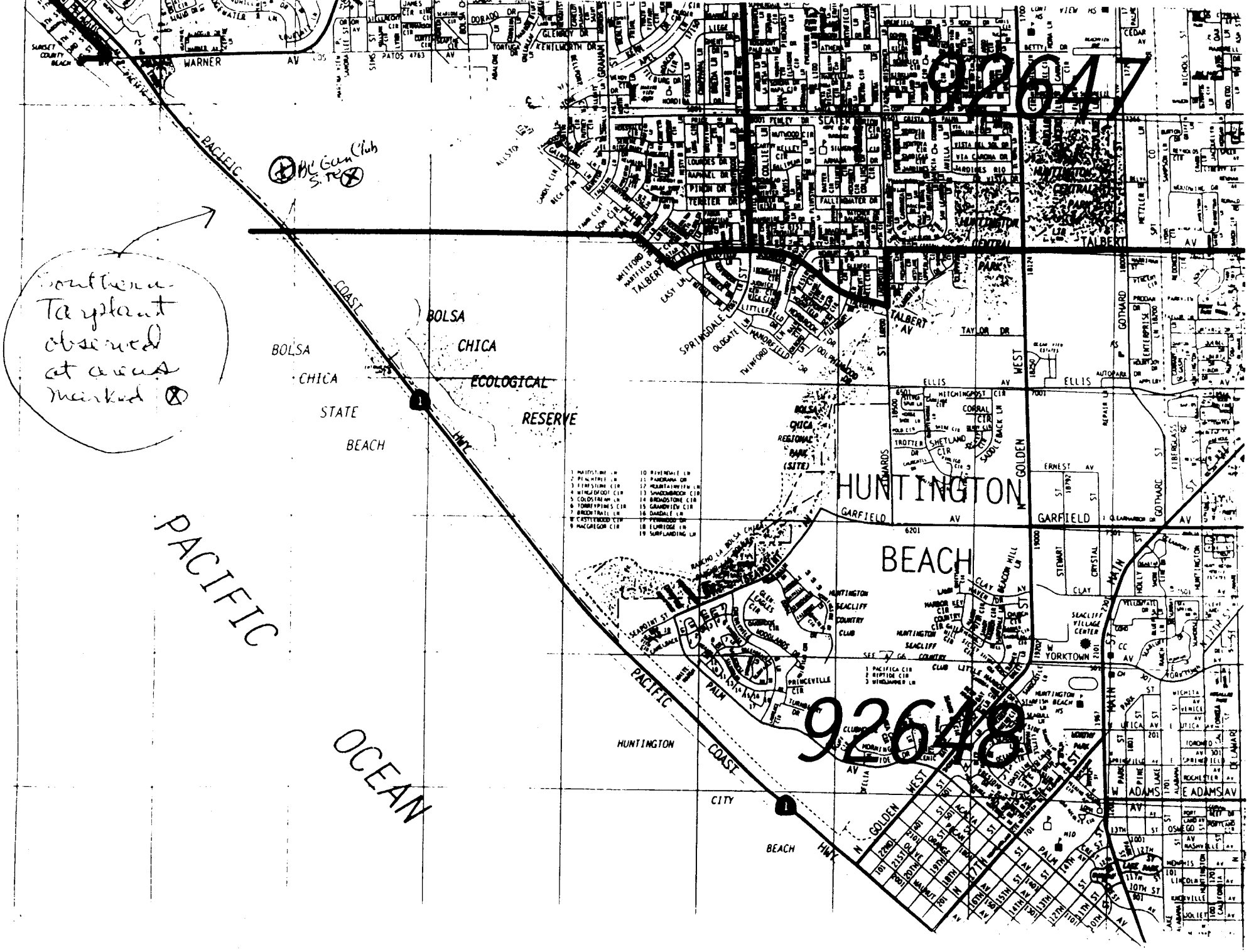
TIME: Afternoon

PLACE OF OBSERVATION: On lower Mesa [see attached map] by the old Bolsa Chica Gun Club site. The photos show the Hearthside fence, and one of the landmark Canary Island Palms in the background.
These photos document the fact that the rare Southern Tarplant grows on the Lower as well as the Upper Bolsa Chica Mesa.
The rare hemizonia plant is distinguished from the more common Tarplant by the prickly texture of the rare one.

Photo by Marinka Horack

Marinka Horack




Southern Tarplant observed at areas marked ⊗
Big Gun Club S.T.
BOLSA CHICA ECOLOGICAL RESERVE
BOLSA CHICA STATE BEACH
PACIFIC OCEAN
PACIFIC COAST HWY
HUNTINGTON BEACH
HUNTINGTON CITY BEACH
92647
92648
WARNER AV
TALBERT
ELLIS
GARFIELD
YORKTOWN
ADAMS
GOLDEN
MAIN
PALM
SEAPORT
HUNTINGTON SEACLIFF COUNTRY CLUB
SEACLIFF VILLAGE CENTER
BOLSA CHICA REGIONAL PARK (SITE)

RECEIVED
South Coast Region

JUL 1 8 2004

CALIFORNIA
COASTAL COMMISSION

RECEIVED
South Coast Region

JUL 0 1 2004

CALIFORNIA
COASTAL COMMISSION

Theresa Henry
California Coastal Commission
200 Ocean gate # 1000
Long Beach, CA 90802

June 29, 2004

Dear Theresa:

I am enclosing a picture taken by Steve E. Smith. This Bald Eagle was photographed on Mar 26th, 2004. It was seen for three days on the Bolsa Chica and also seen many times again in April. As you can see it is a juvenile and tagged from Catalina Island. This is photographed proof that the Mesa must be saved as a resting place for these birds.
Any more information can be obtained from Mr. Smith whose cell phone is 562-822-1879 or email me at murphyeile@aol.com

Sincerely,

Eileen Murphy

Eileen Murphy
201 21st Street
HB CA 92648
714-536-4835

146 La Grande
Moss Beach, CA 94038

July 14, 2004

RECEIVED
South Coast
JUL 15 2004
COASTAL COMMISSION

Mr. Peter Douglas
Executive Director
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: Failure to Mitigate at CA-ORA-83 (Cogged Stone) Site

Dear Mr. Douglas:

As you are aware, I am very concerned about the California Coastal Commission's refusal to require the critical mitigation measures necessary to protect the unique archaeoastronomical resources at the CA-ORA-83 site on Bolsa Chica Mesa.

Signal Landmark's proposed development of the CA-ORA-83 site will destroy its archaeoastronomical resources and nationally significant informational values. California law requires mitigation for these resources and informational values commensurate with the site's profound historic significance.

Simply acknowledging the site's alignments or astronomical potential can in no way be construed as "reasonable" mitigation, especially given the chronological significance of the CA-ORA-83 site in terms of the history of astronomy. Logically, in light of the site's pivotal historical significance, the required mitigation efforts must *directly* address nationally relevant research questions via the collection, study and analysis of data relevant to those research questions before the destruction of this site's archaeoastronomical resources.

Contrary to the Commission's current position, archaeoastronomy constitutes a recognized and well established sub-field of archaeology, and under Californian law archaeoastronomical resources are clearly defined as archaeological resources; *see, e.g.*, the California Environmental Quality Act.

Along with several nationally distinguished scholars in the fields of Native American and Native Californian astronomy and archaeoastronomy, I again request that the Commission require historically relevant archaeoastronomical mitigation at the site, in accordance with the dilates of the California Coastal Act of 1976. The Commission should recommend the site be opened to highly respected scholars in the fields of Native American and Native Californian astronomy and

archaeoastronomy so that, working different archaeoastronomical aspects and problems at the site, a historically crucial baseline of archaeoastronomical information can be garnered.

1. CA-ORA-83's National Significance

The archaeological resources of the CA-ORA-83 site, a pentagonal-shaped area south of Los Patos Avenue and west of Bolsa Chica Street on the southern edge of the upper bench of the Bolsa Chica Mesa, have been previously identified by the State Historic Preservation Officer, who has twice determined that the site is eligible, under state-wide significance, for listing on the National Register of Historic Places. The CA-ORA-83 site has also been acknowledged as "possibly significant as a solstice observation site" in a permanent, public record and report regarding this site by the developer's own archaeological and anthropological agents (Scientific Resources, Inc. 1997).

On the basis of relevant new data regarding the CA-ORA-83 site's historic significance and informational values where the history of astronomy is concerned, its historically unparalleled archaeoastronomical resources are currently the subject of a National Register nomination which was submitted to the Office of Historic Preservation in May of 2004. As a result of comprehensive research and documentation on my part,[1] as well as input and review by experts in the fields of Native American and Native Californian astronomy and archaeoastronomy, the CA-ORA-83 site is currently nominated for inclusion on the National Register of Historic Places as a nationally significant property due to its still-functioning state, and its research potential, as one of the world's earliest fixed astronomical observation points.[2]

---

[1] I am an agent and representative of the not-for-profit Native corporation, Maritime Shoshone, Inc., and a group of federally-recognized and culturally-affiliated California Indians of Luiseno and Island Shoshone descent. The member of a federally-recognized California Indian Band, I have an extensive background of education and research regarding indigenous southern Californians, and received an undergraduate degree in Anthropology from the University of Southern California, and a graduate degree in Anthropology from Stanford University, where I was a National Science Foundation Fellow.

[2] A copy of the nomination of this site to the National Register for national significance has been sent to Teresa Henry of your staff, but I wish to add that even before the final version of this nomination was submitted to the State, I sought to keep Steve Rynas of your staff informed regarding my nomination efforts and the CA-ORA-83 site's national significance in the area of archaeoastronomy. As part of this effort, in November 2002, I sent a significant, preliminary portion of the current nomination to him. As a highly interested party, I also asked, in writing, to be kept informed regarding any permit or other activity involving the Bolsa Chica Mesa's upper bench but received no information from your staff regarding the November 2002 application.

Although the site has been excavated for in-ground archaeological resources, the site continues to possess exceptional resources and informational values that, in conjunction with the important evidences and data already retrieved at it, may be expected to yield pivotally-important information concerning the antiquity of astronomy and calendrics in the Americas – one of the most important areas of American archaeoastronomical research and investigation today.

In relation to what appear to be historically-pivotal intellectual advances in the development of art (North America's earliest reliably-dated sculptural tradition, reflecting Native North America's technologic move to permanent, representational sculpture), science (North America's earliest reliably-dated type site for astronomical observation and calendric or calendric-type behavior), and religion (North America's earliest reliably-dated evidences of astronomically-based religious practices, expressions, and motifs) during a significant span of the North American Archaic, California's Millingstone Horizon, the CA-ORA-83 site is nominated for national significance in the areas of Science, Art, Religion and Archaeoastronomy.

The site qualifies as a nationally significant property in those areas because it still functions as a solstice observation site predating the earliest reliably-dated cases of such sites in Africa, Europe, the British Isles, Asia and North America, and it has probable historic association with strikingly analogous cogged stone sites in South America. As a result, it exceptionally represents and illuminates important and hitherto unrecognized aspects of the development, use, and intellectual interchange of American astronomies and calendrics during the site's markedly early period of significance, 6600 - 2000 B. C.

The coastal cogged stone sites of southern California appear to be the only astronomically-based sites in the United States providing evidences of intercontinental connection, interchange and influence with respect to the development of astronomy and calendrics in the Americas. The most outstanding representation of this type site in North America, the CA-ORA--83 site, is also the earliest reliably dated and last remaining case of this type site on the North American Pacific coast which has yet to be built on. The coastal cogged stone sites of southern California, of which the CA-ORA-83 site appears to be the rare survival, may also be the only astronomically-based sites in the United States providing evidence, where astronomical knowledge and observation are concerned, of cultural interchange and influence beyond the geographical boundaries of what are now the United States (see Williamson 1981: 75).

These associations – addressing intellectual exchange between the Americas and beyond the geographical boundaries of what are now the United States – have tremendous implications for gaining not only a "more complete," but more complex, understanding of cultural developments in the Americas (cf. Meggers 1964: 522), including the peopling and colonization of Pacific coastlines of the Americas.

Despite the numerous archaeological programs that have been undertaken within the 7.4 acre nomination area (please refer to the maps contained in our nomination), the nomination area continues to retain the physical features and conditions – location, elevation, orientation, setting,

and visual attributes (the relevant horizon features outlying and surrounding it) – essential to conveying its historic associations, functions and characteristics as an anciently-enduring, Pacific-based solstice observation point.

Because the CA-ORA-83 site's relevant outlying features are intact and functional in terms of their astronomical potential and we now know enough about the nature of astronomy in Native California to interpret, in relation to other important data obtained at the site, observations made from the site as indicative of the site's astronomical base, the site appears to retain the as yet untapped capacity to greatly push back the confirmed antiquity of astronomy in North America, as well as among the non-food-producers of the ancient world. In light of this information potential it is arguably one of the most historically important sites in the United States. Currently there are no known sighting points documented to be as ancient as CA-ORA-83 (see Robbins 2000).

Observatory sites predating the megaliths of Africa and the British Isles have not been archaeologically substantiated in the Americas due to a lack of astronomically-oriented constructs at American sites predating the world's earliest known astronomically-oriented megaliths, *i.e.*, those of the 4,800 year old Nabta Playa site in Africa (*ibid.*: 51). However, beside its physical form, orientational significance, and visual functionality, the CA-ORA-83 site produced special-use ceremonial items, including classically-identifiable ritual paraphernalia and celestially-evocative art, in the Millingstone Horizon strata, which along with other material, physical, astronomical, and chronological evidence, reasonably indicate that the site constitutes North America's earliest reliably-dated observatory site, providing crucial historic resources and evidence regarding our knowledge of astronomy in prehistory.

Whereas most Millingstone Horizon sites articulate very little about the religious practices and belief systems of the people(s) who inhabited California's littoral zone during the Millingstone Horizon, the CA-ORA-83 site appears to be an extremely valuable exception in this regard. Its physical functionality for certain religious practices and symbolic expressions apparently exceeded that of other known cogged stone sites in southern California. In comparison, it appears to have produced the most prolific (and perhaps, in light of its numerous potential alignments, most interpretable) evidences of and surrounding the astronomically-based religious aspects of the lives of these early shellfish gatherers.

Considered together, the site's physical features, form, orientation, setting and location outstandingly represent what seems to be a very particular type site in the prehistory of the Americas: a Pacific-based, solstice observation point.

In both Americas, sites which appear to belong to this group share certain physical and visual characteristics. They are situated on elevated points or outlooks along Pacific coastlines, typically overlooking a beach and/or coastal estuary (Eberhart 1961: 364; Salls 1980: 57; Willey 1971: 208, 210), with unobstructed views of the Pacific ocean, the horizon, and surrounding features of the local and regional environment, including coastal configurations such as points, peninsulas and/or bay formations, and/or one or more offshore features, such as an island or

islands. Invariably, they evince astronomically-useful alignments relevant to the seasonal extremes (see also portions of our nomination not for public release). They may be pinpointed not only by the distinctive physical characteristics and patterns they embody and express, but by the astronomically-evocative ground-stone sculptures they produce (e.g., Iribarren 1962).

CA-ORA-83 is the last known cogged stone site of such antiquity to have survived development on the southern California coast. It also appears to be the last known case of this type site on the North American Pacific coast which has yet to be built on. The large number of cogged stones and other ceremonial items and materials which were collected at the site and the site's orientational significance make it a national treasure, both with respect to its numerous potential alignments and the symbolically-evocative environment of which it remains an integral part (see portions of our nomination not for public release).

If "archaeoastronomy has moved away from the study of building alignments toward trying to understand the role of astronomy in ancient cultures in general – in other words toward the history of astronomy," (Aveni 1997: 5), it is possible the field's practitioners will not find a more informative route for addressing the potentially earliest astronomies of the Americas – and apparently some of the earliest astronomies of the world – than by way of the North and South American "cogged" stone sites, the CA-ORA-83 site being a particularly extraordinary representative of the distinctive characteristics, patterns, and probable functions and values associated with and expressed by this strikingly analogous group of Pacific-based sites.

CA-ORA-83's informational potential, pertinent to a securely-dated antiquity for American astronomical skills and the roots and complexities of astronomy in prehistory (strategies employed to monitor and observe the seasonal extremes and other astronomical phenomena prior to the construction of megaliths or other large-scale edifices for the purposes of astronomical observation), is extremely rare. In relation to other astronomically-based sites in North America, CA-ORA-83 appears to offer a chronological baseline for the presence of astronomical skills, concepts, and belief systems in Native North America. Supporting what appears to be a previously unsubstantiated antiquity for astronomical observations and knowledge bases in Native North America, it uniquely addresses one of the most important areas of American archaeoastronomical research – "the time and place of origin of American astronomical and calendric skills" (Baity 1975: 380).

The site is also associated in an outstanding and unparalleled way with what appear to be some of the earliest celestial depictions in the world (referred to by archaeologists as "cogged" stones, perforated stones, discoidals, and spheres) as well as with what are evidently the earliest reliably-dated evidences, achievements and refinements of a sculptural tradition in Native North America (refer to our nomination). Since the CA-ORA-83 site can be associated with recurring celestial events, reexamining the poorly understood cogged stone artifact in the context of archaeoastronomy could result in the astronomically-based symbolism inherent in this art form becoming more accessible to those interested in its study (cf. Krupp 1988: vi).

2. The Legally Required Mitigation of CA-ORA-83's Nationally Significant Archaeoastronomical Resources

As you are well aware, the California Coastal Act provides that:

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, [and] to minimize the alteration of natural land forms.

(Pub. Res. Code § 30251.)

The CA-ORA-83 site, demonstrably fit for both direct and indirect methods of solar observation, strongly embodies both aspects of this Section. It includes a naturally-formed, astronomical observation point with an unobstructed, elevated view of the horizon, the Pacific Ocean, certain coastal configurations (including an embayment and peninsula formation) and an offshore island. It is also oriented to provide inland astronomical alignments and sight lines.

The Act further gives the public a "right to fully participate in decisions affecting coastal planning, conservation and development," (Pub. Res. Code § 30006), which requires the Commission to interact with members of the scientific and academic communities in order to receive technical advice and recommendations before making its decisions. (Pub. Res. Code § 30006.5.) The Act also provides that in any case where "development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, **reasonable mitigation measures shall be required**." (Pub. Res. Code section 30244.)

In this case, the Commission's position that sufficient mitigation has already occurred ignores all of the above scientific information about the site. The developer may argue that the site itself is a piece of private property, but the site's historically-, scientifically- and culturally-crucial sight lines and views do not belong to the developer alone, but to all Californians, Native and non-Native alike. If the site is saved, Californians would have the unique opportunity to visit CA-ORA-83 and be educated about horizon astronomy and calendrics, the history of astronomy, Native American contributions to that history, and the early, celestially-evocative sculptures now referred to as Cogged Stones – potentially some of the earliest remaining celestial depictions in the world.

Despite historic impacts and prior archaeological programs, the CA-ORA-83 site remains uniquely and irreplaceably suited for scientific and/or educational purposes. Moreover, the religious values embodied and expressed by the CA-ORA-83 site, a regionally-precursive, time-sensitive ceremonial site and burial grounds, have spiritual resonance and significance for a great many indigenous southern Californians today. If the Commission votes in favor of the destruction of this site, it will effectively destroy 9,000 years of North American prehistory and history.

This was the sacred site of our ancestors, some of the first people to reach and colonize the Western Hemisphere, who ultimately contributed to the later-arriving cultures of the Chumash, Island/Adjacent Mainland Coast Shoshones (*Potunngawichum*) and Luiseños (*Payomkawichum*). They are our foundation and our root in the region.

It is inconceivable that the Commission would permit the destruction of a Native Californian sacred site, with or without mitigation, and the Commission's refusal to require mitigation at CA-ORA-83 therefore also violates our rights to due process and equal protection under Article 1 of the California Constitution.

Please, on the grounds of fundamental human rights, do not permit the destruction of this 7.4 acre site, and recommend that, after archaeoastronomical mitigation, it be appropriately marked with a structure that includes interpretive text respecting its extremely noteworthy historic significance.

Similarly, if you provide my evidence to the developer respecting the CA-ORA-83 site's archaeoastronomical resources and significance in advance of the hearing date so that it may be allowed to answer the materials contained in this National Register nomination, please ensure that I am given a copy of the developer's arguments and provided the same length of time to respond, so that I and the archaeoastronomers writing in support of this site have equal access to the Commission.

Thank you for your attention to these important matters,

L V Jeffredo Warden

Louise V. Jeffredo-Warden for
Maritime Shoshone, Inc.

cc: Board, Maritime Shoshone, Inc.
Teresa Henry, staff, Coastal Commission
California Coastal Commissioners
Senator Dianne Feinstein
Senator Barbara Boxer
Senator John Burton
Alberto Saldamando, esq., International Indian Treaty Council
Lillian Sparks (Sacred Sites), National Congress of American Indians
Chris Peters, Seventh Generation
Dr. Alicia M. Gonzalez, Executive Director, Museum of the American West, Autry National Center
Dr. Alan Gillespie, Professor, University of Washington; Dr. Tom Hoskinson; Dr. Robert Schiffman, Professor, Bakersfield College; Dr. E. C. Krupp, Observatory Director,

Griffith Observatory; Dr. Ray A. Williamson, Space Policy Institute, George Washington University; Dr. Von Del Chamberlain; Dr. Lowell Bean (distinguished scholars in the fields of geology, anthropology, astronomy, ethnoastronomy and archaeoastronomy)
Dr. Timothy McKeown, Native American Graves Protection and Repatriation Act Program Leader, National Park Service
Steve Mikesell, Acting Historic Preservation Officer, Office of Historic Preservation
Mike Buhler, National Trust for Historic Preservation
Rob Wood, California Native American Heritage Commission
Claudia Nissley, National Preservation Institute
Paul Kleven, esq.
R. William Ferrante, esq.

Sources

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GRIFFITH OBSERVATORY

EDWIN C. KRUPP, PH. D.
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BUSINESS MANAGER

JOHN E. MOSLEY
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PROGRAM SUPERVISOR

EARL VANDER WALL
OBSERVATORY
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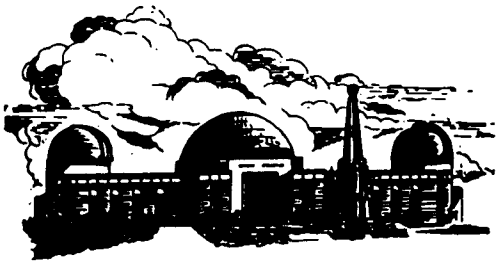

DEPARTMENT OF RECREATION AND PARKS
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WORLD WIDE WEB:
http://www.GriffithObs.org

22 July 2004

Peter Douglas
Executive Director
California Coastal Commission
200 Oceangate
Suite 1000
Long Beach, California 90802

1-562-590-5084 fax

RECEIVED
South Coast Region

JUL 2 6 2004

CALIFORNIA
COASTAL COMMISSION

Dear Mr. Douglas:

As an astronomer, I have been actively engaged in the study of ancient, prehistoric, and tradtional astronomy since 1973. Because my primary interest involves cross-cultural comparison, I have personally visited, examined, photographed, and in some cases studied and surveyed more than 1700 ancient and historic sites throughout the entire world. I have published numerous papers on California Indian astronomy, based upon original field research and original review of published and unpublished ethnographic archives. I have written about California Indian astronomical tradition in four of my five books on ancient and prehistoric astronomy.

With this background, I am writing in support of preservation of CA-ORA-83 Bolsa Chica Mesa. The archaeological significance of the site is well documented, and the site's unusual geographic location may reflect particularly archaic astro-cosmological symbolism and use. The full investigation described and recommended by Dr. Tom Hoskinson appears to be required by California law. I certainly support the full mitigation the law requires.

Sincerely,

Dr. E.C. Krupp
Director

cc: Teresa Henry, California Coastal Commission
Louise V. Jeffredo-Warden, Maritime Shoshone, Inc.

LAW OFFICES OF
PAUL KLEVEN

1604 SOLANO AVENUE
BERKELEY, CA 94707

TELEPHONE (510) 528-7347
FACSIMILE (510) 526-3672
e-mail: pkleven@aol.com

RECEIVED
South Coast Region

JUL 2 6 2004

CALIFORNIA
COASTAL COMMISSION

July 21, 2004

VIA FACSIMILE AND FIRST CLASS MAIL

Bill Lockyer
Attorney General of the State of California
California Department of Justice
1300 I Street, # 1101
P.O. Box 944255
Sacramento, CA 94244-2550

Re: California Coastal Commission's Failure to Provide Notice of Permit Application and Failure to Require Mitigation at CA-ORA-83 (Cogged Stone) Site

Dear Mr. Lockyer:

Please be advised that I represent Louise Jeffredo-Warden, who is an agent and representative of the not-for-profit Native corporation, Maritime Shoshone, Inc., and a group of federally-recognized Californian Indians of Luiseno and Island Shoshone descent. Ms. Jeffredo-Warden, also the member of a federally recognized Band of Luiseno Mission Indians, has an extensive background of education and research regarding indigenous southern Californians, and received an undergraduate degree in Anthropology from the University of Southern California, and a graduate degree in Anthropology from Stanford University.

I am writing to advise you of two problems that have arisen regarding the CA-ORA-83 site, popularly known as the Cogged Stone site, a pentagonal-shaped area on the southern edge of the upper bench of the Bolsa Chica Mesa, near Huntington Beach. Although the site is sacred to Native Californians and North America's oldest known solstitial observation site, proposed development threatens to destroy the site, along with its unique archaeological resources.

A. FAILURE TO PROVIDE NOTICE OF PERMIT APPLICATION

For many years, Ms. Jeffredo-Warden has worked to preserve the CA-ORA-83 site, which has national significance in the areas of science, art, religion and archaeoastronomy. The State Historic Preservation Officer has recognized the importance of the site's archaeological resources in twice determining that the site is eligible, under state-wide significance, for listing on the National Register of Historic Places. Even the archaeological and anthropological agents for the developer, California Coastal Communities (Hearthside Homes), have acknowledged that

the CA-ORA-83 site is "possibly significant as a solstice observation site" in a public report. (Scientific Resources, Inc. 1997.)

In May of 2001, Ms. Jeffredo-Warden had lengthy discussions with Steve Rynas of the California Coastal Commission staff regarding the national significance of the CA-ORA-83 site. Ms. Jeffredo-Warden informed him that she was involved in a National Register nomination process respecting the site, North America's earliest reliably dated observatory site. She further informed him that the site's orientational significance includes multiple alignments for both winter and summer solstices, and sent him documentation regarding the site's historical significance as the oldest known solstice observation site. [1]

Ms. Jeffredo-Warden at the same time complained to Mr. Rynas of not receiving information from the staff relevant to development projects proposed for the upper and lower bench of the Bolsa Chica Mesa. At that time, Mr. Rynas asked her to send a simple postcard to him stating that she wanted to be informed of "any activity pertaining to the Bolsa Chica Mesa." She followed his instructions exactly, though as a highly interested party she had already asked to be placed upon the mailing list.

In November of 2002, Ms. Jeffredo-Warden again contacted Mr. Rynas to keep him informed of her National Register nomination efforts. In that conversation, she reiterated that the CA-ORA-83 site is one of the world's earliest solstice observation points, and that the site qualifies as a nationally-significant property in other areas as well. By the very end of November (or the beginning of December), she forwarded to him a copy of a preliminary draft of the National Register nomination regarding the CA-ORA-83 site's critical historic significance and informational values. She did this to ensure that the information could become a part of the permanent record regarding this site, and so that the Coastal Commission staff could use this information to make better informed decisions regarding the site.

Although Ms. Jeffredo-Warden was not aware of it at the time, earlier in November of 2002, Hearthside Homes had submitted a permit application regarding the development of the Bolsa Chica Mesa's upper bench, on which the CA-ORA-83 site is located.

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[1]North America's earliest reliably dated sculpture was also recovered at the site, providing unparalleled evidence of an early sculptural tradition on this continent – hundreds of skillfully executed "cogged stones," from which the site takes its popular name, as well as other celestially evocative groundstone ceremonial sculptures. The CA-ORA-83 site evidentially retains and conveys a probable historic association with remarkably analogous cogged stone sites on the northern coast of Chile, evidencing a theme of intercontinental connection, interchange and influence with respect to the development of astronomy and calendrics in the Americas.

Ms. Jeffredo-Warden did not receive notification that the application had been filed, despite her multiple requests and her status as a highly interested party. Instead, she learned just recently from press reports that the Commission would be considering the site's destruction at its August 11-13, 2004 meeting.

This lack of timely notice has put Ms. Jeffredo-Warden and the groups she represents at a severe disadvantage in countering the developers' efforts, which will result in the destruction of the site. The damage caused by the lack of notice has been exacerbated because the California Coastal Commission, despite the clear mandates of law, is refusing to require reasonable mitigation on the site that are vital to preserving its archaeological resources.

B. FAILURE TO REQUIRE MITIGATION

Ms. Jeffredo-Warden has been trying to convince the California Coastal Commission to require the critical mitigation measures necessary to protect the unique archaeoastronomical resources at the CA-ORA-83 site. Hearthside Homes' proposed development of the CA-ORA-83 site will destroy its archaeoastronomical resources and nationally-significant informational values. California law requires mitigation for these resources and informational values commensurate with the site's profound historic significance.

Despite the Commission's claims, simply acknowledging the site's alignments or astronomical potential cannot be construed as "reasonable" mitigation, especially given the chronological significance of the CA-ORA-83 site in terms of the history of astronomy. Logically, in light of the site's pivotal historical significance, the required mitigation efforts must *directly* address nationally-relevant research questions via the collection, study and analysis of data relevant to those research questions before the destruction of this site's archaeoastronomical resources.

Contrary to the Commission's current position, archaeoastronomy constitutes a recognized and well-established sub-field of archaeology, and under Californian law archaeoastronomical resources are clearly defined as archaeological resources; *see, e.g.*, the California Environmental Quality Act.

Along with several nationally distinguished scholars in the fields of Native American and Native Californian astronomy and archaeoastronomy, Ms. Jeffredo-Warden has again requested that the Commission require historically-relevant archaeoastronomical mitigation at the site, in accordance with the dilates of the California Coastal Act of 1976. The Commission should recommend the site be opened to highly respected scholars in the fields of Native American and Native Californian astronomy and archaeoastronomy so that, working different

archaeoastronomical aspects and problems at the site, a historically-crucial baseline of archaeoastronomical information can be garnered.

Ms. Jeffredo-Warden ultimately submitted a National Register nomination regarding the CA-ORA-83 site's historic significance to the Office of Historic Preservation in May of 2004. The Nomination was the result of comprehensive research and documentation on Ms. Jeffredo-Warden's part, as well as input and review by experts in the fields of Native American and Native Californian astronomy and archaeoastronomy. The site is nominated as a nationally-significant property due to its still-functioning state and its historically crucial research potential as one of the world's earliest fixed astronomical observation points.

Ms. Jeffredo-Warden forwarded a copy of the Nomination to Commission staff member Teresa Henry upon learning of the permit application.

Although the site has been excavated for in-ground archaeological resources, the site continues to possess exceptional resources and informational values that, in conjunction with the important evidences and data already retrieved at it, may be expected to yield pivotally-important information concerning the antiquity of astronomy and calendrics in the Americas – one of the most important areas of American archaeoastronomical research and investigation today.
In relation to other astronomically-based sites in North America, CA-ORA-83 appears to offer a chronological baseline for the presence of astronomical skills, concepts, and belief systems in Native North America.

As you are well aware, the California Coastal Act provides that:

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, [and] to minimize the alteration of natural land forms.

(Pub. Res. Code § 30251.)

The CA-ORA-83 site, demonstrably fit for both direct and indirect methods of solar observation, strongly embodies both aspects of this Section. It includes a naturally-formed, astronomical observation point with an unobstructed, elevated view of the horizon, the Pacific Ocean, certain coastal configurations (including an embayment and peninsula formation) and an offshore island. It is also oriented to provide inland astronomical alignments and sight lines.

The Act further give the public a "right to fully participate in decisions affecting coastal planning, conservation and development." (Pub. Res. Code § 30006), which requires the

Commission to interact with members of the scientific and academic communities in order to receive technical advice and recommendations before making its decisions. (Pub. Res. Code § 30006.5.) The Act also provides that in any case where "development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, **reasonable mitigation measures shall be required**." (Pub. Res. Code section 30244.)

In this case, the Commission's position that sufficient mitigation has already occurred ignores all of the above scientific information about the site. The developer may argue that the site itself is a piece of private property, but the site's historically-, scientifically- and culturally-crucial sight lines and views do not belong to the developer alone, but to all Californians, Native and non-Native alike. If the site is saved, Californians would have the unique opportunity to visit CA-ORA-83 and be educated about horizon astronomy and calendrics, the history of astronomy, Native American contributions to that history, and the early, celestially-evocative sculptures now referred to as Cogged Stones – potentially some of the earliest remaining celestial depictions in the world.

Despite historic impacts and prior archaeological programs, the CA-ORA-83 site remains uniquely and irreplaceably suited for scientific and/or educational purposes. Moreover, the religious values embodied and expressed by the CA-ORA-83 site, a regionally-precursive, time-sensitive ceremonial site and burial grounds, have spiritual resonance and significance for a great many indigenous southern Californians today. If the Commission votes in favor of the destruction of this site, it will effectively destroy 9,000 years of North American prehistory and history.

This was the sacred site of Ms. Jeffredo-Warden's ancestors, some of the first people to reach and colonize the Western Hemisphere, who ultimately contributed to the later-arriving cultures of the Chumash, Island/Adjacent Mainland Coast Shoshones (*Po*ʃ*unngawichum*) and Luisenos (*Pay*o̲*mkawichum*).

It is inconceivable that the Commission would permit the destruction of a site that was sacred to a non-Native group, with or without mitigation, and the Commission's refusal to require mitigation at CA-ORA-83 therefore also violates indigenous Californians' rights to due process and equal protection under Article 1 of the California Constitution.

Thank you for your attention to these important matters.

Very truly yours,

PAUL KLEVEN

cc: Teresa Henry
Peter Douglas, Executive Director, California Coastal Commission
California Coastal Commissioners
Board, Maritime Shoshone, Inc.
Alberto Saldamando, esq., International Indian Treaty Council
Rob Wood, California Native American Heritage Commission
Steve Mikesell, Acting State Historic Preservation Officer
R. William Ferrante

ANTHONY F. AVENI
Russell B. Colgate Professor of Astronomy and Anthropology
COLGATE UNIVERSITY • 13 OAK DRIVE • HAMILTON, NY 13346-1398
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RECEIVED
South Coast Region
JUL 26 2004
CALIFORNIA
COASTAL COMMISSION

July 15, 2004

Peter Douglas
Executive Director
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Dear Mr. Douglas,

I write in support of L.V Jeffredo's attempts for archaeoastronomical mitigation for the site CA-ORA-83. I have reviewed numerous photos & maps of this site and I believe there may be very important information therein pertaining to the native history of California. I hope that you will do all that you can to help preserve the potential record there, at least until it can be studied by qualified professionals in my field. I thank you for your consideration.

Sincerely,

Anthony F. Aveni
Russell B. Colgate Professor of Astronomy,
Anthropology and Native American Studies

faxed in at 562-590-5084
cc: Teresa Henry

* does not include confidential pages 70-81 and exhibits. JH

NPS Form 10-900
(Rev. Aug. 2002)

OMB No. 1024-0018
(Expires Jan. 2005)

South Central Region

JUL 21 2004

CALIFORNIA COASTAL COMMISSION

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name N/A

other names/site number Cogged Stone Site; CA-ORA-83 (preferred)

2. Location

street & number Upper bench of Bolsa Chica Mesa, S. of Los Patos Ave. and W. of Bolsa Chica St. **not for publication** X

city or town Huntington Beach **vicinity** X

state California **code** CA **county** Orange **code** 059 **zip code** N/A

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedura and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ____ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant ___ nationally ___ statewide ___ locally. (___See continuation sheet for additional comments.

Signature of certifying official **Date**

State or Federal Agency or Tribal government

In my opinion, the property ____ meets ____ does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

Signature of commenting or other official **Date**

State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

____ entered in the National Register
___ See continuation sheet.
____ determined eligible for the National Register
___ See continuation sheet.
____ determined not eligible for the National Register
____ removed from the National Register

____ other (explain): _____

Signature of Keeper **Date of Action**

5. Classification

Ownership of Property (Check as many boxes as apply)

_X_ private
___ public-local
___ public-State
___ public-Federal

Category of Property (Check only one box)

___ building(s)
___ district

_X_ site
___ structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
____	____	buildings
1	____	sites
____	____	structures
____	____	objects
1	0	Total

Number of contributing resources previously listed in the National Register 0

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.)

N/A

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: RELIGION: astronomical observation point; time-sensitive ceremonial site
DOMESTIC: Village site
FUNERARY: Cairned burial grounds
RECREATION AND CULTURE: Most prolific known source for the celestially-evocative ceremonial sculptures known as "cogged stones"
COMMERCE/TRADE: Provides evidence of intercontinental intellectual exchange in the areas of art, astronomy and religion
AGRICULTURAL/SUBSISTENCE: Marine- and plant-oriented food processing site
INDUSTRY/PROCESSING/EXTRACTION: Manufacturing site for stone tools and shell beads

Sub:

Current Functions (Enter categories from instructions)

Cat: OTHER: Unoccupied land; owner has in the past had plans

Sub:

to utilize it for high-end housing

7. Description

Architectural Classification (Enter categories from instructions)

N/A

Materials (Enter categories from instructions)

foundation
roof
walls
other

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

X **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.

____ **B** Property is associated with the lives of persons significant in our past.

____ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

X **D** Property has yielded, or is likely to yield information importan in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

Property is:

____ **a** owned by a religious institution or used for religious purposes

____ **b** removed from its original location.
____ **c** a birthplace or a grave.
____ **d** a cemetery.
____ **e** a reconstructed building, object, or structure.
____ **f** a commemorative property.
____ **g** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

Art
Ethnic heritage: Native American
Religion
Science
OTHER: Archaeoastronomy

Period of Significance 6,600 - 2,000 BC **Significant Dates** N/A

Significant Person
(Complete if Criterion B is marked above) N/A

Cultural Affiliation During the Millingstone/Intermediate Horizons the CA-ORA-83 site is occupied by so-called "Encinitas People"; by the Late Prehistoric, Island and Adjacent Mainland Coast Shoshones occupy the northern and central Orange County coast.

Architect/Builder N/A

Narrative Statement of Significance (Explain the significance of the property one or more continuation sheets.)

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on or or more continuation sheets.)

Previous documentation on file (NPS)

___ preliminary determination of individual listing (36 CFR 67) has been requested.
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey # _____
___ recorded by Historic American Engineering Record # _____

Primary Location of Additional Data

___ State Historic Preservation Office
___ Other State agency
___ Federal agency
___ Local government
_X_ University
_X_ Other
Name of repository: University of California, Los Angeles; South Central Coast Information Center; California State University, Fullerton; Scientific Resources Surveys, Inc.

10. Geographical Data

Acreage of Property 7.4

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1	11	403320	3730180	3	11	403420	3730000
2	11	403570	3730180	4	11	403300	3730100

___ See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Louise V. Jeffredo-Warden (text and perspectives); John V. Jeffredo Ph.D. (text and perspectives); Thomas M. Warden (astronomical calculations); Roberto Ysais (photography)

organization Maritime Shoshone, Inc. **date** May 13, 2004

street & number 146 La Grande Ave. **telephone** (650)728-0761

city or town Moss Beach **state** CA **zip code** 94038

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Note: pages 40 - 81; Attachments 19 - 33; and photographs 1 - 7 are not f publication

Maps

Attachment 2; Location of CA-ORA-83 on Bolsa Chica Mesa's Upper Bench

Attachment 3; Position of CA-ORA-83 in relation to Southern Channel Islan

Attachment 5; Site mapping dated 12/13/93

Attachment 6; Site mapping dated 3/1/94

Attachment 7; Previous archaeological investigations and disturbances

Attachment 17; Baja, Mexico

Attachments 35, 36; Traditional territorial areas, Native Southern California

Attachments 21, 26 - 30; Maps (southern California, northern Chile) indicating astronomical alignments **(not for publication)**

USGS map (Seal Beach Quadrangle, 7.5 series) indicating the CA-ORA-83 site's location

Photographs (not for publication)

Photographs 1- 3; Representative images of CA-ORA-83

Photographs 4 - 7; Astronomical phenomena visible from the site

Additional items
(Check with the SHPO or FPO for any additional items)
Attachments 1; 4; 8 - 16; 18; 19 **(not for publication)**; 20 **(not for publication)**; 22 - 24 **(not for publication)**; 31 - 33 **(not for publication)**; 34
Dedication to Dr. John V. Jeffredo and Mrs. Vera Rocha

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name Signal Landmark

street & number 6 Executive Circle, Suite 250 **telephone** (949)250-7700

city or town Irvine **state** CA **zip code** 92614

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibilit for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.). A federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number.

Estimated Burden Statement: Public reporting burden for this form is estimated tc average 18.: hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to Keeper, National Register of Historic Places, 1849 "C" Street NW, Washington, DC 20240.

7. Narrative Description

Summary

Located on some of the last undeveloped land in one of 25 nationally recognized ecological "hotspots," or severely threatened biotic zones (Schoenherr 2001: 2), is a uniquely distinct sacred site that, like the pyramids of Giza or the structures of Stonehenge, appears to have had – and to continue to have – astronomical function, information and importance (refer to pp. 40 - 81, which constitute portions of the nomination not for public release). However, the CA-ORA-83 (or, as it is also known, Cogged Stone) site – a pentagonal-shaped area south of Los Patos Avenue and west of Bolsa Chica Street on the southern edge of the upper bench of the Bolsa Chica Mesa north of Huntington Beach, California – is, amazingly, perhaps twice the age of these constructs (see Whitney-Desautels 1995: 48 - 50 for radiocarbon assays, which range from 8,660 +60 to 1,098 +72 RYBP), and apparently constitutes, in addition to the earliest reliably dated observatory site in North America, one of the earliest reliably dated sites world-wide with discernable astronomical associations and functions. Moreover, due to surviving, integral aspects of the site's location, setting, orientation, and geologic and topographic features (discussed, as well, in portions of the nomination not for public release), it may be reasonably inferred that these associations and functions are both currently viable and historically reconstructible through naked-eye astronomy and commonly achieved quantitative analyses (for a sampling of currently available literature, software and other resources regarding era-specific astronomical computations, see, e.g., Aveni 2001).

CA-ORA-83 is also distinguishably unique and important in the prehistory of the state and nation as the location of an historically crucial ceremonial site and burial grounds (Jeffredo-Warden 2001, 2002). Demonstrating an apparent focus on time-sensitive ceremonialism and religious specialization, the site stands out among contemporaneous Californian and North American burial grounds because of its size, antiquity and the unusually high abundance of grave goods and art it produced (Jeffredo-Warden 2002: 10 - 11). Historically the source of the largest occurrence of "cogged stones" – palm-sized basalt, granite or sandstone discs with indentations in their edges that make them evocative of celestial elements such as stars or planets – and other such related ground-stone sculptures (precisely hewn and noted for their beauty and symmetry) in the world, CA-ORA-83, herein argued to be an exemplary observatory site of California's early Millingstone Horizon, has produced what appears to be not only the earliest reliably dated

representational sculpture in North America, but, overall, some of the earliest reliably-dated representational, mortuary and ceremonial art in the Americas (made of stones lacking high use quality for tool-making due to their soft, fracturable nature, the cogged stones, exhibiting no pattern of utilitarian use or wear, have been encountered or unearthed in symbolically heightened contexts [McKinney 1968: 41; Eberhart 1961: 361]) (Jeffredo-Warden 2002: 10 - 21). Evidently the last cogged stone site of such antiquity to have survived postglacial inundation, looting and development on the southern California coast (see LSA Associates, Inc. 1996 [4.12 - 18] for a comparative dating of the CA-ORA-83 site to other early sites in Orange County), this approximately 7.4 acre site, due to what appears to be a remarkably substantial connection to "cogged" stone sites on the northern coast of Chile (Gajardo 1962 - 1963; Iribarren 1962; Llagostera 1979), likely also carries the capacity to provide comparative information surrounding how such markedly analogous South American sites may also have been used prehistorically (see portions of the nomination not for public release), as well as theoretically-pivotal evidences concerning some of the earliest intercontinental connections (Iribarren 1962) by some of the earliest people(s) to reach and colonize the Western Hemisphere.

Setting and Current Site Condition

In southern California some of these marine-oriented gatherers – a people or peoples whose ultimate geographic and cultural origins are presently unknown (Wallace 1955: 122), and whom we (a continuing line of Luiseño/Island Shoshone descendants) consider to be some of our forebears – have been referred to as "Southern Channel Islanders" (note Eberhart's map of cogged stone distribution includes the Little Harbor site at Santa Catalina Island [1961: 364], regarding which Meighan [1959] argued the data did not support a cultural affiliation of Hokan or Uto-Aztecan, terms which describe two chief language families in the region. Unable to ascertain the cultural affiliations of this earlier arriving people, Meighan instead chose to refer to them as "Southern Channel Islanders," a descriptive designation we, as indigenous people, also employ in referring to this or these precursive people[s] of the Southern Channel Islands and adjacent mainland coast). They have also been referred to as "Encinitas People" (Warren 1968; Chartkoff and Chartkoff 1984: 108).

While the habitation range of early Southern Channel Islanders/Encinitas People (as well as that of the later-arriving Island/Adjacent Mainland Coast Shoshones) appears to have included what is now some of the most valuable real estate in southern California (the offshore islands known as San Nicolas, Santa Catalina and San Clemente, and an adjacent portion of southern

California's prime coastal lands, including aspects of the coastal stretch between what is now Palos Verdes and Newport Bay [among others, McCawley 1996: 66, 67, 68; Chartkoff and Chartkoff 1984: 108, 163; Kroeber 1976 (reprint 1925): 633; Gifford 1951: 103 and 1926: 241; Heizer and Elsasser et al. 1973: 41]), in light of our traditional regional histories regarding land use within this coastal zone (please see portions of the nomination not for public release for the sources of this knowledge), it is conceivable one of the more valuable aspects of this territory prehistorically was the CA-ORA-83 site.

Situated on the southern tip of a gentle mesa overlooking the Pacific to the south and Bolsa Bay to the east, this ecosystem was, we believe, a place truly prized by our ancestors because, much of the southern California coastline becoming narrowly beached, steeply cliffed and terraced, it provided a comfortable access to and from the ocean (by way of post-glacially formed coastal configurations); fresh water from an extensive groundwater network and the Santa Ana River (prehistorically, the site overlooked the mouth of this river); an abundance and variety of close-range marine and terrestrial food sources; and a ceremonial and occupation site with a culturally crucial view of (to use a Late Prehistoric Period designation) *Pimu̲'*, or what is now called Catalina Island. Today the Bolsa Chica Mesa is comprised of a lower seaward bench graduating down to the wetlands and Pacific Ocean, and an upper, relatively flat landward bench on which highly sacred aspects of this site and burial grounds were found.

Together the wetlands and mesa constitute 1,700 acres of undeveloped, remnant open space in the midst of intense urbanization, a rare, interdependent and co-evolutionary ecosystem that is home to thousands of species of plant and animal life, including a significant wintering population of red-tail hawks and at least five federally endangered species of birds (the Peregrine Falcon, Belding's Sparrow, Brown Pelican, Western Snowy Plover and California Least Tern). In the winter, birds by the thousands frequent the Bolsa Chica (according to the Audubon Society's annual count, the highest number and greatest diversity recorded at any coastal site in southern California [Shoenherr 2001: 1]), as it is a principal stopover on the Pacific Flyway (see **Attachment 1** for a panoramic image of the wetlands environment).

Although the people and wildlife of California once enjoyed over 300,000 acres of coastal marshland, overall, 80 percent of those ecosystems are now gone to landfills and development. In southern California alone, 90 percent of our wetlands have been destroyed (Jensen et al. 1993: 82; Palmer 1993: 117; Shoenherr 2001: 2).

Owing to diminished oil reserves in the late 1960s (see Schoenherr 2001 for this brief history), the formerly oil-exploited Bolsa Chica Wetlands and Mesa were destined for the same fate – dredging, filling and development – until public opposition and litigation ensued to save the wetlands, resulting in the state of California's purchase in 1973 of 300 acres of the wetlands and its establishment of the Bolsa Chica Ecological Reserve. Over the next 25 years, other state and federal agencies also became involved, purchasing most of the remaining wetlands for protection and restoration and bringing the total acreage of the ecological reserve to over 1,200 acres. By April 1999, all of the wetlands were finally protected. Yet the 215-acre mesa on which CA-ORA-83 rests was not, and today constitutes the only remaining unprotected acreage at the Bolsa.

The associative feelings of this site and setting are therefore enormous, whether or not the individual fully understands CA-ORA-83's indigenous religious significance. Physically, west of the unimproved road extending south of Bolsa Chica Street and constituting the eastern boundary of the nomination area, a portion of the CA-ORA-83 site which contained, to date, the oldest section of this site (an area where archaeological investigations reveal ceremonial activities, including the burial and reburial of the dead, were conducted [Whitney-Desautels 1995: 53 - 55]), narrows in a southwesterly direction and projects out, facilitating a prominent view of Catalina Island (**Attachments 2** and **3**). The site also has breathtaking views of the ocean, and of waterlands that in antiquity also may have included a long lagoon (LSA Associates, Inc. 1994: 4 - 12.1), but are now the Bolsa Chica Wetlands and Bolsa Bay. A person can stand at CA-ORA-83 and look out to where our ancestors' boats (which at least at the time of contact included the only type of plank boats indigenously built in what are now the United States, some of which, resembling Newfoundland Whalers, were capable of holding more than 20 individuals [Walker (no date): 1; Wagner 1929: 236]) may have come in and up to a large village complex (for to what extent a boating tradition was applied at the long-utilized shellfish collecting locales of Orange County is yet to be determined). There, the quality of light is remarkable. It conveys a shimmering timelessness. At this spot, looking down at the wetlands or out on to the sea, not even the modern housing north of the site, or the cars below on Pacific Coast Highway, matter. For the moment, the urban world is lost and the energy and vitality of what was ancient California are maintained, dominating the distanced sounds, sights and irritations of the non-Native world, overcoming their relevance with unconquerable presence and beauty.

Even as I have employed poetry to describe CA-ORA-83's setting, such a description does not approach the profoundly transformative effects of this place, for it genuinely transcends the

21st century and the damages brought to it by the modern era (as accompanying photographs illustrate, the site, graded due to archaeological activities and currently having no permanent structures upon it, now chiefly supports non-native grasslands and remnant Eucalyptus woodland [for additional information on current site conditions, see also pp. 15 - 19]). This is because it remains historically viable for those who are willing to visually engage and experience the permanent landscape in relation to the celestial sphere, the protected wetlands, the ocean, and the life-giving changes and forces of the seasons.

Herein I argue for a determination of national significance in regard to this site because, in thoroughly researching the available literature, I have not encountered another in North America where one can stand and personally experience how time apparently was tracked at least 8,000 radiocarbon years ago (meaning, in calendar years, the upper dates associated with this site could be as much as one thousand or more years older). On the whole, astronomically-based sites in North America are difficult to identify, and the ones which have been identified – determined to be nowhere near the ultimate antiquity of this site – are often difficult to access. Therefore this site, one which thousands pass daily, is a remarkable survival and historic resource; and yet, for over a decade it has been slated for the construction of high-end, ocean-view homes (proposed, for example, as part of the Brightwater Development Project to build 387 single-family residential units, overall, on this 215-acre mesa). As of this writing the site remains slated for development; however, the politics and economics surrounding the site's conservation show significant signs of improvement. In November, 2002, California voters passed Proposition 50, a clean water act approving the allocation of several million dollars toward the acquisition, at fair market value, of at least 100 acres of the Bolsa Chica Mesa.

Site History

I. The Prehistoric Period

No one knows with certainty how ancient the CA-ORA-83 site actually is, or when this sacred ceremonial site was first occupied and utilized; due to its coastal location, earlier evidences associated with it may have been submerged by rising postglacial sea levels (significantly, the earliest dated cultural evidences removed from CA-ORA-83 [according to site mappings dated 12/13/93 and 3/1/94, unearthed in association with a burial or burials], predate the majority of the site's radiocarbon assays, which fall within the 8,000 - 5,000 RYBP range [Whitney-Desautels 1995: 48 - 50; **Attachments 4, 5** and **6**]). According to Moratto,

> The southern California coastal zone sustained a Paleo-Coastal Tradition earlier than 8000 years ago. Because dependence on marine and littoral resources was already well established by circa 9300 B. P., one should expect to find a series of yet older sites evincing progressively more specialized adaptations to the coastal environment. That such sites have not been found, or have not survived, may be the result of marine encroachment in early Holocene times. . . . Even 10,000 years ago, the shoreline was as much as 10km farther west than it is today along many stretches of the southern coast (1984: 108).

Concerning the problem of postglacial inundation at a Northern Channel Islander site, Krieger wrote that:

> It must be realized that these sea cliffs of the coast and islands of southern California present great difficulties in adequate exposure of former land surfaces. . . . In effect, we are at present permitted only an infinitely tiny view of the former camps, if such they were, because we can see only their edges where exposed by seaward erosion and in the banks of arroyos cutting through the cliffs. Furthermore, the original size of the "camps" cannot even be guessed because the present alluvial remnants cannot contain more than a small fraction of the land surfaces which existed from time to time while the sea stood lower and the alluvium was gradually built up and outward (1962 -1963: 140).

With respect to the long-term prehistorical record at coastal sites throughout the world, a major informational setback has been that because evidence of human habitation prior to the Holocene is extremely rare, "the likelihood that earlier evidence is under-represented is very high, if only because of the likely effects of sea-level change" (Bailey and Parkington 1988: 6). In relation to this informational setback, it is important to note the presence of offshore deposits has been detected in the southern California coastal zone (Heizer 1964: 124, for example). In addition, a study conducted for the Minerals Management Service of the U. S. Department of the Interior designated the ocean bottom southwest of the Bolsa Chica Gap as a sensitive area likely to contain submerged archaeological sites (LSA Associates, Inc. 1994: 4.12 - 29).

While we may never know how old this site in actuality is, it is certainly notable that the earliest cultural evidence removed from it (taken from a shell feature containing highly mineralized human remains) was radiocarbon dated (unadjusted) to 8,660 RYBP (Whitney-Desautels 1995:

48 - 50; site mappings dated 12/13/93 and 3/1/94 [attachments 4, 5, and 6]). To put this date in perspective, the radiocarbon age of Kennewick man (and here I am not intimating we perceive ourselves to be genetically or culturally connected to the Kennewick man, feeling he represents but one of many ancient peoples, though some of our earliest island and coastal ancestors, likewise, were dolichocephalic, or long-headed [e.g., Gifford 1951: 103]) was found to be 8,410 RYBP, hence, somewhat younger than the probable age of the earliest human remains "recovered" from this site (to date, no human remains extracted from the CA-ORA-83 site have been radiocarbon dated). When corrected for, the Kennewick man's skeletal remains were found to actually be between 9,330 and 9,580 calendar years of age (Chatters 2001: 53). Hence, if we were to put an estimated age of at least 9,000 YBP upon this site, we would likely be edging toward the conservative side of things. Because the evidences thus far recounting the earliest known facets of our ancestors' marine-oriented lifeways begin showing up in the archaeological record approximately 10,000 to 11,000 RYBP (Salls 1990, for example), to quote Bailey and Parkington, these evidences may simply be "the first archaeologically visible expressions of patterns of activity that have a far greater antiquity" (1988: 5).

If for reasons associated with postglacial inundation the archaeological record does not fully represent how old (or numerous) our ancestors' sites in actuality are, it does, on the other hand, reveal them as being some of the earliest in North America. As a result of research regarding Southern Channel Islander sites, archaeologists are rethinking the chronological placement and origins of southern California coastal cultures (Raab et al. 1994: 247). Although our verbal traditions perseveringly and knowingly attested otherwise (by way of example, see James 1902), the prevailing archaeological view imposed upon us was one which hypothesized that the inland and desert regions of southern California were settled first, and that these people(s) turned only to colonizing coastal and island sites out of sheer necessity due to decreased terrestrial food supplies (Raab et al. 1994: 248). Now, scientific advances gained by studying Southern Channel Islander sites show that these dominating hypotheses surrounding our prehistory and incipient culture(s) were erroneous, as currently our ancestral sites are providing evidences of some of the earliest maritime adaptations in the Western Hemisphere:

> The data from Eel Point [a site on San Clemente Island dated to at least 10,000 RYBP, and now widely cited as one of the earliest sites on the North American Pacific coast] disclose that while Folsom people were hunting the remnants of the Pleistocene megafauna, the early islanders had developed sophisticated watercraft (needed to cross

the hazardous channels separating the island from the mainland) and were exploiting a rich marine environment (Salls 1990: 61; bracketed information my own).

Something we can be certain of regarding the CA-ORA-83 site's occupation and use is that over the millennia its inhabitants benefitted from significant (and, the archaeological record attests, subsistence-changing [Whitney-Desautels 1995: 56]) geologic and ecologic transformations that affected not only the types and range of biotic communities which would be available for their use, but, undoubtedly, the physical functionality of this site as a ceremonial one. During the Pleistocene Epoch, the mesa on which CA-ORA-83 rests was uplifted to its current elevation of approximately 50 feet above sea level (LSA Associates, Inc. 2001: 4.3 - 6; 4.11 - 1), creating the possibility of elevated, panoramic viewing of the horizon, Pacific Ocean and surrounding features of the local and regional environment (aside from a view of the Bolsa and Catalina Island, from the mesa an observer can see aspects of the Los Angeles Basin, as well as the Palos Verdes Peninsula, San Joaquin Hills and Santa Ana and San Bernardino Mountains). Also during the end of this Epoch, when the sea level was much lower than it is today, the Bolsa Chica Gap, which separates the Bolsa Chica Mesa from the Huntington Mesa to the south, was formed by the forces of the Santa Ana River as it made its way through the area, cutting deep canyons (indeed, the river continued shaping the southern California coastal topography during the Holocene, migrating between the Long Beach area and Newport Bay), to reach the Pacific Ocean (*ibid.*: 4.3 - 7; 4.11 - 1). At the end of the Pleistocene, due to a gradual rise in sea level, the inundation of the mouth of the Santa Ana River began, a process which eventually produced an embayment (*ibid.*: 4.11 - 1), and almost assuredly another reason that, at least by the time of the Early Holocene, the Bolsa was a chosen place of human habitation.

The sea level continued rising during the Holocene, fostering environmental conditions at the Bolsa which varied from estuarine to lagoonal, and affecting the amount and types of shellfish available to its original occupants (LSA Associates, Inc. 1994: 4.12 - 1). With the eventual stabilization of the sea level (between 8,000 and 5,000 years ago), a shoreline approximately 2.5 miles southwest of its current location developed, also providing the Bolsa's original inhabitants access to shellfish (*ibid.*: 4.12 - 1, - 3; LSA Associates, Inc. 2001: 4.11 - 1). It is thought that the mesa on which CA-ORA-83 rests may have headed a long lagoon at this time, with Bolsa Bay "probably consisting alternatively of open water tidal flats and terrestrial conditions" (LSA Associates, Inc. 1994: 4.12 - 1). After 5,000 years ago, parts of Bolsa Bay were transformed into saltwater marsh (*ibid.*: 4.12 - 3). For the original inhabitants of the Bolsa, this rich biotic community containing abundant fish and shellfish was augmented by inland freshwater marsh

habitats providing a wide range of plant and animal foods (*ibid.*). The mesas were also wonderful sources of seed foods (procured from communities of coastal sage scrub and native grasses) and small game (*ibid.*).

During the Early Holocene and beyond, in addition to the open ocean, protected outer coast and adjacent bay habitats, other environments which would have been exploited by the original inhabitants of the Bolsa included oak woodland, low elevation chaparral, and riparian woodland (*ibid.*).

Hence, during the Holocene Epoch habitats highly favorable to human subsistence developed at and in the vicinity of the Bolsa, and so, its original inhabitants enjoyed an abundance and variety of marine and terrestrial resources within close geographic range, including seeds, greens, fruits and vegetables; terrestrial game; and fish, shellfish, sea mammals and sea birds. It is not surprising then, evidence at the CA-ORA-83 site shows it to have been used from 8,660 to 1,098 RYBP, or from the very Early through the Middle Holocene (Whitney-Desautels 1995: 48 - 50).

This period of occupancy and use includes the entirety of what are termed the Millingstone (from at least 6,000 to 1,000 B. C.) and Intermediate (after approximately 1,000 B. C.) Horizons (see also Meighan 1959 and Ike et al. 1979 for evidences of yet earlier onsets of these Horizons), as well as a portion of the Late Prehistoric Period (Whitney-Desautels 1995: 56; LSA Associates, Inc. 2001: 4.11 - 2). The Late Prehistoric Period (in Orange County, from approximately 1,400 to 230 years ago [LSA Associates, Inc. 2001: 4.11 - 3]) is represented by one radiocarbon date from the site (Whitney-Desautels 1995: 52). Yet the discovery at the site of three Late Prehistoric projectile points verifies the presence of people during the Late Prehistoric Period and "suggests that hunting activities were still occurring from this spot during the last millennium" (*ibid.*). (The Late Prehistoric Period, a time during which the use of the bow and arrow increased, has been correlated with the presence of Shoshonean speaking peoples in coastal areas [LSA Associates, Inc. 2001: 4.11 - 2].) In addition, twenty three dates from the Intermediate Horizon, marked by the appearance of the mortar and pestle and, at coastal sites, typified by the increasing exploitation of shellfish and sea mammals (*ibid.*), were obtained from a component within the nomination area which, dating from 3,991 to 1,706 RYBP, was found to consist of a rich, black midden bearing a remarkable amount of shellfish remains, yet small quantities of artifacts (Whitney-Desautels 1995: 45, 47, 55). This component was located in the eastern portion of a Eucalyptus grove which was planted at bluff's edge to create windbreaks

during the historic period (**Attachment 7**). As the majority of the site's shellfish remains were removed from it, it appears a portion of the CA-ORA-83 site was heavily used as "a special-use shellfish processing station" during the Intermediate Horizon (Whitney-Desautels 1995: 55). However, the overwhelming majority of radiocarbon dates recorded for the CA-ORA-83 site – contained in a suit of 155 which were derived from artifacts and data also removed from the nomination area – are attributable to the site's far older Millingstone Horizon component, which, currently dated from 8,660 to 4,040 RYBP, was located in the western portion of the Eucalyptus grove area (*ibid.*: 47 - 50).

In California, the trait inventory of sites and cultures ger rically subsumed under the Millingstone Horizon varies somewhat (Heizer 1964: 123; Warren 1968: 2). For example, not all Californian cultures of this Horizon produced "cogged stones" (Herring 1968: 12; McKinney 1968: 40); in fact, only occasionally are the ceremonial ground-stone sculptures from which the CA-ORA-83 site takes its popular name found at Millingstone Horizon sites (Wallace 1978: 28). Rather, cogged stones appear to be the product of a distinctly obvious and recognizable artistic tradition – they show no signs of utilitarian use or wear – prehistorically practiced and chiefly used along the Pacific coast, for the most part in southern California, with significant numbers also being recorded in Mexico (Baja California [Eberhart 1961: 365]) and northern Chile (e.g., at Quebrada Las Conchas [Antofagasta province] and Huentelauquén [Coquimbo province] [Gajardo 1962 - 1963; Iribarren 1962; Llagostera 1979: 319]).

In southern California, the area of the greatest concentration of cogged stone sites and finds is centered on the central and northern Orange County coast and coastal region (Eberhart 1961: 364), the CA-ORA-83 site having been the most prolific place in the world yet known for these sculptures (Jeffredo-Warden 2002: 7). Although no one knows how many sculptures were removed from CA-ORA-83 via looting, a tally obtained from some of the principal North American literature on cogged stones confirms that while approximately 35 are recorded to have been found outside the immediate ranges of the coastal zone (i.e., at interior and inland sites), more than 845 are recorded to have been found within them (Eberhart 1961; *Pacific Coast Archaeological Society Quarterly* 1968; Salls 1980; Whitney-Desautels 1995). Of these, more than half (478) were removed from CA-ORA-83 (Whitney-Desautels 1995: 26).

Apparently indicating divergent aesthetics and artistic values not only within the medium, but between the early Californian peoples influenced by and/or utilizing it, a significant number of specimens found outside the coastal zone differ from the majority of specimens found within it

(regarding geographical variants and CA-ORA-83 specifically, see Herring 1968). The majority of cogged stones found at Los Angeles-Orange County coastal sites, including a great number removed from CA-ORA-83, are exquisitely detailed, often extremely symmetrical, small, round, polished stone (basalt, granite or sandstone) discs (generally less than 5" in diameter and 2.5" in thickness) with precisely hewn indentations in their edges that make them evocative of astronomical features such as stars or planets (Jeffredo-Warden 2002: 8; see also portions of the nomination not for public release). A group of cogged stones lying flat and grouped together look like a constellation of celestial bodies -- they look like the heavens were brought down to meet the earth (*ibid.*; **Attachment 8**).

During the Millingstone Horizon (initially coined in the archaeological literature by Wallace [1955]), significant cultural differences evidently existed between coastal and interior populations as well. As Meighan observed in an important paper on California cultures and the concept of an Archaic stage, "Early Millingstone cultures are most clearly seen along the coastal strip. The inland cultures of the desert appear to be somewhat different" (1958 - 1959: 295). In 1968 Warren responded to the problem of conflating units of time, or Horizons, into cultures (a conflation via which, he argued, "the internal cultural diversity of the horizons is obscured" [Warren 1984: 267]) by defining the Encinitas Tradition as a synthesis of several localized but distinct southern California coastal cultures (see also McKusick and Warren 1958 - 1959 and Chartkoff and Chartkoff 1984: 108 for information regarding Millingstone Horizon/Encinitas Period occupations of the Northern and Southern Channel Islands). Some of the diagnostic artifacts generally characterizing the Millingstone Horizon and the Encinitas Period include subsistence related and food-processing items such as millingstones (i.e., deep-basined metates, manos), scrapers, choppers, handstones, plummet stones, and sacred art such as cogged stones, non-utilitarian plummets, "doughnut" stones, and discoidals, certainly all of which are represented in collections obtained at the CA-ORA-83 site (Herring 1968; McKinney 1968; Whitney-Desautels 1995: 25 - 26; LSA Associates, Inc. 1996: 4.12 - 15).

Prehistorically, a principal use of the CA-ORA-83 site was for ritual and ceremonial activities, including the burial and reburial of the dead (cf. Whitney-Desautels 1995: 53 - 55; see also portions of the nomination not for public release). A plethora of artifacts substantiate the site's focal importance: Although Millingstone Horizon sites are not noted for producing an abundance of artifacts and grave goods, or, additionally, a wide range of ceremonial items and regalia (see, e.g., Moratto 1984: 160, Wallace 1978: 28; Warren 1968: 2 on the subject), over 7,500 items and artifacts – 75 % of which were located in relatively intact deposits within the

nomination area – were collected from the CA-ORA-83 site, including nearly 500 cogged stones, several of which were purposefully buried and arranged, some in association and/or situ with human burials (Whitney-Desautels 1995: 26, 47; see also attachments 4, 5 and 6). Other ceremonial pieces and materials extracted from the site (excavated from the Millingstone Horizon component, in which human remains were also present) include charmstones, discoidals, plummets, spheres, stone pendants, stone pipes, quartz crystals, incised bone, hundreds of pieces of red ochre, and shell whistles, rattles and beads (Herring 1968; McKinney 1968; Whitney-Desautels 1995: 25 - 26, 53; LSA Associates, Inc. 1996: 4.12 - 15). Significantly, even as shell beads and stone tools are rare at Millingstone Horizon sites (LSA Associates, Inc. 2001: 4.11 - 2; Wallace 1978: 28; Warren 1968: 2; Eberhart 1961: 365), over 3,000 shell beads (representing nearly 50 types and subtypes) and associated bead-making tools and debris were recovered from but a portion (principally, the Millingstone Horizon component) of the CA-ORA-83 site (Whitney-Desautels 1995: 53; LSA Associates, Inc. 1996: 4.12 - 15). The high quantities of these beads further attest to the site's heightened, special-use status, for at Millingstone Horizon sites, shell beads and millingstones – though usually not in such abundance – represent the most common grave goods (Wallace 1978: 28; Warren 1968: 2). Some of the shell beads from CA-ORA-83 were found in association with cogged stones and dated by accelerator mass spectrometer to from 6,000 to 5,500 B. C., additionally confirming the period of occupation as the very early Millingstone Horizon (LSA Associates, Inc. 1996: 4.12 - 18). Evidence at the site of stone tool manufacture (over 200 specimens of microlithic cores and tools) was also recovered (Whitney-Desautels 1995: 31; LSA Associates, Inc. 1996: 4.12 - 15).

Also substantiating the special, ceremonial significance of the CA-ORA-83 site is a telling abundance of, for the most part, fragmented ground-stone implements (e.g., handstones and millingstones) recovered from the nomination area (Whitney-Desautels 1995: 52). Some of the most conspicuous cultural traits exhibited at coastal Millingstone Horizon sites, besides a predilection for the sea (these ancients often preferring, as is the case at CA-ORA-83, to situate their sites on high grounds or bluffs overlooking the ocean [Eberhart 1961: 364]), are partial reburials and burials (extended and flexed) cairned with rocks and/or food-processing items such as millingstones and handstones "heaped up" over the deceased (Wallace 1978: 28; Moratto 1984: 160; LSA Associates, Inc. 2001: 4.11 - 2). At coastal Millingstone Horizon sites, rock piles or cairns have also been encountered covering important artifact caches, including cogged stones (see e.g. Dixon 1968 and Schroth 1993; refer also to attachment 5 [CA-ORA-83 site mapping dated 12/13/93], as over a dozen rock features [some associated with cogged stones, a charmstone, and human remains] were recorded in the nomination area). As Schroth (citing Kearns 1979 and

Walker 1952) has noted, in the southern California archaeological context, "rock piles or 'cairns' have generally been interpreted as 'religious' or 'ceremonial'" (1993: 44).

Although primary interments are encountered at Millingstone/Intermediate Horizon sites (as was the case at CA-ORA-83 [Whitney-Desautels 1995: 54]), in significant cases many of the human remains associated with them are communal and secondary interments. These often fractured, disarticulated and dissociated remains (a normal aspect of these sites, not an indication of poor archaeologic or historic integrity) are generally found in contexts containing millingstones or other utilitarian objects placed above and between them (inverted, smashed, or sometimes "killed" by having the bottoms knocked out, releasing, researchers have postulated, the spirit or energy of the object so that the deceased may use it in the next world [Walker 1952: 12 - 13]). Burial clusters and partial reburials are also found, sometimes in association with fire-affected rock (an abundance of which was collected at the CA-ORA-83 site [LSA Associates, Inc. 1994: 4.12 - 14]). Not unusually, the partial reburials consist of the skull and long bones alone, reinterred in a neat fashion (note cranial vaults and other skull fragments, plus a disproportionately high number of leg and thigh bones, were encountered at CA-ORA-83 [Whitney-Desautels 1995: 53 - 54]), perhaps suggesting the belief that the skull and long bones represent the top and lower halves of the body – in essence, a symbolic summarization of the totality of the individual (Jeffredo-Warden 2001: 164). Red ochre, which was found in significant quantity at CA-ORA-83 (according to Whitney-Desautels [1995: 53], 418 pieces), is also a strong presence at these burial and cairn sites. (For more on coastal Millingstone Horizon sites and Millingstone/Intermediate Horizon burial practices, see, e.g., Koerper et al. 1996; Ike et al. 1979; Treganza and Bierman 1958; Wallace 1955; Walker 1952; and Treganza and Malamud 1950. For comparatively consistent burial practices at Southern Channel Island sites, see McKusick and Warren 1959; Reinman and Townsend 1960; Littlewood 1960; Bryan 1970.)

At coastal Millingstone Horizon sites, reburials have been located, as they were at CA-ORA-83, in shell midden deposits (Whitney-Desautels 1995: 54). It is not difficult to identify Euro-centric notions of the common dump or refuse pile at work in statements regarding this phenomenon, or, additionally, a consideration of the ceremonial significance of the reburials at CA-ORA-83: "As with these other [Millingstone/Intermediate Horizon] sites, the human bone material at ORA-83 was located in the debris or refuse left behind . . ." (*ibid.*: 54; bracketed clarification my own). Yet it is interesting to note an ancient metaphoric or symbolic domain is perhaps exhibited by the association at these sites of food-processing items which were intentionally broken, it has been postulated, to provide for the deceased, and the remains of shellfish and

other foods which were exploited and broken, and from which food was extracted and, hypothetically, energy also released.

The assemblages of Millingstone Horizon sites emphasize subsistence patterns largely based on the collection and processing of seed foods and shellfish (LSA Associates, Inc. 2001: 4.11 - 2). If it is hypothesized that the burial/reburial of the dead with seed food-processing items and other gifts was thought by some Millingstone Horizon peoples to provide for the deceased in subsistence-related matters (cf. Walker 1952), along the same metaphoric thread: Given shellfish was another principal food source of the Millingstone Horizon, was the burial/reburial of the dead in shell middens likewise perceived as providing for and enabling the deceased's sustenance in the next world?

In a preliminary report regarding the CA-ORA-83 site, the developer's archaeologist discusses the presence of 30 human bone fragment concentrations which were located in the Millingstone Horizon strata of the nomination area (Whitney-Desautels 1995: 53 - 54). Regarding the human remains extracted from the nomination area, forensic anthropologist Judy Suchey has written: "The skeletal remains coming from this site are very old, approximately 8,000 years old . . . The remains resemble Early Horizon material from central California regarding the heavy mineralization . . ." (1993). While the developer's archaeologist does not overtly state the human remains were found in association or situ with food-processing items such as millingstones or handstones (as previously noted, a well-observed feature at coastal Millingstone Horizon sites), the archaeologist does state the combination of all tools within the recovered assemblage which could be related to mortuary practices and activities (curiously, not one of the tool types or categories is clearly and directly identified or exemplified in this context) "represent nearly half of the total number of tools recovered from the cogged stone site, and the majority are located within the Millingstone Horizon component" (Whitney-Desautels 1995: 54). As this component was distinguished by the presence of special-use, ceremonial items and materials such as cogged stones, charmstones, stone pendants, quartz crystals, and red ochre, as well as, significantly, human remains (*ibid.*: 53), it appears reasonable to infer from the archaeologist's statement – and in light of the overall high number of fractured ground-stone tools recovered from this site ("groundstone implements, for the most part highly fragmented, comprise over 1,450" of the items collected [*ibid.*: 52]) – evidence of a significant Millingstone Horizon cairn or cairns (essentially, a structure or structures built for the dead) was also encountered in the nomination area (an analogous example of which is included in this publication as **Attachment 9**). The developer's archaeologist has also correlated evidence for the time frames of the site's prehistoric use (based on the

significant presence of seed-grinding tools, and certain fish and bird remains, early October and sometime during the winter, summer and fall) with at least one time period (August or October) ceremonies honoring the dead (i.e., mourning activities) are thought to have occurred in indigenous southern Californian communities (*ibid.*: 44, 55).

Thus, within the prehistoric period of occupation and use the CA-ORA-83 site appears to have been largely used as a ceremonial site (see also portions of the nomination not for public release) and burial/reburial grounds with important (and, with respect to Early Millingstone and Millingstone Horizon sites, rare) manufacturing associations and industries (e.g., shell beads, stone tools). Moreover, in moving beyond the regional perspective and considering the CA-ORA-83 site in the wider context of the state and continent, additional site-specific rarities come to light. In that Californian and North American sites of such ultimate antiquity tend not only to be relatively free of grave goods, but also of appreciable differences in the worldly goods (including markers of power, prestige and specialization) buried with the dead (Dillehay 2000; Dixon 1999; Erlandson and Colten 1991; Fagan 1989; Fiedel 1987; Chartkoff and Chartkoff 1984; Moratto 1984; Wallace 1978, 1955; Warren 1968 and Irwin-Williams 1967, among others), the upper dates, heavily mineralized human remains, and unusually high abundance of grave goods and art extracted from this large site (some of which, site mappings reveal, are connected with uncorrected radiocarbon dates as early as 8,660, 8,520 and 8,120 RYBP [Whitney-Desautels 1995: 50; attachments 4, 5, and 6) should give the specialist in North American prehistory significant pause. An abundance of fractured ground-stone implements, fire-altered rock and other telling data collected within the nomination area also points to the presence, prehistorically, of a consequential Millingstone Horizon cairn or cairn component, reasonably concerning which even the so-called "debris" associated with this portion of the site may have had religious significance for the Bolsa's original occupants.

II. The Historic Period

Impacts to natural features and resources. At the time of European contact and invasion, the Bolsa Chica Wetlands were linked to a densely vegetated morass of inland marshlands fed by an extensive network of freshwater springs (LSA Associates, Inc. 2001: 4.11 - 1), and the Mesa supported a coastal sage scrub habitat. As the overwhelming presence of the marshlands (existing up to 7. 5 miles inland [*ibid.*]) inhibited economic pursuits such as farming and cattle ranching, from the late 1700s to the mid-1800s (what have been termed the Spanish and Mexican periods of California history) the Bolsa Chica Wetlands and Mesa, although successively

included in Land Grants, were relatively unscathed. However, under Abel Stearns' financially-strapped ownership during what has been termed the American period, after 1868 the area including them was parceled off and sold to numerous parties, some of whom commenced constructing ditches to regionally drain the marshlands and convert them into agriculture (Friis 1965: 65; LSA Associates, Inc. 2001: 4.11 - 1). Regarding Bolsa Chica specifically, by 1889 members of a waterfowl-hunting organization, the Bolsa Chica Gun Club, diked portions of the Wetlands to create ponds for their prey. The following year construction of the Bolsa Ditch, which emptied into Bolsa Chica Bay, began. With its completion in the 1890s significant areas of the freshwater marshlands surrounding the Bolsa Chica, as well as portions of the Bolsa Chica Wetlands (coastal saltwater marsh), were drained and converted into farmland (Friis 1965: 103). Levees were also constructed and channels cut during the historic period (LSA Associates, Inc. 2001: 4.11 - 1, - 2).

Due to agricultural activities on the Bolsa Chica Mesa, the Mesa's coastal sage scrub was severely reduced. Currently the Mesa supports a small, albeit protected and restorable community of this endangered habitat (LSA Associates, Inc. 2001: 4.9 - 1). The Gun Club's planting at bluff's edge of windbreaks in the form of a large Eucalyptus grove additionally destroyed native flora, yet, as the introduced Eucalyptus trees prevented the area's cultivation, ironically protected crucial, well-developed cultural deposits in the Millingstone and Intermediate Horizon strata of the CA-ORA-83 site (Whitney-Desautels 1995: 39, 40, 42), and ultimately created an Environmentally Sensitive Habitat Area (or ESHA, designated in 1982 by the California Department of Fish and Game) for a number of species of raptors and other birds on the Mesa's lower bench (LSA Associates 2001: 1 - 4; 4.9 - 23, - 24).

In 1920 the Bolsa Chica Gun Club leased rights to the Standard Oil Company of California to drill on the upland portions of Bolsa Chica, while it maintained the Bolsa Chica Lowland as a waterfowl preserve (LSA Associates, Inc. 1994: 4.12 - 5). Two decades later (after local artesian wells dried up and the Bolsa Chica became plagued by a lack of fresh and saline water flows into the Lowland areas because of the adverse effects of oil extraction and development, and the over exploitation of the area's groundwater resources), the Bolsa Chica Gun Club leased Lowland drilling rights to Signal Oil Company (*ibid.*). As a consequence of the attack on Pearl Harbor and a need for increased shore defense during World War II, soon after, the War Department used portions of the Bolsa Chica Mesa to contain coastal Battery 242 (this subsurface bunker, located in the central portion of the Mesa and outside the boundaries of the nomination area, was demolished in the mid-1990s) (LSA Associates, Inc. 2001: 4.11 - 4, - 5). Toward the

end of the War, a section of the Mesa near the nomination area was also used for an element of the Bolsa Chica Military Reservation: an above-ground concrete bunker (Battery 128) which was to contain two 16-inch guns. The guns were never installed and the structure – although it and an associated underground plotting and spotting room also located outside the nomination area were determined eligible for the National Register of Historic Places in 1994 – was demolished in the year 2000 (*ibid.*: 4.11 - 4, - 12). The underground plotting and spotting room located on the adjacent Goodell property was also destroyed at this time (*ibid.*: 4.11 - 4).

Archaeological undertakings have also affected natural features at the CA-ORA-83 site, both within and outside the area of nomination. From the 1920s to the present day at least 10 surveys, 10 surface collections (some of which, unfortunately, are best described as lootings) and 10 excavation programs were conducted at the site (see Whitney-Desautels 1995: 22 - 55 for a summary of these investigations). Environmental impositions associated with these activities and programs (e.g., auger testing, gridding, digging, using a backhoe to "clean" and trench out excavation areas within the northern and western portions of the site, and "controlled" grading) have, of course, additionally impacted the growth of the mostly non-native vegetation currently inhabiting the Mesa. Presently along portions of the CA-ORA-83 site chain-link fencing also exists, and unimproved roads run along the northern, eastern and southern perimeters of the nomination area.

Impacts to cultural features and resources. During the approximately 75-year period in which the Gun Club used the Bolsa Chica (the organization's Clubhouse was demolished in 1964, the year of its disbandonment [LSA Associates, Inc. 2001: 4.11 - 5]), its impacts upon it were largely focused on the Lowland and waterfowl habitats. Similarly, although the oil industry used the Lowland extensively for petroleum production and processing, it only limitedly used the Bolsa Chica Mesa for the purposes of petroleum extraction (*ibid.*: 4.14 - 1). Aside from the serious archaeological impacts upon this site (including the removal, storage and reburial of the earthly remains of our ancestors, exposing these highly aged remains to, and recontextualizing them within, situations and elements which can only serve to contribute to their ultimate disintegration), the greatest historic impacts to the cultural features and resources of the nomination area are attributable to its many years of cultivation, and the construction of the now-destroyed World War II coastal batteries within proximity to it. However, CA-ORA-83 is a large site in which deposits were found to extend approximately five feet deep (*ibid.*: 4.11 - 9). Therefore, although the top portions of the midden were disturbed by the construction of the historic World War II complex and agricultural activities such as plowing, discing and subsoiling, crucial deposits were found to

extend well beyond the varying levels of disturbance, as well as outside the areas of cultivation in a Eucalyptus grove at bluff's edge (Whitney-Desautels 1995: 42). Furthermore, until relatively recently (excavations have apparently been stopped), the site continued to yield significant, religiously heightened cultural evidences and materials. According to an Environmental Impact Report dated to 2001, since the publication of a 1995 Preliminary Site Report regarding CA-ORA-83 (wherein the discovery of 30 human bone concentrations is addressed), the developer's archaeological agents unearthed seven additional concentrations of human remains from reburials at the site (LSA Associates, Inc. 2001: 4.11 - 11). The 2001 Report also states human remains continued to be encountered during excavations (*ibid.*: 4.11 - 20).

Presently the Bolsa Chica Mesa chiefly consists of open, non-native grasslands and, along the southern edge of the Mesa, Eucalyptus woodland, yet smaller areas of native habitat (a remnant coastal sage scrub community and wetlands pockets) also persist (*ibid.*: 4.9 - 1). North of the nomination area, at the southwestern corner of Bolsa Chica Street and Los Patos Avenue, exists the six-acre, 16-home Sandover development project. The nomination area currently has no permanent, habitable structures upon it.

Although parts of the Bolsa Chica Mesa outside the nomination area were graded for borrow dirt, on the basis of a comparison of a 1939 aerial photograph and a 1990 aerial topographic survey, the elevation contours within the portion of the Mesa containing the nomination area were found to be mostly unchanged; additionally, the Mesa's overall elevation of approximately 50' above sea level remains a constant, unchanged feature of the landscape (LSA Associates, Inc. 2001: Figure 4.3.3; 4.3 - 1; see also accompanying photographs). In other words, historic impacts upon the Bolsa Chica Wetlands and Mesa have not destroyed an apparently paramount, and as yet viable, natural, cultural and historic resource of the CA-ORA-83 site – its state, across the many millennia, as an elevated plateau. Valued, indeed, in both prehistoric and historic times for its prime, panoramic view, the CA-ORA-83 site, as subsequently discussed, continues to convey its cultural and historic significance in several crucial and unparalleled ways.

Previous nominations with respect to prehistoric cultural resources. The CA-ORA-83 site was determined by the California Historic Resources Commission in 1983 and 2001 to be eligible, under state-wide significance, for the National Register of Historic Places (*ibid.*: 4.11 - 9). However, as the 1983 nomination was not forwarded to the Keeper of the Register by the State Historic Preservation Office, and the 2001 nomination was returned by the Keeper of the Register (citing "substantive and technical issues") to the State Historic Preservation Office and the

non-Native nominators whom authored and submitted it, no formal determination of the eligibility of this site for inclusion in the National Register has been made by the Keeper of the Register. The current nomination, authored by a descendant of the indigenous peoples of the Southern Channel Islands (Island Shoshones) and adjacent mainland (*Payomkawichum*, or Luiseños), constitutes the first argument in behalf of this site, and our ancestors, for national significance.

The Visual, Physical and Functional Integrity of the CA-ORA-83 Site

Situated overlooking an ecological reserve created to protect one of the last wetlands ecosystems in southern California – one supporting a vast array of plant and animal species and conserving visual elements that, according to a recent Environmental Impact Report, "lend themselves to an aesthetic unity that is unparalleled" (LSA Associates, Inc. 2001: 4.10 - 2), the location, orientation (see also portions of the nomination not for public release) and setting of the CA-ORA-83 site aptly bespeak why our ancestors chose to establish this specific property in antiquity. The presence of the protected, restored coastal bay and wetlands ecosystem, effortlessly evoking subsistence-related issues, trends and concerns, continues to reflect the fundamental environmental and physical conditions surrounding which the site was established. Coupled with the transcending view from CA-ORA-83 of the Pacific horizon, surrounding topographic features, coastline and open ocean, and in light of the fact that the most prominent and essential physical features of and associated with this historic site (its state as an elevated plateau with a view of, among other outlying features, Catalina Island, an ecological conservancy almost completely undeveloped and, like the Bolsa Chica Wetlands, protected in perpetuity) are intact and indestructible, CA-ORA-83 continues to retain the visual, aesthetic, physical and functional capacities to historically, culturally and scientifically communicate itself as a time-sensitive ceremonial grounds and place of heightened aesthetic and religious practices and expressions. Moreover, not only is the site located in the heart of the Los Angeles Basin, it is located in the heart of an ancient island/coastal territory, panoramically much of which can be seen from the Bolsa Chica Mesa, visually serving to summon an historic sense and increased awareness of the successive peoples to the region and the cultural, social, economic and religious linkages which may have existed during the time frames of the site's use (the Millingstone/Intermediate Horizons and Late Prehistoric Period).

At once expressing an apparent historic association with the CA-ORA-83 site and further supporting an argument for its physical and functional integrity is the recognition that remarkably similar configurations of natural and cultural elements, expressions and features are evinced at

"cogged" stone sites in the coastal provinces of Antofagasta and Coquimbo in northern Chile (Iribarren 1962; Gajardo 1962 - 1963; Llagostera 1979; Jeffredo-Warden 2001, 2002; see also portions of the nomination not for public release). In the United States and Chile analogously-shaped and -formed "cogged" stones – associated in both Americas with sites and assemblages containing hammerstones, scrapers, choppers, millingstones, manos and what look to be plummet net weights – have been found in or associated with funerary, burial and other symbolically heightened contexts (Koerper et al. 1996; Whitney-Desautels 1995; Llagostera 1979; Dixon 1968; Gajardo 1962 - 1963; Iribarren 1962; Eberhart 1961; Treganza and Bierman 1958; Wallace 1955, 1978; Walker 1952; Treganza and Malamud 1950; see also portions of the nomination not for public release). Other sculptures and ceremonial pieces coinciding with them are discoidals, spheres and ceremonial blades, as well as other, plummet-like "charmstones" (in Native California, integrated, particular indigenous southern Californian traditions inform, with efforts to affect seasonal productivity [see, e.g., Hudson and Underhay 1978: 34]) (Koerper et al. 1996; Llagostera 1979; Dixon 1968; Herring 1968; Gajardo 1962 - 1963; Eberhart 1961; refer also to attachment 5, CA-ORA-83 site mapping dated 12/13/93). In the Huentelauquén complex of coastal Coquimbo, cogged stones also coincide with the ground-stone artifacts archaeologists have referred to as "doughnut" stones (Gajardo 1962 - 1963: 26; Iribarren 1962: 424), yet another form of sculpture which is prevalent in our ancestral territory and found, with significant and noted frequency, on the Southern Channel Islands (Lee 1981; McKusick and Warren 1959; Reinman and Townsend 1960). Produced by island/adjacent mainland coast peoples even unto Late Prehistoric times, these sculptures are also noted to occur in southern California coastal Millingstone Horizon sites (LSA Associates, Inc. 2001: 4.11 - 2).

At the Chilean sites – both in the provinces of Antofagasta and Coquimbo – cogged stones increase in number toward (and are also found near or at) the surface of the sites (Gajardo 1962 - 1963: 26; Llagostera 1979: 319). Additionally, at the Quebrada Las Conchas site near the city of Antofagasta they coincide stratigraphically with the remains of Micropogan altipinnis (an extinct berrugato for which there is no record of it ever having been seen in the Chilean Pacific, yet which was germane to the coastal waters of southern California during the Late Pleistocene), indicating for the archaeologist Augustin Llagostera Martinez a correspondence with the thermal climax (the prehistoric height of warmer sea temperatures [dated to between 8,500 and 6,500 YBP] and, consequently, more northerly fish migrating southward) (1979: 316, 318 - 319). (Note this period is interestingly analogous to Eberhart's suggested span for cogged stone use – 6,000 to 3,500 B. C. [1961: 367].) Such a stratigraphic situation also supports the contention that the earliest

cogged stones from Chile (those removed from Quebrada Las Conchas) are contemporaneous to stones found at CA-ORA-83 (Jeffredo-Warden 2002: 9).

Nearly one hundred years ago, anthropologists and archaeologists began noting archaeological correlations between the coastal areas of Chile (the provinces of Antofagasta and Coquimbo) and southern California. In 1910 the anthropologist Ricardo Latcham stated of what was then believed to have been a "gran raza paleo-americana" (a great paleo-American race/people):

> Sus descendientes son probablemente los Yahganes de Tierra del Fuego. Parecen ser de la misma raza los Botocudos de Brazil, el antiguo pueblo de los paraderos de las pampas arjentinas, los indios de la costa de California, I los Esquimales del estremo norte del continente (3 - 4).

In the early 1960s cogged and doughnut stone sites in the province of Coquimbo, where coastal cogged stone sites were recorded as "rather common" (Iribarren 1962: 424), were excavated by the archaeologists Roberto Gajardo Tobar (1962 - 1963) and, among others, Jorge Iribarren (1962). A number of parallel features between the Archaic shellfish-gathering complexes of coastal southern California and the Coquimbo province in northern Chile (where the assemblages of these sites constitute a very distinct, localized expression [Gajardo 1962 - 1963: 49 - 50]) were observed by these investigators, at least one of whom argued for a wider recognition of the possible connection of artifacts encountered at the Coquimbo province sites and traits and industries associated with southern California's Millingstone and Intermediate Horizons. In 1962 Iribarren suggested the various correlations may reflect a north-to-south, intercontinental diffusion of the cogged-stone trait, as, tentatively attributing the bulk of Coquimbo examples to the middle Archaic (or to the primary phases of California's Intermediate Horizon, approximately 3,500 calendar years ago), he postulated that the Coquimbo examples were created or utilized later than the dates associated with southern California's Millingstone Horizon (424). Yet what is especially noteworthy regarding the subsequently discovered and earlier-dated cogged stones from Quebrada Las Conchas (also a site, according to Llagostera [1979 : 318], with "culturally peculiar" traits for the region) is that not only were they excavated from a stratigraphic situation evidently contemporaneous to the upper dates associated with CA-ORA-83 and certain of the cogged stones removed from it, but that they so remarkably resemble those first encountered at CA-ORA-83 (via digging, deep plowing and such), they look as if they could have been manufactured by the same hand (**Attachment 10**; see also **Attachment 11** for significant similarities between the cogged

stones encountered at Huentelauquén [Coquimbo province] and other cogged stones removed from the Los Angeles-Orange County coast).

Although a few cogged stones have been found at inland and interior sites in southern California (for the most part, within range of the Santa Ana River [Eberhart 1961: 364]), it is notable that the strikingly similar sculptures from Quebrada Las Conchas bear a stronger resemblance to many of the cogged stones removed from CA-ORA-83 than do stones occasionally unearthed at sites outlying the Los Angeles-Orange County coastal zone (strongly suggesting to us the interior variations may not have been manufactured by our ancestors). According to Herring (1968: 10), cogged stones from CA-ORA-83 stand out not only in their detail and sculptural precision, but in their size. On the whole, they are smaller than those extracted from other sites in southern California. The cogged stones shown in attachment 10 (now in a private collection) are some of the sculptures first recorded to have been removed from the site. (It may also be significant that a strong number of sculptures collected from the CA-ORA-83 site have been classed as "anomalous" for the region [see, e.g., Herring 1968, Table 7, "Problematicals"]. Although triangular- and rectangular-shaped stones are, for example, commonly reported for the Chilean cogged stone sites [e.g., Gajardo 1962 - 1963], they are generally not reported for Californian cogged stone sites [see Eberhart 1961].)

Additional correlations between the Chilean and southern Californian coastal complexes include, and are not limited to, (1) an apparent preference for situating occupation sites on the higher grounds and terraces of Pacific coastlines (Eberhart 1961: 364; Willey 1971: 208, 210); (2) the utilization in Chile and southern California of the same stone types for "cogged"- and/or "doughnut"-stone manufacture (basalt, granite, sandstone, and even an instance of steatite [in prehistoric southern California, a highly prized medium for doughnut stones and other sacred sculpture, the largest state-wide sources of which were controlled by Southern Channel Islanders/Island Shoshones (Kroeber 1976 [reprint 1925]: 629)]) (Eberhart 1961: 362; Gajardo 1962 - 1963: 28 - 38; Herring 1968: 7; McKinney 1968: 41 - 42; Llagostera 1979: 318; Lee 1981); (3) the occurrence, in both complexes, of convexed and concaved cogged stones and discoidals (Eberhart 1961: 363; Gajardo 1962 - 1963: 28 - 36; Iribarren 1962: 425; Dixon 1968: 62; Herring 1968: 8, 24; McKinney 1968: 45; Llagostera 1979: 318 - 319); (4), ritually broken ceremonial and utilitarian objects, including food-processing items (Treganza and Malamud 1950; Walker 1952; Gajardo 1962 - 1963: 26, 32, 52 - 53; Ike et al. 1979: 527 - 528); (5) highly analogous burial practices (e.g., flexed burials, the use of shell middens for the interment of human remains; the accompaniment of these remains with markedly similar ceremonial sculptures, ritual blades and/or

charmstones, as well as food-processing items such as handstones and millingstones) (Treganza and Malamud 1950; Gajardo 1962 - 1963: 24; Dixon 1968: 64; Willey 1971: 209; Davis 1976; Ike et al. 1979: 527 - 528; Llagostera 1979: 314; Whitney-Desautels 1995: 53 - 54; LSA Associates 2001: 4.11 - 2); (6), a postulated ceremonial function in both Americas for cogged stones (Treganza and Bierman 1958; Eberhart 1961: 361; Gajardo 1962 - 1963: 52, 55; Dixon 1968; McKinney 1968: 41; Herring 1968: 11; Moratto 1984: 150; Koerper et al. 1996: 14); and (7), in both regions, the apparently intentional concentration of round stones and/or pebbles at what appear to be religiously-oriented places (Gajardo 1962 - 1963: 26; see also Bryan 1970: 25 for the presence of this cultural feature at Southern Channel Islander sites).

Some Chilean/southern Californian correlations constitute archaeological isolates and anomalies for one or the other region. For example, while the practice of trepanation (essentially, a form of brain surgery) is commonly noted for the Chilean areas (Llagostera 1979: 311), the observation of this practice in highly mineralized human remains unearthed at CA-ORA-83 is an extremely anomalous occurrence for prehistoric California and North America (Suchey 1993). Likewise, ground-stone axes (Gajardo 1962 - 1963), not uncommon in prehistoric southern California, are – like the cogged stone artifacts – strikingly anomalous in the Chilean context (Willey 1979: 209).

In light of the numerous correlations (including remarkably similar ceremonial artifacts and burial objects ["cogged" stones, "doughnut" stones, spheres, discoidals and large ceremonial blades]) at these two geographically distinct, yet culturally analogous segments along the Pacific, and that in the Chilean case cogged stones coincide stratigraphically with the remains of fish once germane to the southern California coast, over time during the Holocene (and, given the recent evidences from the Channel Islands of the earliest uses of watercraft in North America [see, among others, Salls 1990 and Dixon 1999: 129], quite conceivably before), did some of the ancient inhabitants of the southern California coast and offshore islands follow fish southward to exploit the abundant resources of the Chilean coast – one of the richest marine environments of the world? (Even as recently as 2002, a sailor attempting to make a trip within our ancestral territory [from Long Beach to Santa Catalina Island], but experiencing a storm that disabled his engine and broke his boat's mast while en route, drifted south on the prevailing current, roughly 3,000 miles, to within 350 miles of Costa Rica. "For two months," the man recalled, "the wind continued non-stop," augmenting the ocean currents that continually pushed him south [Garrison and Romney 2002; Berg 2002; with thanks to Dr. Alicia M. Gonzalez of the National Museum of the American Indian for sharing this information with me. See also Koehler 1977: 61, who states that the type

of frameless plank construction employed by the Northern and Southern Channel Islanders to manufacture their ocean-going boats was a development "paralleled in only a few other areas of the world – notably, Oceania, Egypt, and the southern coast of Chile."]).

With respect to the Chilean sites, this stretch of Pacific coastline (from Antofagasta to Los Vilos) may have been chosen not only because it provided an ecosystem and topography strikingly similar to that of coastal southern California (likewise offering rocky tidal zone, littoral enclaves, protected coves, elevated plateaus, and, in antiquity, abundant seed foods [see Quade 1998: 1 - 3]), but, like the CA-ORA-83 site, crucial views involving certain coastal configurations (points), peninsula and/or bay formations, and offshore land formations (**Attachments 12 - 16** see also portions of the nomination not for public release). Note for example that, like the CA-ORA-83 site, the cogged stone sites at Huentelauquén, where Gajardo (1962 - 1963) recovered or excavated some 316 cogged stones and 66 discoidals, sit in adjacency to offshore land formations (**Attachment 14**; see also portions of the nomination not for public release). Moreover, just as the CA-ORA-83 site is located overlooking what was the prehistoric mouth of the Santa Ana River, the cogged stone sites at Huentelauquén are located at and in close proximity to the mouth of the *Rio Choapa* (*ibid.*: 6; see also **attachment 14** respecting the culturally consistent Los Vilos [Coquimbo province] site, a cogged stone site also established at the mouth of a river and in adjacency to offshore land formations [small islands]).

Chile's location far down the Southern Hemisphere places it under the center of the Milky Way for the earth-bound observer, drawing modern-day astronomers world-wide to this country. Moreover, those working within the Atacama Desert's coastal range (the stretch of coast along which the Chilean cogged stone sites were established) "probe the cosmos through perfectly clear skies" (Vesilind 2003: 52). Considering the world's largest optical observatory was established in the Coquimbo province of northern Chile (*ibid.*: 59), it should come as no surprise that the greatest number of Chilean cogged stones and discoidals thus far encountered were also recorded for this province.

Cogged stone sites were also encountered on the coast of Baja California (Eberhart 1961: 365), geographically a region where, for at least 10,000 years (Patterson 1999: 15), native peoples likewise had the benefit of bay formations, coastal views of offshore islands, and the valuable presence of life-providing rivers flowing out to meet the ocean (**Attachment 17**). It is also worth noting that some of the ancient people whom initially occupied and utilized the Chilean cogged and doughnut stone sites were dolichocephalic, or long-headed (on regionally-observed

physical characteristics, see Willey 1971: 210; see also Latcham 1910 for more specific information on the peoples of the Chilean coasts), as were some of the ancient people or peoples of the Southern Channel Islands and early Millingstone Horizon sites of the adjacent mainland coast (see, among others, Ike et al. 1979: 529; Heizer 1978: 7; Gifford 1926: 241, 1951: 103; also Salls 1984; Koerper and Fouste 1977: 54; Littlewood 1960; Reinman and Townsend 1960. Note Latcham [1910: 24 - 25] also recognized that paleo-American physical types encountered in the Chilean cogged and doughnut stone provinces [Antofagasta and Coquimbo] exhibit "muchos caracteres que recuerdan" some of the the ancient, dolichocephalic people of the coasts of Baja California).

As Eberhart argued, the design elements of the cogged stone tradition are so unique that,

> Unlike most of the associated material [of the Millingstone Horizon], cogged stones are sufficiently distinctive to be clearly recognizable, and they are of such a nature that it is unlikely that they were invented more than once. Their presence is, therefore, an unequivocal indication of cultural connection, provided, of course, that they have not been intruded by later circumstances (1961: 361 [bracketed clarification my own]).

On the topic of North and South American cultural connections and convergences, the anthropologist Betty Meggers once observed: "While one or two striking resemblances might be explained as convergence or independent invention, several dozen cannot be so construed without destroying the entire framework within which anthropologists operate" (1964: 521). This particular declaration was made in reference to the evaluation of cultural correlations between Mexico and Ecuador, yet in this brief discussion of the similarities between the shellfish-gathering complexes of coastal southern California and northern Chile (much smaller geographic areas of concern) I have pointed to the occurrence of nearly two dozen resemblances, several of which are highly specific. Clearly, as Meggers maintained nearly 40 years ago, conclusions derived from investigations surrounding "the duplication of such traits as the cog stones of Archaic coastal shell middens of southern California and Chile" are significant for achieving a more "complete understanding of cultural development in the New World" (*ibid.*: 522).

Another valuable aspect of the probable association of the Chilean cogged stone sites to CA-ORA-83 is the information at least one has yielded concerning early fishing practices (Jeffredo-Warden 2002: 30 - 31). As is, for the most part, CA-ORA-83, Quebrada Las Conchas is a marine-oriented site lacking fishhooks, yet, as is the case of CA-ORA-83, containing plummet/net weights

(*ibid.*; Llagostera 1979: 314; Whitney-Desautels 1995: 26). *Cynosian*, Llagostera realized, is a fish that, not feeding on anything that can be used as bait, cannot be caught with a hook; however, its remains appear in high percentage in the Quebrada Las Conchas deposits (as they do in the Late Pleistocene fossil deposits of southern California), leading Llagostera to hypothesize that at Quebrada Las Conchas fish were not caught with a hook but by netting, an idea supported by the site's ellipsoidal, sandstone plummets, and the fact that the majority of fish remains found there belonged to fish that live at the bottom of the ocean along the shore (1979: 317, 319). Such information may broaden researchers' assessments and interpretations of data obtained at the CA-ORA-83 site, as well as at other early marine-oriented sites of southern California (certainly, debate still continues as to when full maritime adaptations along the Pacific actually began [e.g., Dillehay 2000: 155; Noah 1999; Walker 1952: 49]).

Likewise, surviving indigenous knowledge surrounding the physical and functional integrity and probable astronomical base of the CA-ORA-83 site (please refer to portions of the nomination not for public release) may shed light on the physical and functional integrity and, it may be determined, ancient, astronomically-based usage of cogged stone sites on the northern coast of Chile, especially those of the materially prolific Huentelauquén complex.

Although we likely will never know how old the cogged stone tradition truly is, at CA-ORA-83 it has ultimately been radiocarbon dated (unadjusted, and via associated organic remains) to from 8,660 to 7,320 RYBP (which means, if corrected for, these dates could be revealed to be as much as 2,000 years older) (Whitney-Desautels 1995: 50; attachments 4 and 5; see also this document, pp. 28 - 29, for more information on radiocarbon dating associated with cogged stones extracted from CA-ORA-83). In southern Chile and Argentina discoidals have been found which are attributed to the paleo-American occupation approximately 11,000 YBP (Llagostera 1979: 319, citing Bird 1970). Cogged stones (dating to the Archaic period) have also been excavated from coastal Chilean sites (Gajardo 1962 - 1963; Iribarren 1962; Llagostera 1979) ultimately dated to between 11,000 and 9,680 YBP (Dillehay 2000: 152).

If we are unable to ascertain the beginnings of this ground-stone sculptural tradition (regarding which Eberhart offered the maximum span of cogged stone use might well extend as far back as 8,000 B. C. [1961: 268]), we can at least say that in present-day southern California the time frame for cogged stone use apparently was a long one, evidently enduring in at least one area well beyond the 8,000 to 5,500 time frame typically associated with cogged stone use in California (Kowta 1969: 45 - 52). In California cogged stone use may have spanned into the Middle

Horizon (Koerper 1979: 72), as apparently was the case in the Coquimbo province of northern Chile (Iribarren 1962: 424). A cogged stone (albeit encountered in disturbed midden) was extracted from one of our ancestral sites (now known as part of the city of San Pedro in Los Angeles County), the assemblage of which indicated "a Middle Horizon site, not over 2,000 years" (Desautels 1968: 67). Similarly, Salls has informed us, "Excavations at the Liberty Grove Site, SBR 901, in 1979 provided C-14 dates of 40 B.C. +/- 120 on charcoal samples taken from several test pits and tested as a single sample . . . Several cogged stones were found during the excavation of SBR 901" (1980: 58).

North America's Earliest Reliably Dated Representational Sculpture

Long recognized by alert researchers as exquisitely executed representational art (depicting, among other likenesses, astronomically-based forms and shapes [see, e.g., Gajardo 1962 - 1963: 26 - 27, 30 - 31, 34; McKinney 1968: 43, 44; Herring 1968: 8, 25]), the cogged stones of North and South America apparently constitute some of the earliest representational, mortuary and ceremonial art in the Americas (Jeffredo-Warden 2002: 10 - 21). More fundamental still to an understanding of CA-ORA-83 not only as a highly valuable type site of California's Millingstone and Intermediate Horizons, but as an important site of the North American Archaic, is the fact that it has produced what appears to be North America's earliest reliably dated representational sculpture (by representational art and/or sculpture I am referring to "the imaginative and purposeful manipulation and working of material[s] to visually and/or tactilely depict, whether in a realistic or stylized manner, animate and inanimate things, living beings, and natural phenomena" [*ibid.*: 14]) (*ibid.*: 19 - 21).

To briefly recapitulate a precursive paper regarding CA-ORA-83's historic significance (Jeffredo-Warden 2002), the rock paintings discovered at the Pedro Furada Rock Shelter in Brazil (perhaps dating to 12,000 YBP) and at the Caverna de Pedra Pintada site in the lower Amazon River (perhaps dating to 11,000 YBP) appear to be the earliest works of representational art yet discovered in the Americas, with the possible exceptions of a geometrically-etched mastodon tusk fragment recovered from a central Chilean site dated to 11,400 and 11,000 YBP and to between 10,190 and 9,700 YBP (Dillehay 2000: 157 - 158); discoidals encountered in early southern Chilean and Argentinean sites which are attributed to a paleo-American occupation approximately 11,000 YBP (Llagostera 1979: 319, citing Bird 1970); and two finds (one of carved bone, the other of incised bone) from Tequixquiac and Valsequillo, Mexico, which have not been adequately dated but which also offer promising evidences of early (pre-Clovis or paleo-) American

art (Fiedel 1987: 71). In the late 1950s some contestation concerning the presence of pre-Clovis sculptural art at the Malakoff site in Texas occurred, as well, surrounding a discovery there in the 1930s, "not generally accepted by archaeologists," of what resembled two human heads carved from large sandstone boulders (a third boulder bore "only some vague incisions") (Krieger 1964: 47). However, there were no other artifacts or evidences of a camp at this locality, and unfortunately no objective dating of the items were obtained (*ibid.*). At present then, no irrefutable evidences of representational sculpture or art have been found at North American sites of pre-Clovis (11,500 YBP or earlier), Clovis (11,500 to 11,000 YBP) or Folsom (roughly 11,000 to 10,000 YBP) antiquity (Jeffredo-Warden 2002: 19).

With respect to the North American Archaic (a period spanning approximately 10,000 to 3,000 YBP), nor have irrefutable, conclusive evidences of representational sculpture and/or representational art pre-dating that of the cogged stone tradition of coastal southern California (via materials removed from CA-ORA-83, ultimately dated to 8,660 RYBP, or, even more conservatively, to approximately 8,000 RYBP) apparently been found (Jeffredo-Warden 2002: 19 - 21, 46; see also this document, pp. 28 - 29, for additional radiocarbon dating associated with cogged stones extracted from CA-ORA-83). Furthermore, at the 39 known sites in North America where human remains were discovered which correspond in age to (or are older than) the earliest dates thus far recorded for CA-ORA-83, no evidences of representational sculpture – let alone nearly 500 of such sculptures – have been found. Nor do these burial sites show evidences of art in any other form (see Dixon 1999: 142, 144).

Berlo and Phillips worked from the following perspective regarding their identification of the earliest evidences of art in North America:

> When speaking of historical Native objects, the statement is often made that Native languages have no exact equivalent for the post-Renaissance term 'art'. The implication of this statement – that Native artists in the past were unreflexive about their own art-making and lacked clear criteria of value or aesthetic quality – is manifestly untrue, as scholars have repeatedly demonstrated. Though specific criteria vary, Native Americans, like people everywhere, value the visual pleasure afforded by things well made and imaginatively. They also value many of the same attributes that make up the Western notion of 'art', such as skill in handling of materials, the practised manipulation of

established stylistic conventions, and individual powers of invention and conceptualization (1998: 9).

Centering on the visually elaborated object, Berlo and Phillips see the earliest appearances of art in North America occurring in the Archaic period 5,000 years ago (for example, stone bannerstones [ceremonial atlatl weights] excavated at Indian Knoll, Kentucky; carved of exotic imported stones so as to exploit the stone's natural colors, patterns and striations, they afford the observer "maximum visual satisfaction" [*ibid.*: 9, 75]). (Not diverging from Berlo and Phillips on the early appearances of art in North America are the prior writings of Bushnell 1965, Disselhoff and Linne 1966, and Feest 1980. Evidently an exception, Haberland alone cites the possible presence of sculptural art in the controversial Malakoff, Texas finds [1968: 12].)

As I have previously stated, the oldest radiocarbon date thus far recorded for CA-ORA-83 is 8,660 +60 RYBP (the next oldest, associated with the same feature, are 8,520 +60 and 8,120 +60 RYBP) (Whitney-Desautels 1995: 50). According to the table of radiocarbon dates included in the preliminary report regarding this site, this date was obtained from "F23" in "unit Z9" of "Quad E" (*ibid.*). Six radiocarbon dates were obtained from this feature, ranging from 8,660 +60 to 7,320 +50 RYBP and averaging out to approximately 8,000 RYBP (*ibid.*; Jeffredo-Warden 2002: 46). Associated with this burial feature – characterized as such in accordance with site mappings dated 12/13/93 and 3/1/94, wherein units Z9 and Z10 are both identified as containing significant concentrations of human remains in a shell feature situated between the two units (no other feature or features is/are recorded for the two units) – was an ancient cogged stone (Whitney-Desautels 1995: 50; site mappings, referenced above; Jeffredo-Warden 2002: 46).

Other cogged stones removed from the CA-ORA-83 site have been dated (unadjusted) to 6,000 BC (via Tivela beads discovered in situ with a cogged stone) (LSA Associates, Inc. 1996: 4.12 - 18); 7,320 RYBP (a purposefully buried and arranged cluster of six [Whitney-Desautels 1995: 50; site mappings, referenced above]); and 7,140 RYBP (a cogged stone in situ with a burial [*ibid.*; site mappings, referenced above]). Thus, had I chosen to concentrate on these dates rather than the earliest dates associated with the site, the data continue to support our contention that, as a unique survival and type site of exceptional value, CA-ORA-83 conclusively marks the emergence and earliest reliably dated evidences of representational sculpture in what are now the United States. Additionally, I have shown previously via a discussion encompassing the relevant and most securely dated archaeological data from throughout the North American continent that,

to date, the earliest sculptures from CA-ORA-83 (and the cogged stone tradition of southern California in general) appear to precede all other reliably dated works of North American representational sculpture, including those produced in Mexico, by at least 3,000 to 4,000 years (Jeffredo-Warden 2002: 10 - 21).

Not only do the upper dates associated with CA-ORA-83's special form of rock art (portable sacred sculpture) stand out in the North American archaeologic and historic context, that the site produced this rock art in association with dateable organic remains, materials and artifacts is also a rarity. To quote Heizer and Clewlow:

> [T]he chances that we will ever learn the precise chronology of the rock art of each region of California seem to us to be very slight. Rock art does not ordinarily occur in intimate and reliable association with occupation refuse which can usually be dated. The reason for this lack of association seems to be that people lived at some spots and practiced rock art in other places. . . . [T]he activity seems to have been carried out in places other than the immediate confines of the villages where the people lived (1973: 56).

The dating of rock art sites world-wide is generally "fraught with many difficulties and uncertainties" without tools such as radiocarbon dating (Castleton 1978: 8). However, radiocarbon dating was achieved with respect to CA-ORA-83's significant historic resources. Among these resources (for example, burial and other symbolically heightened contexts) are those which provide valuable indications regarding how this art form was used and integrated into specific aspects of socio-political and religious life, action and meaning.

<u>The Earliest Reliably Dated Site in North America with Discernable Astronomical Functions and Associations</u>

> Today, we might even ask why so little attention was placed on the complexities of Native American astronomies prior to the 1970s and 1980s. The answer lies partly in the accident of history. It also lies in our modern blindness to the possibility that technologically undeveloped societies might have something to teach us about astronomy and its place in our lives, or that they might also be able to help us discover our own scientific origins (Williamson 1984: 10).
>
> It may seem strange to illustrate the relationship between social complexity and astronomy with evidence from California. Most people are unaware of the California Indians. Even those who know something about them recognize that they don't fulfill the American Indian stereotype. They

> didn't wear bison robes and trailing war bonnets. They didn't build apartment villages like high-rises on the desert mesas of the Southwest. They didn't teach the pilgrims how to farm the New World just in the nick of time for the first Thanksgiving. There is no Disney animated feature film about a California Indian princess. With the possible exception of the Mississippi Valley, however, California was the most populous region north of Mexico at the time of European contact. For all practical purposes then, the indigenous tradition of California is the mainstream for North America and not an obscure and marginal development (Krupp 1997: 155).
>
> Recent ethno- and archaeoastronomical studies of California's hunters/gatherers indicate that the time has come to discard the theory that the production of food is a basic requirement for the development of complex astronomies and calendric systems. Not only were Native Californians keen observers of the sky who used their information to regulate socio-political and ritual behavior, they were also time-keepers in a manner which reflects significantly upon the very origins of writing and mathematics (Hudson 1981: 12).

Nearly three decades ago, North American archaeoastronomy was in its incipiency. In a 1975 assessment of the field thus far, Elizabeth Baity stressed:

> With all the information accumulated by a generation of skilled archaeologists and textural scholars, there is as yet no agreement as to the time and place of origin of American astronomical and calendric skills. Here, to my thinking, lies the most urgent of the unsolved problems facing workers in the new field (380).

As I write, this remains the state of affairs for researchers grappling with questions surrounding the beginnings of astronomy (hence, of "arguably the first science" [Selin 2000: xix]) not only in the Americas, but throughout the world. This is partly due to a lack of enduring evidences regarding what the ancient peoples without standardized writing systems and, evidently, inclinations to build monumentally discovered, understood and concerned themselves with respecting the celestial realm:

> Unlike the case of the ancient Egyptians, Mesopotamians and Maya, no written records or texts exist to examine such interesting questions. Paleolithic evidence is largely based on engraved bones and human burial orientations. Later on, during the Neolithic period, alignments of megaliths and very large tombs provide more comprehensive evidence.

> Hence, what we do know about the roots of astronomy in prehistory is, for the most part, very incomplete and quite speculative in regard to interpretations (Robbins 2000: 31).

According to Robbins, there are no known observatory sites dating to the Paleolithic Age (*ibid.*: 35). Nor are there known evidences, thus far, of modern Homo Sapiens "permanently marking the landscape [i.e., establishing fixed monitoring points] for sighting purposes" from 35,000 to 10,000 years ago, or during what has been termed the Upper Paleolithic (*ibid.*; bracketed information my own). It is the Neolithic, concludes Robbins, that "appears to provide the initial context in which permanent and semi-permanent sighting points were constructed to observe astronomical phenomena," with the earliest documented evidence of such a point, to date, having been discovered (or more appropriately, rediscovered) at the Nabta Playa site in southern Egypt (*ibid.*: 35, 43, 51).

The Nabta Playa site dates to at least 4,800 BP and evinces the oldest known Neolithic megaliths with astronomical significance (*ibid.*: 43). A tomb at Newgrange, Ireland containing passage graves and dating to approximately 3,150 BC is thought to be the earliest known astronomically-oriented monument in the world (Krupp 1997: 136). Another important Late Neolithic site, Stonehenge, has been found to date from approximately 3,000 to 1,500 BC (Robbins 2000: 35).

On the North American continent, the earliest known sighting points appeared to be the earthworks generically referred to as "medicine wheels." Constructed at mountain-top locales along the Rocky Mountains in Wyoming, Montana, Alberta and Saskatchewan (Aveni 2001: 301 - 302), the majority of medicine wheels consist of circles of small rocks centered on a large rock pile or cairn:

> They look like wagon wheels, but not all have spokes, and at least one, in Minton, Saskatchewan, is shaped more like a turtle . . . about 50 medicine wheels and related structures are known. Nearly all are found on the east flank of the Rockies or on the open plains below; most are in the north, on the grassy prairies of Canada. Some wheels seem to be only a few centuries old; others are very ancient. Excavations in Alberta, Canada, of the Majorville Cairn, a badly vandalized wheel with numerous spokes, a rim, and a 50-ton pile of rock in the center, imply an age of 4,500 years – making it about the same age as the pyramids of Giza! (Krupp 1983: 142)

As the noteworthy dates associated with these better-known sites highlight, **the radiocarbon dates pertaining to CA-ORA-83's occupation and use (8,660 +60 to 1,098 +72 RYBP [Whitney-Desautels 1995: 48 - 50]) potentially position it, within the global archaeologic and historic context, as one of the world's earliest astronomically-based sites** (for evidential information and material on this facet of the site's apparent use, see portions of the nomination not for public release). **In addition, to date, no other known North American site with potential and/or known astronomical associations and functions has produced reliable dates as early as those associated with CA-ORA-83** (see also Robbins' time line of astronomy ii prehistory [2000: 35, included in this nomination as **Attachment 18**] for further historic contextualization).

If the original inhabitants of CA-ORA-83 opted not to create structures as physically imposing or enduring as megaliths or pyramids, they in all probability did, however, build commemorally upon this site. As documented in pages 11 to 15 of this nomination, evidence of a consequential Millingstone Horizon cairn or cairns (a structure or structures built for the dead) was almost certainly encountered in the nomination area. Some of this evidence includes, and is not limited to, human interments; the most common grave goods associated with Millingstone Horizon sites (e.g., millingstones and shell beads); sacred sculpture; an unusually high (and in som respects unparalleled) abundance of these grave goods and ceremonial art objects; a high number o what, inferentially, appear to be ritually-broken food-processing items (i.e., recognized burial objects of the Millingstone Horizon); an abundance of fire-altered rock; numerous rock "features" (as previously cited, in the southern California archaeological context, rock piles or cairns are generally interpreted as religious or ceremonial in nature); and the time frames of the site's use (at least one time period during which, regionally, prehistoric mourning ceremonies and activities are thought to have taken place [see also portions of the nomination not for public release for additiona information on time-sensitive ceremonialism and the CA-ORA-83 site]).

It is not unusual at astronomically-based sites throughout the world to encounter religious emphases concerning, on the one hand, the interment, commemoration and memory of the dead and, on the other, "life, growth, creation, creativity and sustenance" (Jeffredo-Warden 2001: 18). Recognizing the connection between annual seasonal changes and death, fertility, rebirth and renewal is fundamental to human survival: winter brings scarcities, coldness and darker days; sprin warmth, light and the rhythmic renewal of flora, fauna and other crucial aspects of the environmen (Eddy 1977: 135; Fabian 1992: 4; Fabian 2001: 9, 106; Krupp 1997: 135, 140, 157).

These environmental patterns and flows are in turn a consequence of the regular, cyclic movements of the celestial bodies overhead (Krupp 1984: 3; Hudson 1988[b]: 106; Fabian 2001: 9).

We do not know how long primates have recognized the connection between celestial patterns and movements and terrestrial events and concerns (Krupp 1977: 33; Schiffman 1988: 1), or how far back human "spiritual, metaphoric and philosophical engagements with and between the heavens and the earth that addressed issues of life, the relation of life and death, fertility, sustenance and continuance" (Jeffredo-Warden 2001: 25) can be traced, but there is evidence astronomical considerations have long played a part in human interments and burial orientations: astronomically-based human burial orientations perhaps appear in Euror . as far back as the Middle Paleolithic (a period spanning 200,000 to 35,000 years ago) (Robbins 2000: 35). That astronomical considerations may have played a part in the construction of CA-ORA-83's probable cairn or cairns would not be infeasible for this period of human prehistory, the very Early through the Middle Holocene (as by the Late Paleolithic, conclusive evidence of astronomically-oriented human burials appears in Europe and Africa [*ibid.*: 35, 39]), nor would it be unusual or unfounded for what is now known as southern California (see, for example, Davis 1976: 38 on astronomically-based La Jollan [Millingstone Horizon/Encinitas Period] burial orientations and Romani et al. 1988: 129 on astronomically-based Chumash [Late Prehistoric] burial orientations), as this was a region in which, prehistorically, astronomically-based religions and belief systems were prevalent (see, among others, Kroeber 1976 [reprint 1925]; Heizer et al. 1978; Hudson and Underhay 1978; Hudson et al. 1979; Lee 1981; Hudson 1984; and Schiffman et al. 1988).

Additional evidences of the astronomically-based religious concerns and ceremonialism apparently associated with the CA-ORA-83 site include classically-identifiable ritual paraphernalia which was excavated from the nomination area (what is truly noteworthy about the excavation of these artifacts from so ancient a site is that they appear to more than strongly point to continuities in the belief systems of historic Native Americans and their prehistoric ancestors, and to further attest to the significant historic role of this or these early, and as yet unknown, marine-oriented people or peoples). CA-ORA-83 has produced perforated stones, ritual blades (as well as other probable "charmstones"), and quartz crystals and whistles. In the indigenous southern Californian context, especially among the ethnographically known peoples of the Northern and Southern Channel Islands and adjacent mainland coast, perforated stones were used in astronomically-based ritual observances (e.g., Miller 1991: 105; Lee 1981; Hudson and Underhay 1978: 63 - 66). Likewise among these maritime peoples, strikingly analogous "charmstones," plus quartz crystals

and whistles, were utilized in regard to time-sensitive resources and ceremonialism (Hudson and Underhay 1978: 34, 49; Hudson 1988[a]: 37; Hudson 1988[b]: 104).

Interestingly, quartz was also valued in Europe for its properties of reflection; the Newgrange tomb, for example, was originally "surfaced with quartz to create a brilliant white facade that glared in the Irish sunshine" (Krupp 1997: 136). A significant difference is, however: Given the ultimate age of the CA-ORA-83 site, its original inhabitants may have understood the refractory properties of quartz crystals – and other significant (and in some respects markedly sophisticated) astronomically-associated knowledge – thousands of years earlier than did the builders of Newgrange.

Yet, besides surviving physical characteristics and conditions of/associated with the CA-ORA-83 site (chiefly discussed in portions of the nomination not for public release), perhaps the most revealing evidences of the site's potential astronomical base are the many hundreds of celestially-evocative stone sculptures – the so-called "cogged" stones, discoidals, spheres and perforated stones – which have been collected and excavated from the central and southern portion (the nomination area) of the site, some of which, connected with uncorrected radiocarbon dates as early as 8,660, 8,520 and 8,120 RYBP (Whitney-Desautels 1995: 50; attachments 4, 5, and 6), almost assuredly indicate that astronomically-based concerns respecting the establishment and use of this site were present from its earliest-dated occupation. Further, not only are these skillfully-executed art works extremely early expressions of the notion of portable, ground-stone sacred sculpture (a traditional sculptural method and genre of artifacts so customarily identified with Late Prehistoric populations of Northern and Southern Channel Islanders [Lee 1981]), they appear to be some of the earliest remaining celestial depictions in the world (see also portions of the nomination not for public release):

> Metaphor was the link between these two realms [i.e., the celestial and terrestrial], and metaphor is just a way of describing--of emphasizing--a relationship between things. Celestial metaphors have been expressed in many ways by traditional peoples: in myth, in systems of kinship, in the authorization of a ruler's power, in monumental architecture, and in many other cultural institutions. These embody the imagery of the sky because the sky is a reservoir of power (Krupp 1984: 3; bracketed clarification my own).

In the absence of written evidences, such permanent, painstakingly-produced visual remains are what the archaeoastronomer E. C. Krupp also equates to "an objective language of deeds, which

can be read as evidence that is probably more eloquent and compelling than spoken words or repeated tales, however sincerely told" (1977: 136). Or to put it Robert Schiffman's way: "Rock has been interpreted as a timeless medium for expressing the feelings, history and beliefs of a people. Such a system of recordation would surely contain elements of a culture's interpretation and observation of the heavens" (1988: 1).

In the study of indigenous Californian astronomies – especially in cases where native knowledge has not survived to bespeak a site's astronomical associations and functions, *the identification of sites at which astronomical phenomena may have been observed or monitored generally occurs at places where forms of rock art, accompanied by evidences of religious specialization and time-sensitive ceremonialism, have been encountered* (Hudson et al. 1979: 51 - 52; Krupp 1988: vi). More succinctly put, the identification of Californian sites at which astronomical phenomena may have been observed or monitored generally occurs at sites with characteristics like those of CA-ORA-83.

> California rock art has a rich vocabulary of symbols that may, for the most part, elude detailed interpretation. It is accepted, however, that most of the rock art was produced by the shaman-priests in a sacred context and perhaps for ceremonial use. Because it is possible to associate some of the rock art sites with recurring celestial events, at least one dimension of some of the symbols may become accessible (Krupp 1988: vi).

During the 1970s and 1980s (a fluorescence in California archaeoastronomy), several Late Prehistoric sites with astronomical potential were located and identified, the majority of which, not surprisingly, in isolated, depopulated areas not generally threatened by development (Hudson et al. 1979; Schiffman et al. 1988). Within Orange County's highly populated coastal zone, however, far earlier indigenous cultural and historic resources have been or are being obliterated in favor of the rampant, conspicuous consumption of natural and other resources in the form of high-end housing. The CA-ORA-64 site, for example, produced radiocarbon dates as early as those of CA-ORA-83, yet, despite the documented presence of hundreds of human burials and one of the Americas' earliest ceramic industries on record (dated to from 7,150 to 6,220 RYBP [Moratto 1984: 149]), CA-ORA-64 was destroyed with but a Preliminary Report on hand. With CA-ORA-64's destruction, CA-ORA-83's indispensable position as one of Orange County's earliest and most historically significant coastal habitation sites became even more absolute.

Likewise during the 1990s, a prominent elder of the Gabrielino-Shoshone nation, Mrs. Vera

Rocha, contacted me for my assistance in conserving what she and Hank Stevens, then a doctoral candidate at the University of California at Irvine, suspected was an astronomically-aligned structure in the path of an Orange County freeway under construction. (Mr. Stevens had witnessed light play in the small, unadorned cave, and had argued, as I do within this nomination, for the prehistoric presence of astronomy in Orange County.) I hadn't much time to assist Mrs. Rocha; within days the structure (reportedly referred to as "a pile of rocks" by the non-Natives present) was demolished. Under the terms of the California Environmental Quality Act (CEQA), the construction area had supposedly been "fully mitigated" for archaeological and historic resources – a viewpoint echoed in CA-ORA-83's perhaps soon-to-be-completed excavation plan. Needless to say, the focus of the mitigation effort likely centered on the presence (or lack thereof) of in-ground archaeological deposits, not on the concerted identification of a modest, yet potentially viable religious/scientific structure possibly aligned with the celestial beyond.

It is frustrating to write that, in spite of the fact that the majority of indigenous Californian peoples practiced some form of systematic astronomical observation via strong knowledge bases in positional astronomy (see, e.g., Hudson et al. 1979 and Hudson 1984), most California archaeologists fail to internalize this fundamental recognition about Native Californians and investigate for potential astronomical alignments, patterns and orientations at the aboriginal sites they study. As "California's first astronomers compiled a corpus of astronomical information and devised explanations for what they observed in the sky to an extent far beyond that previously credited to hunter-gatherers," it is inferable that potentially many more of these alignments, patterns and orientations would be located and identified were this not the overwhelming case (Hudson 1988[a]: 25). For Natives and non-Natives alike concerned with the conservation of the Americas' ancient, prehistoric treasures, unfortunately the professional criticisms leveled by the late archaeologist and archaeoastronomer D. Travis Hudson seem as applicable today as they were in the 1980s:

> [A]rchaeologists working with hunter-gatherer remains have ignored the potentials for encountering traces of astronomical or calendric behavior in the archaeological records they study. In addition, a lack of research interest is present. The mainstream of archaeological inquiry has expectedly drawn researchers down avenues where the collection and interpretation of data are most feasible. The emphasis has thus been placed upon articulating man with his natural environment, vis-à-vis terrestrial and marine, and not upon his celestial one. Therefore, questions about the relationship of astronomy and

calendrics to economic, socio-political, or ritual behavior have simply not been asked (*ibid.*: 98).

Additionally,

> Studies of marine adaptations of Pacific Coast peoples have traditionally been for the purpose of determining when they moved from interior to coastal diets, not the other way around. The assumption has been that the first Americans arrived by way of an interior, ice-free corridor and eventually--long after Paleoindian times--found their way to the coast where they learned to utilize coastal resources (Hall 1998: 2).

However, as Erlandson has offered, the notion that the first settlers of the California coast may have traveled by boat from the North Pacific might help explain the relatively early appearance of coastal adaptations in California, as well as the early settlement of the Channel Islands (1994: 267). What is more, in light of the fact that maritime knowledge and navigational skills have been tied to various forms of astronomy throughout human prehistory and history (Selin 2000: xix), this current theoretical approach might also help explain what appears to be the markedly early appearance – vis-à-vis the earliest "cogged" stone sites in North and South America – of astronomy and calendrics (or calendric-type behavior) along Pacific coastlines of the Americas.

Note that

> New evidence from the coast of Southern California offers little or no support for the theory that early coastal people were descendants of the makers of Paleoindian fluted points. Richard Fitzgerald reported on a single-component shell-midden site in San Luis Obispo County that dates to 10,300 radiocarbon years ago. A lithic assemblage of milling equipment, core tools, and hammerstones, indicate a subsistence heavily dependent on vegetable processing (charred seeds of seven edible taxa were recovered) and shellfish collection.
>
> Known as Cross Creek, the site was found on a Pleistocene-age terrace that was covered with alluvium early in the Holocene. It is now almost 10 kilometers from the coastline, but was nearer to an ancient estuary. Oxygen-isotope studies indicate the shellfish were gathered throughout the year. Archaeologists Fitzgerald and Terry Jones, his co-author, believe the site "represents a broad-based coastal gathering culture that is partially

contemporaneous with Paleoindian cultures." Further, they find it unlikely that Cross Creek people descended from big-game hunters recently arrived on the coast (Hall 1998: 2).

If these and other early shellfish gatherers of the southern California coast and offshore islands ultimately reached California by way of boat, it is reasonable to infer that they may have done so bearing (and, for the purposes of navigation, monitoring the ocean's tides and currents, and more effectively and safely procuring marine and littoral food resources, utilizing) some of the Americas' and the world's most ancient astronomy or astronomies.

Hence, with this nomination we are advocating broadening the theoretical lenses and questions used to address the anciently-enduring, marine-oriented sites and peoples of the southern California coast and offshore islands, which include those of the Millingstone and Intermediate Horizons. Due to hegemonic, controlling discourses and ideologies surrounding not only the early settlement of the southern California coast, but the cultural and technological sophistication of these ancient people or peoples, archaeologists are too quick to discount or overlook their significance in global prehistory. Yet reframed investigations of CA-ORA-83 and other early cogged stone sites, including those in Chile, could provide a number of clues that may help researchers address questions surrounding why non-agriculturalists in some areas of the world, and not others, developed astronomy and calendrics to such a relatively high degree of sophistication (a question first posed by Hudson 1988[b]: 106). Moreover, through a sincerely refocused assessment and determination of CA-ORA-83's historic significance and, in turn, more heightened regional, state-wide and national awarenesses respecting it, we also undoubtedly conserve an opportunity to successfully ask: Just how far back in the Americas can calendrics and astronomy actually be traced?

8. Statement of Significance

Summary

Based on (1) our present state of knowledge concerning indigenous Californian astronomies and calendrics; and (2) archaeological and archaeoastronomical data obtained at the CA-ORA-83 site, the CA-ORA-83 site, dated to from 8,660 to 1,098 RYBP, evidently constitutes, in addition to the earliest reliably dated observatory site in North America, one of the earliest fixed astronomical observation points in the world (Jeffredo-Warden, this publication). The site, part of a visually stunning sacred environment that appears to have been used for markedly early calendric or calendric-type activities (see portions of the nomination not for public release), is additionally significant to the prehistory of the North American continent and the state of California due to its potential historic association with analogous "cogged" stone sites on the northern coast of Chile (sites which evince a significant number of highly specific archaeologic, ecologic, topographic and astronomic correlations to the CA-ORA-83 site [Jeffredo-Warden, this publication and 2001, 2002; see also Iribarren 1962; Gajardo 1962 - 1963, Llagostera 1979]).

If these resources and associations may be seen as the result of the importance of positional astronomy and calendrics to human prehistory, they also outstandingly articulate and reflect the hitherto overlooked complexity of positional astronomy and calendric or calendric-type behavior among some of the very early shellfish gatherers of southern California's Pacific littoral. Though the Late Prehistoric peoples of southern California are well noted for systematic astronomical observations and strong knowledge bases in positional astronomy (Hudson et al. 1979; Hudson 1984; Hudson 1988[a]), the cultures and peoples of California's Millingstone Horizon are not. Therefore the CA-ORA-83 site, evidentially supporting a previously unsubstantiated antiquity for such observations and knowledge bases in Native North America and Native California, relates to the development of science (the systematic observation of the seasonal extremes and other astronomical phenomena) on the North American continent and in Native California. On a state-wide level, the site also appears to represent a characteristic pattern of religious development in Native Southern California involving astronomically-based belief systems and ceremonialism, including season-specific mourning ceremonies. Moreover, the CA-ORA-83 site, whose Millingstone Horizon inhabitants apparently produced (in addition to some of the earliest representational, mortuary and ceremonial art in the Americas) North America's earliest reliably-dated representational sculpture (Jeffredo-Warden 2002), well marks the appearance

of a particular kind of aesthetic expression typically associated with this regionally-characteristic religious pattern – namely, portable, ground-stone sacred sculpture.

The archaeological data obtained at the CA-ORA-83 site speak to the heightened, special-use status its Millingstone/Intermediate Horizon occupants, whom are sometimes referred to as "Encinitas People" (Chartkoff and Chartkoff 1984: 108), accorded this apparent observatory site. CA-ORA-83 remains part of a sanctified landscape at which the dead were buried and reburied (Whitney-Desautels 1995: 53 - 55), cairned burial grounds were undoubtedly established (Jeffredo-Warden, this publication), the seasonal extremes were evidently observed (*ibid.*), and time-sensitive mourning ceremonies and activities were conducted (Whitney-Desautels 1995: 44, 53 - 55). Excavations at the site of an unusually prolific amount of Millingstone Horizon artifacts and ecofacts (attesting to Archaic subsistence patterns, changes and preferences [*ibid.*: 56]) and an unparalleled number of rare, time-sensitive works such as cogged stones and discoidals (exhibiting the earliest reliably dated evidences, achievements, and refinements of a sculptural tradition in North America) further document it to be highly exemplary of, yet uniquely distinguished among all other, Millingstone/Intermediate Horizon sites (Jeffredo-Warden, this publication). No other known North American cogged stone site so markedly represents, both by way of the data retrieved at it and by way of its very location, setting, physical features, and evidently still-functioning orientational significance, the specialized lifeways, potential knowledge systems, workmanship and productions associated with the cultural, social, economic, religious, aesthetic and artistic values and achievements of these very early artisans, and, it is difficult to reason otherwise, astronomers of the Pacific littoral.

The CA-ORA-83 site is nominated for national significance in relation to the areas of Science, Art, Religion, and Archaeoastronomy under National Register Criterion A and National Historic Landmarks Criterion 1 because:

- The site is the location at which North America's earliest reliably-dated representational sculpture was recovered (specific event marking an important moment in American prehistory), and is associated in an outstanding and unparalleled way with the earliest reliably-dated evidences, achievements and refinements of a sculptural tradition in North America (pattern of events or historic trend that made a significant contribution to the development of a community, a State, or the nation).

- The site is the location of what is apparently the earliest reliably-dated observatory site in North America (specific event marking an important moment in American

prehistory), and is an integral component of a sacred environment potentially in which one of the Americas' earliest horizon calendars was developed and utilized (pattern of events or historic trend that made a significant contribution to the development of a community, a State, or the nation).

- The site evidentially retains and conveys a probable historic association with analogous sites on the northern coast of Chile (e.g., the *Quebrada Las Conchas*, *Huentelauquén*, and *Los Vilos* sites in the provinces of Antofagasta and Coquimbo), historically relating to the theme of intercontinental connection, interchange and influence with respect to the development of astronomy and calendrics in the Americas (pattern of events or historic trend that made a significant contribution to the development of a community, a State, or the nation).

The CA-ORA-83 site is also nominated for national significance in relation to the areas of Science, Religion, and Archaeoastronomy under National Register Criterion D and National Historic Landmarks Criterion 6. Although the nomination area has been excavated for archaeological resources and apparently no longer retains relevant stratified deposits, the nomination area continues to possess an extremely high degree of historic integrity in terms of its astronomical potential because the astronomically-relevant physical features of and associated with it (chiefly discussed in portions of the nomination not for public release) are intact and, in highly significant instances, lawfully protected in perpetuity, and because it conveys and retains a potential historic association with analogous sites on the northern coast of Chile (see also portions of the nomination not for public release for evidential materials concerning the astronomical potential of the *Quebrada Las Conchas*, *Huentelauquén*, and *Los Vilos* sites). Thus, the site continues to possess exceptional resources and potential information values that, in conjunction with the important evidences and data already retrieved at it, may be expected to yield pivotally-important information concerning not only the astronomical sophistication of some of the so-called "Encinitas People" of California's early Millingstone Horizon, but the antiquity of astronomy and calendrics in the Americas – one of the most important areas of American archaeoastronomical research and investigation today.

National Significance

Cogged Stone Site
Orange County, California

National Significance

Criteria: *1 and 6*

Themes: *Expressing Cultural Values*

Subtheme: *Prehistoric Hunters and Gatherers*

Period of National Significance: *8,600 - 4,000 YBP*

Criterion A (NHL Criterion 1)

The CA-ORA-83 site is nominated in relation to a period of significance – at least 6,600 - 2,000 BC – that corresponds to the bulk of uncorrected radiocarbon dates (131 out of 155) recorded for the site (Whitney-Desautels 1995: 48 - 50), and to a time period associated with cogged stone use in southern California (Eberhart 1961). These dates were obtained from archaeological materials which were removed from deposits in the nomination area and which are generally characteristic and diagnostic of the Millingstone Horizon in southern California (Whitney-Desautels 1995). The nomination area is currently reasoned (at this point by way of at least 10 surveys, 10 surface collections, and 10 excavation programs [*ibid.*: 22 - 25]) to have been "the primary focus of the Cogstone Complex with periphery areas . . . containing only scattered artifacts and very little undisturbed subsurface material" (Hammon 1981).

National Significance in the Area of Art

Under National Register Criterion A/National Historic Landmarks Criterion 1 the CA-ORA-83 site is eligible as a nationally significant property in the area of Art because, as the location at which North America's earliest reliably-dated representational sculpture (refer to portions of the nomination not for public release) was recovered, and as North America's most prolific and important cogged stone site, the CA-ORA-83 site is associated in outstanding and unparalleled ways with the earliest reliably-dated evidences, achievements and refinements of a sculptural tradition in North America.

The site's national significance in the area of Art is also allied to its outstanding capacity to offset generalizations and stereotypes regarding the technologic and artistic achievements of prehistoric Native Americans; to increase appreciation and awareness of these achievements and the intellectual, artistic and aesthetic values they express; and to affect the predominant notions regarding how far back in Native North America permanent representational art, demonstrably, reaches.

While the materials collected at the CA-ORA-83 site aptly typify the broadly similar technology and economic pattern emphasizing seed and shellfish collection which appears on North America's Pacific coast (from the Santa Barbara region to northern Baja, Mexico) more than 8,000 years ago, they also profoundly offset key generalizations associated with these early Holocene sites and people.

To orient the reader, the tradition

> is characterized by numerous milling stones and manos, crude core and flake tools, and a paucity of projectile points and bone and shell items. The technology appears simple and the production of tools is crudely executed. . . . The economic pattern of the Encinitas Tradition seems to have centered around collecting activities with little attention given resources of the sea and land that required hunting equipment. This economic pattern was apparently well adapted to the various plant communities and the littoral zone, with rocky foreshore and long, narrow estuaries at the mouths of the streams (Warren 1968: 12).

Whereas Millingstone Horizon sites are not noted for producing an abundance of artifacts, including grave goods, or a wide range of ceremonial items and regalia (Moratto 1984: 160; Wallace 1978: 28; Warren 1968: 2), over 7,500 items and artifacts were collected at the CA-ORA-83 site, principally from the nomination area (Whitney-Desautels 1995: 26, 47). These include ceremonial items such as charmstones, discoidals, plummets, spheres, stone pendants, stone pipes, quartz crystals, incised bone, red ochre, and – even as shell items are rare/limited at Millingstone Horizon sites – shell whistles, shell rattles, and over 3,000 shell beads representing nearly 50 types and sub-types (Herring 1968; McKinney 1968; Whitney-Desautels 1995: 25 - 26, 53; LSA Associates, Inc. 1996: 4.12 - 15). Some of the shell beads were found in association with cogged stones and dated to from 6,000 to 5,550 B. C., additionally confirming the antiquity of the site's occupation (LSA Associates, Inc. 1996: 4.12 - 18) and its cogged stone sculptural tradition (Jeffredo-Warden 2002). Other evidences of this sculptural tradition include nearly 500 hundred cogged stones, several of which were purposely buried and arranged, some in association and/or situ with human burials (Whitney-Desautels 1995; attachments 4, 5, and 6). This is the greatest number of cogged stones recorded for a North American site (for counts on cogged stones collected in southern California, see PCASQ Issue 4: 3 [1968]; also Eberhart 1961). (North America's next prolific site for the cogged stone artifact, CA-ORA-58, reportedly produced less than 100 [*ibid.*].) This is also the greatest number recorded for any "cogged" stone site in the Americas (the Huentelauquén site on the Coquimbo coast of northern Chile, which appears to be South America's most prolific site, produced 316 [Gajardo 1962 - 1963]).

Some of the cogged stones extracted from the CA-ORA-83 site are connected to uncorrected radiocarbon dates as early as 8,660, 8,520 and 8,120 (Whitney-Desautels 48 - 50, attachments 4, 5, and 6), marking the site as the location of North America's earliest reliably-dated representational

sculpture (on the representational nature of cogged stones, see also portions of the nomination not for public release) (Jeffredo-Warden 2002: 20 - 21).

Looking beyond the southern California cogged stone tradition, the next earliest reliably-dated representational sculpture from North America was found at sites related to the Lovelock Cave site in Nevada, dated to 2500 BC - AD 500 (Fiedel 1987: 122). However, the majority of North American specimens, such as artfully worked stone, bone and wood pieces found along the Fraser River in southern British Columbia; ground-stone animal sculptures found at sites near the Columbia River in Oregon; figures in bone, ivory and wood found at Dorset and Inuit sites in the Arctic; and ceramic figurines unearthed at Poverty Point, Louisiana, appear closer to the 3,500 to 3,000 YBP mark (Berlo and Phillips 1998: 179; Fiedel 1987: 112, 128, 147; Fagan 1989: 231). In Mexico, in view of the fact that the two probable pre-Archaic pieces from Tequixquiac and Valsequillo have not been reliably dated, the earliest reliably dated sculpture and sculptural traditions – giant representations by the Olmecs and clay figurines from Tlatilco in the basin of Mexico – date to 3,200 BP and 3,150 BP, respectively (Fiedel 1987: 262, 270).

The number and variety of ceremonial art works and items collected at the CA-ORA-83 site, several forms of which are only rarely or limitedly encountered at Millingstone Horizon sites (a group also including other southern Californian sites with cogged stone finds attributed to them), appear to indicate that, among such sites, CA-ORA-83 was accorded a significantly differentiated status regionally. Material evidences removed from the nomination area indicate its Millingstone Horizon occupants accorded a substantial degree of religious/ceremonial significance to this area of the site, within which the dead were buried and reburied (Whitney-Desautels 1995: 53 - 55); cairned burial grounds were undoubtedly established (Jeffredo-Warden, this publication); the seasonal extremes were evidently observed (*ibid.*); and time-sensitive mourning ceremonies and activities were conducted (Whitney-Desautels 1995: 44, 53 - 55).

The very ancient human remains and the unusually high abundance of grave goods and art which were extracted from the site (some of the dates associated with such being chronologically comparable to forensic anthropologist Judy Suchey's approximation of the age of the human remains which were removed from the site [8,000 YBP]) are also particularly striking in terms of North American prehistory. As those specializing in this area of study are aware, North American sites of this age (very early Holocene) tend to be relatively free of grave goods – often of artifacts, as well. If such are present, they tend to be of a simply functional nature (see, e.g., Irwin-Williams 1967: 443).

Another striking realization about the people(s) of this Horizon concerns the placement of technologic attention and energies on the pursuit of religious and ceremonial art rather than on an elaborate tool kit (Jeffredo-Warden 2002: 11 - 13). Although tool kits associated with Millingstone Horizon sites are more varied than those seen at older paleo-American sites, Millingstone Horizon sites are not noted for technological complexity or elaboration, exhibiting, rather, "few classes or types of artifacts which are discriminating. The overwhelming bulk of the material from these sites is of a non-descript nature, such as simple flake and core tools, cobble hammerstones and manos, deep-basined metates" (Eberhart 1961: 361). Eberhart later referred to much of the material typical of this Horizon as "so crude and unlike what the average person thinks of as Indian 'relics'" that tools associated with it might be overlooked by the untrained eye (*ibid.*: 365).

An alternate narrative concerning the technological achievements of Millingstone Horizon/Encinitas Period people is, however, facilitated by the art collected at the CA-ORA-83 site:

> The making of these artifacts must have been a tedious and time-consuming job with the primitive lapidary methods available to the Indian. . . . However, many cogged stones are so symmetrically shaped and so perfectly ground that they are works of art, and reflect a persevering and fastidious workman (McKinney 1968: 43).

Rejecting or ignoring local varieties of stone that were conveniently at hand, and showing preferences for basalts over sandstones and granites (Herring 1968: 7, 13), the Millingstone/Intermediate Horizon occupants of CA-ORA-83 created sculptural pieces (presumably using implements of bone, wood or stone) that, for those appreciative of the sculptural process, boggle the mind for their extreme precision and symmetry (**Attachment 34**). Said Herring of one of the many painstakingly-executed discoidals removed from CA-ORA-83 (at approximately 20 cm in diameter, one of the two largest ever encountered in southern California [both specimens were unearthed at CA-ORA-83]):

> It is made of fine-grained green dolerite with rounded edges and slightly concave sides and was well polished after completion. The shape is extremely symmetrical, so much so that it might almost have been fashioned on a lathe. Its execution obviously called for a considerable amount of skill on the part of its maker (*ibid.*: 8).

A so-called "crude" tool kit, but ground-stone sculpture so refined, so perfectly precise it might almost have been fashioned on a lathe?

Why has California archaeology overlooked this technological discrepancy, inhibiting broader

inquiries about its significance? On the basis of a "crude" tool kit? What other factors can Native Americans principally attribute this lack of recognition to but to the dominant notions of not only what constitutes art, but civilization?

> When we consider the creative arts today, we tend to think that culture is a prerequisite for artistic creativity. In Greek mythology, however, the order is reversed, and the arts and crafts are credited with having civilized the human race. Athena and Hephaestos, the blacksmith god, were said to have fostered the transition from a wild to a civilized state by bringing the arts and crafts to mankind. One subtext of these myths is thus the equation of artistic creativity with civilization (Adams 1996: 14).

It seems clear that by reading history in the light of technology – apparently, in the light of an "unsophisticated" tool kit – the elucidating promise of this discrepancy was almost wholly obscured and lost (to underscore this point, the two artistically-attentive individuals I quote with regard to these sculptures, McKinney and Herring, were not archaeologists or social scientists of any kind – they were lay people particularly fascinated by these works).

Nor did North American archaeology's overriding focus on the functionality of things, a state of affairs that more than hinted of utilitarianism (i.e., the belief that the value of an object or action is tied to its utility), make detecting early North American art any easier for its practitioners. Consider the various archaeological speculations concerning these sculptures: they were used "as club heads, gaming pieces, oil lamps, rope-making tools, nut crackers, or, invariably, 'ceremonial objects'" (Moratto 1984: 150). Note that even their description as "ceremonial objects" is utilitarian at base, alluding to the Western polemic of utilitarian art not being "sophisticated" or "fine" art (or actual art), or, namely, to one of the fundamental arguments of aesthetics: the question of the hierarchization of the arts and, consequently, of what constitutes "high" and "low" art (for more on this problem as it pertained, historically, to Native American art, see Berlo and Phillips [1998: 15 - 16] regarding the influence of European theories of art on the social scientific categorizations and evaluations of non-Western art).

On the West's interpretation and identification of Native American art (historically, bound less to the particular works being produced than to dominating perceptions of the people[s] and individuals producing them [i.e., male/female, Western/non-Western, technological/tribal, dominant/minority]), the art historian Alfred Young Man has aptly observed:

> Western created stereotypes have a functional, fundamental impact on our perceptions and understanding of how reality works. Ultimately, they may decide how our education strategies,

popular mythology, scientific opinions and definitions, and even our sense of humor operate. Just as important, stereotypes play an integral role in the way the West defines First Nations people, their history and their art. This is evident through a review of both contemporary and traditional Native art and the treatment it has received by the state, academia, and the cultural establishment – including museums – for over five hundred years (1998: 11).

He has also rightly asked (*ibid.*: 65):

What is at issue here is not whether or not Indian art exists *per se*, as I've been arguing for what seems like forever now, but why there was a lack of acceptance of the idea of Native art to begin with? Why wasn't there enough attention paid to the existing cultural and historical hegemony of the day, along with the many sub-categories which move under the umbrella of North American art history, all very real mitigating factors in all of this?

To review the literature on cogged stone finds in the Americas is, arguably, to review the Western "acceptance," or lack thereof, "of the idea of Native art" in prehistoric North America (*ibid.*). While cogged stones have been archaeologically collected in southern California since the first decades of the twentieth century (Whitney-Desautels 1995; Salls 1984: 54), they have not been formally recognized or discussed by North American archaeologists in the North American professional literature as constituting art. (Warren has at least broached the subject by viewing cogged stones and discoidals as "stone sculpture" [1968: 2], and Koerper and Mason have done so as well by describing some cogged stone specimens as "artistically rendered" [1998: 60].)

Contrastably, South American archaeologists have long interpreted "cogged" stones as difficultly-executed, representational art. More than forty years ago, they were addressing the complexity of these sculptures, as well as their potential historic association with those of southern California. (For example, Gajardo recognized the precision and skill associated with the tradition as it was expressed at the Huentelauquén site [1962 - 1963: 27]. He also recognized that such sculptures are undoubtedly representational in nature [*ibid.*], among them immediately identifying – while not shying from adjectives such as "beautiful" and "extraordinary" to describe them, *"estrellas* [stars], " "*asteróideas* [asteroids]," and *"algunas que constituyen una perfecta reproducción de una estrella de mar* [some that constitute a perfect reproduction of a sea star] *[Asteracanthion helianthus]"* [*ibid.*: 30 - 31, 34].)

Not only does the CA-ORA-83 site strongly represent this broad pattern in North American history – i.e., the site represents the development and use during the Archaic of ground-stone sculpture

via the application of stone-working techniques formerly associated with the production of utilitarian, food-processing items alone (Jeffredo-Warden 2002: 16 - 17; see also Historic Context), but, as addressed above, it marks this pivotal point in North American art history (essentially, the technologic move to permanent, stone sculpture) in outstanding and exceptional ways.

The abundant materials collected at the site are highly representative of the Millingstone Horizon (Whitney-Desautels 1995), yet the number and variety of ground-stone sculptures it produced make the site highly unique among all other North American cogged stone sites (see, e.g., PCASQ Issue 4: 3 [1968]). No other known cogged stone site exceeds the CA-ORA-83 site in terms of the volume, variety and heightened expressions of aesthetic and artistic achievements embodied by the sacred sculpture and other special-use items it produced (*ibid.*). Hence, no other known cogged stone site historically represents the cogged stone sculptural tradition in North America as outstandingly as does CA-ORA-83.

The site therefore meets National Register Criterion A/National Historic Landmarks Criterion 1 in the area of Art as the location of a nationally significant discovery in North American prehistory (North America's earliest reliably-dated representational sculpture). It also meets Criterion A/Criterion 1 in the area of Art because of its association with an important trend in North American prehistory (the development of permanent, representational sculpture during the Archaic). Additionally, as I have shown, it represents this important technologic turn in exceptional and unparalleled ways.

National Significance in the Areas of Science, Religion and Archaeoastronomy

> The consensus is that science is almost entirely Western in origin. By *Western* we mean ancient and Hellenistic Greece, and Europe from the Renaissance to the present. . . . The short form of the hypothesis is this: science was born in ancient Greece around 600 B. C. and flourished for a few hundred years, until about 146 B. C., when the Greeks gave way to the Romans. At this time science stopped dead in its tracks, and it remained dormant until resurrected during the Renaissance in Europe around 1500. This is what's known as the "Greek miracle." The hypothesis assumes that the people who occupied India, Egypt, Mesopotamia, sub-Saharan Africa, China, the Americas and elsewhere prior to 600 B. C. conducted no science. They discovered fire, then called it quits, waiting for Thales of Miletus, Pythagoras, Democritus, and Aristotle to invent science in the Aegean (Teresi 2002: 6).
>
> There is irony in the humbling course of events that followed science out of the scientific Renaissance, for by practicing science we have become accustomed to placing our worldview on an unreachable pedestal of progress, a plateau we view as unattainable by all other cultures of the world, whom we tend to regard as less advanced than ourselves. Those "other," from Bronze Age to Babylon, have

> something to offer us, though; their brains were no less advanced than our own, their minds no less inquiring, their ways of categorizing knowledge no less systematic even if directed toward broader goals. Most importantly, the object of study for astronomer past and present–the sky–was very much the same. We need to get in touch with what we have forgotten lest we fall irretrievably deep into the chasm of cultural self-centeredness. Dare we really believe we are somehow more worthy, more special than all those who have passed before us in the great cosmic scheme? Can it really be true that only what we do is legitimate and what everyone else did was pretending? (Aveni 1997: viii).
>
> We do not know because we have not asked (Hudson 1988[b]: 98).

Under National Register Criterion A/National Historic Landmarks Criterion 1, the CA-ORA-83 site is also eligible as a nationally significant property in the areas of Science, Religion and Archaeoastronomy because it is apparently the earliest reliably-dated type site for astronomical observation and calendric or calendric-type behavior in North America, and because it has a potential historic association with strikingly analogous sites in South America which also evince astronomical function and potential, providing hitherto unrecognized cases of possible intercontinental connection, exchange, and interchange with respect to the development of astronomy and calendrics in the Americas.

As discussed in portions of the nomination not for public release, the potential association between the CA-ORA-83 site, horizon astronomy, and calendric behavior is primarily reflected by the consistent concentration and occurrence of special-use ceremonial items, including art, which was recorded for the nomination area; and by the physical form and/or state of the nomination area itself, an elevated plateau demonstrably fit for direct and indirect methods of solar observation (see portions of the nomination not for public release). The nomination area includes a portion of the site which, evincing several astronomical alignments (refer to portions of the nomination not for public release), also produced reliably-dated evidences of time-sensitive ceremonialism (Whitney-Desautels 1995).

The primary occurrence of these ceremonial items and art within the nomination area is suggestive of (1) the high degree of religious importance astronomy and astronomers may have been granted at the site; and (2) the parameters of that portion of the site prehistorically used for the purposes of astronomical observation, time-keeping and astronomically-based ceremonialism (cf. Hudson et al. 1979: 53; see also Krupp 1997: 13 on the topic of astronomical knowledge and the conference of power in the ancient world). The ceremonial items and classically-identifiable ritual

paraphernalia removed from the Millingstone Horizon component of the nomination area (the use of several analogous varieties of which are ethnographically known to have been associated with astronomically-based belief systems and practices in indigenous southern California) are particularly significant in this regard because horizon astronomy and/or horizon calendars are not easily detected or substantiated archaeologically (Robbins 2001: 51; Zeilik 1988: 187). (As Michael Zeilik has observed, it is difficult to ascertain where an ancient astronomer might have stood to make his/her observations [1988: 187].)

In addition, because observatory sites predating the megaliths of Africa and Europe have not been archaeologic·lly substantiated in the Americas due to a lack of astronomically-oriented constructs at American sites predating the world's earliest known astronomically-oriented megaliths, i.e., those of the 4,800 year old Nabta Playa site in Africa (Robbins 2000: 51), the recorded concentration and placement of special-use ceremonial items, including classically-identifiable ritual paraphernalia, in the Millingstone Horizon strata of the nomination area; the primary occurrence of celestially-evocative art in the nomination area; ecofacts establishing the time frames of the site's use; and the physical form, orientational significance, and visual functionality of the nomination area itself – material, physical, astronomical, and chronological evidences that reasonably infer the nomination area constitutes North America's earliest reliably-dated observatory site – are obviously crucial historic resources and evidences where the site's period of significance (the Millingstone Horizon) and our knowledge of astronomy in prehistory is concerned.

The archaeologist Emma Davis wrote the following regarding two La Jollan (Millingstone Horizon) occupation sites which contained flexed burials oriented toward the direction of sunrise and, as she interpreted it, "rebirth" (1978: 38):

> It is an archaeological practice to present the reader the dried, material scraps of a broken mosaic of lives – playing safe by leaving out the people. But we want to know, in the case of our coastal sites, who lived on these little patches of earth? For how long? *Why at these selected places? How did these women, children and men related to each other, to the Environment and to the Unknown?* (*ibid.*: 8; emphasis my own).

The CA-ORA-83 site's national significance in the areas of Science, Religion and Archaeoastronomy also relates to the recognition that, a quarter of a century later, we continue to have difficulty investigating questions such as these at North American sites of CA-ORA-83's established antiquity (the very early Holocene) because physical evidences of religious orientations, values, practices, and artistic and symbolic expressions are rare at North American sites of this age, including

the majority of Millingstone Horizon sites (which include other cogged stone sites) in southern California.

Sites whose assemblages characterize this Horizon were established along and near Pacific coastlines from the Santa Barbara region in the north to Baja, Mexico in the south. However, Millingstone Horizon sites which were situated along and in proximity to the stretch of Los Angeles-Orange County coastline lying in adjacency to Santa Catalina Island are associated with the greatest number of North American cogged stone finds. Millingstone Horizon sites located to the north and south of this stretch, while providing for cultural reconstructions based upon technology and the natural environment (cf. Hudson 1981: 11), very rarely produce religious evidences such as cogged stones.

> [C]ogged stones are not found in all Milling Stone Horizon sites, e. g., the Oak Grove culture to the north or the La Jolla to the south, and may therefore be regarded as a regionally distinct element in some but not all cultures of this horizon (Herring 1968: 12).

> While Milling Stone culture sites are present in San Diego county, for some reason they do not produce cogged stones as do similar sites farther north on the coast (McKinney 1968: 40).

In fact, whereas most Millingstone Horizon sites articulate very little about the religious practices and belief systems of the people(s) whom inhabited California's littoral zone during the Millingstone Horizon/Encinitas Period, the CA-ORA-83 site appears to be an extremely valuable exception in this regard. Its physical functionality for certain religious practices and symbolic expressions apparently exceeded that of other known cogged stone sites in southern California (see portions of the nomination not for public release). In comparison, it appears to have produced the most prolific (and perhaps, in light of its potential alignments, most interpretable) evidences of and surrounding the astronomically-based religious aspects of the lives of these early shellfish gatherers.

This physical functionality, still evident, well reflects the astronomically-based functions and religious concerns, it is difficult to reason otherwise, the CA-ORA-83 site was established to articulate and serve. Considered together, the site's physical features, form, orientation, setting and location outstandingly represent what seems to be a very particular type site in the prehistory of the Americas: a Pacific-based, solstice observation point.

In both Americas, sites which appear to belong to this group share certain physical and visual characteristics (see portions of the nomination not for public release). They are situated on elevated points or outlooks along Pacific coastlines, typically overlooking a beach and/or coastal

estuary (Eberhart 1961: 364; Salls 1980: 57; Willey 1971: 208, 210), with unobstructed views of the Pacific ocean, the horizon, and surrounding features of the local and regional environment, including coastal configurations such as points, peninsulas and/or bay formations, and/or one or more offshore features, such as an island or islands (Jeffredo-Warden, this publication). Invariably, they evince astronomically-useful alignments relevant to the seasonal extremes (see also portions of the nomination not for public release). They may be pinpointed not only by the distinctive physical characteristics and patterns they embody and express, but by the astronomically-evocative ground-stone sculptures they produce (e.g., Iribarren 1962).

CA-ORA-83 is the last known cogge l stone site of such antiquity to have survived development on the southern California coast. It also appears to be the last known case of this type site on the North American Pacific coast which has yet to be built on. Furthermore, in view of the large number of cogged stones and other ceremonial items and materials which were collected at the site and the site's orientational significance – both with respect to its numerous potential alignments and the symbolically-evocative environment of which it remains an integral part (see portions of the nomination not for public release) – CA-ORA-83 may be regarded as the most important representative of this ancient type site in North America, and, therefore, as a national treasure.

During the period of significance the CA-ORA-83 site's astronomical and ceremonial use appears to have been dependent upon aspects of location, elevation, setting, and its numerous visual alignments (more, apparently, than were/are evinced at other known cogged stone sites in North America). These critical aspects of the site's potential astronomical base have not been altered such that the site no longer retains its ability to convey its apparent historic associations and functions as a Pacific-based astronomical observation point, and to convey these associations and functions in unparalleled ways.

Integrity of location and setting. Although the CA-ORA-83 site is located in an urban area, it remains part of a visually stunning sacred environment that, in consideration of how little is understood about the religious and intellectual lives of the people(s) of this Horizon, retains a rare informational capacity with respect to its potential illustration of important religious concepts and philosophical concerns in human prehistory (see portions of the nomination not for public release; also Krupp 1997). In addition, because the site is situated overlooking a protected coastal bay and wetlands ecosystem supporting a vast array of plant and animal species, it continues to reflect the fundamental environmental and physical conditions surrounding which it was established. This physical situation and setting also evokes the economic pattern, primarily focused on seed and shellfish collection, which

was present along the Los Angeles-Orange County coast from at least 9,000 YBP until historic times (Wallace 1955; Warren 1968).

Integrity of elevation and potential alignments. The historic changes produced by agricultural, military, and archaeological use of the CA-ORA-83 site, although adversely affecting the site's natural vegetation, did not affect its overall elevation within the area of nomination (LSA Associates, Inc. 2001: Figure 4.3.3; 4.3 - 1). While the nomination area, relatively flat to begin with (Hammon 1981), has been graded due to archaeological programs and apparently no longer contains materials such as cogged stones and discoidals, its fundamental state as an elevated plateau/potential observation point remains viably intact (see accompanying photographs). Nor have historic activities at the site or elsewhere upon the Bolsa Chica Mesa affected the astronomical potential of the relevant resources and features outlying this nomination area/potential observation point, which include the Bolsa Chica Wetlands and Bolsa Bay. Some may view as an exception to this statement a sparse growth of Eucalyptus trees growing close to the site's southeastern edge; however, the scattered presence of these few trees, many of which are now dead, does not impede the observation of relevant alignments and astronomical phenomena from the nomination area. In particular, the site's most visually dramatic, and, as based on our current understanding of indigenous astronomies and calendrics in southern California, likely most culturally and religiously significant alignment, falling offshore, involves a natural feature that, like the Bolsa Chica Wetlands and Bolsa Bay, is protected in perpetuity (see portions of the nomination not for public release).

All told, the greatest impact historic changes have had on the CA-ORA-83 site's astronomical potential probably involve light and air pollution, yet the most visually striking alignments associated with this site involve sunsets. The on-site visibility of these aligned sunsets does not appear to be affected by light or air pollution to any measurable degree (refer to portions of the nomination not for public release for relevant photographic evidence). In addition, computer software is readily available where the simulation and reconstruction (i.e., era-specific computations) of stellar and other celestial phenomena are concerned.

Though archaeologists focused on the presence of in-ground, material resources at the CA-ORA-83 site have recently portrayed the nomination area as devoid of information potential (a stance unfortunately indicative of how poorly our astronomically-based sites are understood by most researchers), the nomination area's capacity to yield irreplaceably important information on the people(s) of this Horizon and astronomy in prehistory; to increase the public's awareness and appreciation of astronomy and its role in indigenous cultures; and to affect the study and conservation of analogous Pacific-based sites which may also evince astronomical and calendric behavior (thereby

placing Native Californian astronomies in a wider context of consideration) is not primarily dependent upon stratified deposits, but upon those crucial aspects of its physical situation and functionality which, I have shown, have survived historic impacts and do indeed convey and represent the CA-ORA-83 site's historic character, functions and associations as an evidently ancient observatory site.

While the astronomical potential of this site has been acknowledged by the developer's archaeological and anthropological agents, qualified astronomers and/or archaeoastronomers have not, to the best of our knowledge, investigated and analyzed the data previously obtained at the CA-ORA-83 site in relation to its potential alignments, which appear to retain important consequences for our understanding and interpretation of this site, and for our understanding and interpretation of ancient developments in astronomy. In particular, what is the relationship of these alignments and astronomical phenomena to the orientation and location of the site's living, working, and ceremonial spaces? To subsistence pursuits and trends and the time frames of the site's use? To the placement, orientation and patterning of burials and constructs such as rock features and cairns? How do these alignments relate to the concentrated occurrence of cogged stones within the nomination area? To the appearance and design motifs of these and other sculptures collected at the site? Were celestial referents used to cache cogged stones at the site? How does the astronomical phenomena which were/are observable from the site relate to aesthetic concepts and ideals as reflected by the art which has been collected at it? Furthermore, what do these evidences have to say about the role astronomical knowledge and observation potentially played not just regarding the design and physical use of this ancient site, but concerning upon and with which life was socially, religiously, intellectually, and economically constituted by the ancients whom established it? As Reyman has written, "Determination of alignments is and should not be the endpoint of archaeoastronomical studies" (1975: 212), especially with respect to a site as rare, outstanding, and chronologically significant as CA-ORA-83.

Most citizens of this nation are unaware of the contributions of indigenous Californians to the history of the Americas (Krupp 1997: 155). Krupp has also argued that, as Native "California was the most populous region north of Mexico at the time of European contact" its achievements in astronomy do not constitute North America's intellectual fringe, but its mainstream (*ibid.*). For Williamson, such an intellectual mainstream – "the Native American model" – is one from which "we can hope to learn a great deal about the origins of astronomy" (1984: 10).

However, within national history there has been a greater focus on First Nations peoples whom non-Natives might perceive as more congruent with their stereotypes about Native North Americans (Krupp 1997: 155). It may be because of such historic bias (whether consciously or unconsciously) that Californian archaeologists do not, for the most part, address the significance of our sites

beyond local, regional and state-wide parameters, and that "professional archaeologists in the rest of the country know very little about California's past and have a difficult time relating their own area's archaeological record to that of California" (Chartkoff and Chartkoff 1984: vii).

I have taken the time to address the CA-ORA-83 site in terms of its national significance because, if we gain a broadened understanding of this site's value, we may gain a broadened consciousness with which to approach and re-evaluate not only the cogged stone artifact and this particular type site, or potential class of American sites, but pivotally-important aspects of the history of the Americas and the intellectual achievements of its first peoples. Presently, "American Indian astronomy, especially in North America, is mostly unknown" (Williamson 1984: 9). There has been a good deal of discussion surrounding how far back in the history of the Americas astronomy and calendrics demonstrably reaches, and even whether some of the scientific achievements of Native North America's astronomers were not due to outside cultural influences (i.e., travel to the Americas by peoples from other continents) less than 3,000 YBP. A question that has likewise been asked in relation to indigenous southern Californian astronomies and calendrics is whether fundamental knowledge bases concerning these developments were influenced by the peoples of the Southwest.

> Although we can now point to the Southwest as having, in many respects, similar astronomical (Hudson and Underhay 1978) and calendric concepts (Hudson et al. 1979) which suggest some contact between the two, . . . it has yet to be determined what the astronomical and calendric knowledge may have been among these people [Channel Islanders] prior to any Southwest influences coming in. It is presently known, for example, that much of native California (including large areas beyond the reach of Southwest diffusion) had developed concepts concerning solstitial observations for calendric and ritual use (Hudson et al. 1979) (Hudson 1988[b]: 106; bracketed clarification my own).

Hudson et al. 1979 established that Native California is a region quite characterized by its astronomically-based knowledge and belief systems. Williamson essentially summarizes the findings of their 1979 survey as follows:

> [A]t least 34 out of 49 California tribes observed either the winter solstice or both solstices. None apparently observed merely the summer solstice. Their methods, where known, vary considerably, but they commonly used a horizon calendar for direct observations of the sun (1981: 62).

Having produced what is apparently the earliest reliably-dated evidences of astronomically-

based belief systems, ceremonialism, and aesthetic expressions and motifs in Native California, the CA-ORA-83 site appears to offer a chronological baseline for the presence of astronomical concepts and astronomically-based religions in California. Hence, if similar astronomical and calendric concepts suggest contact between the Native peoples of the Southwest and California, the dates and astronomically-based evidences associated with the CA-ORA-83 site, which reasonably infer horizon astronomy was practiced along Pacific coastlines of southern California at least as far back as the early Holocene, highlight the vulnerability of assumptions surrounding the chronology, extent, and – what is all the more intriguing – even intellectual direction of such possible diffusion in North American prehistory.

Another critical aspect of the CA-ORA-83 site's national significance in the areas of Science, Religion and Archaeoastronomy is its potential historic association with archaeologically, ecologically, physically, and astronomically analogous "cogged" stone sites on the northern coast of Chile. The CA-ORA-83 site appears to be the earliest reliably-dated observatory site in North America. Where our understanding of the antiquity, origins, and development of astronomies in North America is concerned, this is a highly consequential association. However, it may not be the site's most historically consequential association. The coastal cogged stone sites of southern California appear to be the only astronomically-based sites in the United States providing evidences of intercontinental connection, interchange and influence with respect to the development of astronomy and calendrics in the Americas. The most outstanding representation of this type site in North America, the CA-ORA-83 site, is also the earliest reliably dated and last remaining case of this type site on the North American Pacific coast which has yet to be built on.

In relation to the development and spread of astronomies in the Americas, it is equally important to note that the coastal cogged stone sites of southern California, of which the CA-ORA-83 site appears to be the rare survival, may also be the only astronomically-based sites in the United States providing evidences, where astronomical knowledge and observation are concerned, of cultural interchange and influence beyond the geographical boundaries of what are now the United States. According to Williamson, researchers have long been intrigued by the question:

> To what extent did Mesoamerican trading contacts influence North American cultures? Although the archaeological record suggests numerous trading contacts . . . and some possible influence in the form of architectural details . . ., *archaeoastronomy as yet provides nothing to support or deny a substantial cultural interaction* (1981: 75; emphasis my own).

With the CA-ORA-83 site, we have a rare opportunity to take such questions even further, potentially

shedding light on the wider issues of intercontinental contact and exchange, and the colonization of the Pacific coastlines of the Americas. Especially valuable in this regard is the contemporaneity of the CA-ORA-83 site's cogged stones with those of the Quebrada Las Conchas site in northern Chile. As previously noted, at Quebrada Las Conchas "cogged" stones strikingly similar to those removed from CA-ORA-83 were found to coincide stratigraphically with the remains of Micropogan altipinnis (an extinct berrugato for which there is no record of it ever having been seen in the Chilean Pacific, yet which was germane to the coastal waters of southern California during the Late Pleistocene), indicating for the archaeologist Augustin Llagostera Martinez a correspondence with the thermal climax (the prehistoric height of warmer sea temperatures [dated to between 8,500 and 6,500 YBP] and, consequently, more northerly fish migrating southward) (1979: 316, 318 - 319).

For as long as the Millingstone Horizon sites of southern California have been discussed in the North American archaeological literature as a group of analogous Pacific and near Pacific-based sites (Wallace 1955), there has been a recognition of their potential connection to an early migration in North American prehistory. Because as a group these comparably contemporaneous sites exhibit so many similarities, Wallace argued that "the similarities in the various localities are of such a nature that they can, in light of the present knowledge, be logically explained only by postulating a historical connection" (*ibid.*: 120), and, further, that "the fact that approximately the same elements occur together on a comparable time level presumably indicates that they represent a complex which spread as a unit, perhaps carried by a migrating people" (*ibid.*: 123).

In 1955 "the present knowledge" did not include the understanding that Millingstone Horizon/Encinitas Period People had access to watercraft sophisticated enough to carry them to southern California's offshore islands. In fact, Wallace maintained these early shellfish gatherers did not initially arrive at or colonize sites along Pacific coastlines via watercraft (e.g., 1978: 28).

We now know Encinitas People were the principal colonizers of southern California's offshore islands (Chartkoff and Chartkoff 1984: 108). During the Millingstone Horizon they did indeed have access to sophisticated watercraft because they were able to reach San Clemente Island, a Southern Channel Island geologists say was never connected to any other land mass in its history. A question that remains, however, is whether these marine-oriented people also took the Pacific's currents to other reaches of the Americas. Did they in fact travel to the ecologically and physically similar Chilean coast?

Native Americans descended from coastal and island peoples often deal with the reluctance of members of the scientific community to shed out-dated anthropological orthodoxies of evolutionary development that are primarily biased toward land-based models of hunting and gathering (in such

models, hunting and gathering lifeways are generally seen as preceding maritime adaptations, rather than a case of the reverse) (cf. Bailey and Parkington 1988: 5).

Nonetheless, in spite of the Clovis/Folsom hold on the American imagination, there have always been holdouts who, recognizing that the fossil and artifactual record shows a considerable diversity among the populations of the early Americas, called for an early Pacific coastal migration to account for the earliest California cultures and a later interior migration to account for the so-called Folsom cultures (see, e.g., Gladwin 1947; Green 1963). Fortunately for those holding like-minded views today, it is more widely accepted in the scientific discourse that peoples may have arrived in the Americas (in several migrational waves and from many different places) thousands to even tens of thousands of years earlier than previously proposed.

A current and increasingly popular migration scenario has it that the first Americans traveled by watercraft into the Americas, working their way along the North Pacific rim over 20,000 years ago. Exploiting ice-free shores and/or islands for game animals and seafood (for the upper Pacific coast of North America was never entirely glaciated during the last Ice Age), these ancient mariners, according to Dillehay, "could have reached South America [i.e., the 12,500 year-old site at Monte Verde, Chile] by 15,000 BP or earlier" (2000: 67 - 68; bracketed information my own).

The probable historic association of the CA-ORA-83 site with strikingly analogous "cogged" stone sites on the northern coast of Chile well reflects the potential relationship of astronomy to achievements such as these in Native American history. In other words, the role astronomy potentially played in maritime travel between the Americas, the peopling and colonization of North and South American Pacific coastlines, and intercontinental connection and exchange appears addressable through this probable historic association.

Thus, under National Register Criterion A/National Historic Landmarks Criterion 1 the CA-ORA-83 site also qualifies as a nationally significant property in the areas of Science, Religion and Archaeoastronomy because, by way of its evidently still-functioning state as a potential observatory site predating the earliest reliably dated cases of such sites in Africa, Europe, Asia and North America, and by way of its potential historic association with analogous cogged stone sites in South America, it exceptionally represents, and may also be expected to exceptionally illuminate, important and hitherto unrecognized aspects of the development, use, and intellectual interchange of American astronomies and calendrics during the site's markedly early period of significance.

Criterion D (NHL Criterion 6)

In 1961 Hal Eberhart maintained in his now classic report on "The Cogged Stones of Southern California" that the cogged stone artifact would ever remain an enigma: "We do not – and probably never will – know any of the details surrounding the use of cogged stones, so that they hold little promise as aids in 'cultural reconstruction.' But they do have value for 'historical reconstruction' for a period which has offered little of this nature" (369). In other words, archaeology's interest in the cogged stone artifact was primarily focused on its importance as a chronological marker for California's Millingstone Horizon.

We are thus fortunate two promising observations potentially concerning the use and significance of cogged stones and cogged stone sites did, however, make it into Eberhart's report. The first involves their relatively limited area of distribution primarily within or in proximity to what, I suggest, appears to constitute an astronomically useful strip (see portions of the nomination not for public release). The second involves their usual association with higher elevations:

> As a matter of fact, cogged stones are customarily found in sites situated on high ground – bluffs along the ocean or along streams, in hilly areas, or on knolls which rise above the plains. Only rarely are they reported from sites on lower ground. We believe that the makers of cogged stones had a predilection for living on elevations but we cannot be completely certain (*ibid.*: 364).

So little, if anything, was known about indigenous astronomies during this time researchers did not realize cogged stone sites could embody extremely consequential historic significance as potential observatory sites. It would not be until nearly two decades had passed that archaeoastronomers would determine the typical attributes of Native Californian observatory sites include, in addition to higher elevations (or an association with such) (Hudson et al. 1979: 54), the occurrence of sacred ceremonial art and evidences of religious specialization and time-sensitive ceremonialism (*ibid.*: 51 - 52). (Besides its higher elevation and potential alignments, the CA-ORA-83 site possessed this diagnostic triad, making it highly representative of a Native Californian sighting point.)

By the mid-1980s Dr. D. Travis Hudson had skillfully impacted the assumption that astronomy and calendrics were the intellectual domains of food-producers alone. With the use of ethnographic and archaeological data from Native Southern California, he confirmed (for Western science) the presence of positional astronomy and systematic astronomical observation and calendrics among hunter-gatherers (Hudson 1984). A pressing question that remained for Dr. Hudson – one sharing kinship

with those regarding "the time and place of origin of American astronomical and calendric skills" (Baity 1975: 380), and whether it can be documented peoples prior to 5,000 BP used existing natural features to monitor and observe the seasonal extremes and other astronomical phenomena (cf. Robbins 2000: 51) – was whether the astronomies and calendrics of Native Southern California's Late Prehistoric populations were rooted in much earlier developments by the so-called "La Jollan" or Millingstone Horizon people[s].

Because the CA-ORA-83 site's relevant outlying features are intact and functional in terms of their astronomical potential and we now know enough about the nature of astronomy in Native California to interpret, in relation to other important data obtained at the site, observations made from the site as indicative of the site's potential astronomical base, the CA-ORA-83 site appears to retain the as yet untapped capacity to greatly push back the confirmed antiquity of astronomy in North America, as well as among the non-food-producers of the ancient world. In light of this information potential it is arguably one of the most historically important sites in the United States. Currently there are no known sighting points documented to be as ancient as CA-ORA-83 (see Robbins 2000). Moreover, due to its probable historic association with analogous sites in northern Chile (see also portions of the nomination not for public release), the CA-ORA-83 site also appears to retain the capacity to increase our understanding of astronomy's role in settlement patterns (i.e., the situation and choice of particular sites) and intercontinental exchange and/or interchange along Pacific coastlines of the Americas. Therefore, the site's capacity to shed light on important facets of human prehistory about which our understanding remains "very incomplete and quite speculative in regard to interpretations" (*ibid.*) may reasonably be inferred to exceed state-wide and national levels.

To investigate the CA-ORA-83 site in terms of its potential astronomical functions and historic association with analogous "cogged" stone sites at Quebrada Las Conchas, Huentelauquén, and Los Vilos in northern Chile, the investigator(s) will need, in addition to strong knowledge bases in practical astronomy, archaeoastronomy and indigenous southern Californian and northern Chilean cultures (cf. Aveni 2001: 7), considerable amounts of time for careful, on-site measurements and observations (refer to Hudson et al. 1979: 59 on the importance of testing such data against era-specific computations for the site in question), and aides such as an altitude and azimuth calculator, software for past and present astronomical computations and simulations, past and present geologic, geographic and environmental data relevant to the primary areas of cogged stone sites in southern California and northern Chile, and the available data (e.g., reports, site mappings, current topographic information) regarding the CA-ORA-83 and Chilean cogged stone sites. (As an additional note, with respect to the relevant offshore features apparently associated with the Chilean sites [see portions of the nomination not for public release], I found the British Admiralty maps to be the most inclusive, detailed, and useful.)

An overall objective of such investigation is to explore the ideological realm of past human behavior (Hudson 1981: 12; also Krupp 1984: 2) with a concern for "understanding the importance of the sky for human ideas and achievements" (Hudson 1981: 12). As Aveni has pointed out, "discovering an astronomical alignment, even with great rigor, is not enough" (1997: 75):

> [T]he focus of archaeoastronomy is concerned less with how the astronomers of the past were like us and more with what they were about. After all is said and done, our studies should teach us something about culture. If we really intend to pursue an "anthropology of astronomy," the important question is not so much (to paraphrase Levi-Strauss) whether an alignment might bear any relationship to astronomical events, but rather why a celestial phenomenon could have been significant to a given society in the first place (Aveni 2001: 341).

Consequently, a fundamental line of questioning would involve the CA-ORA-83 site's physical orientation and environmental history and context.

- Bearing in mind the site's location (latitude and longitude), what important astronomical events might have been watched from it? (*ibid.*: 5; Reyman 1975: 206)

- "Given no technological aids, what are the possible procedures for determining the time and place of occurrence of such events, and with what accuracy can they be observed?" (Aveni 2001: 5)

- Of these events (and the potential alignments concerning such), which might have been the most useful to the seed and shellfish gatherers who inhabited and conducted ceremonies at the site? (Reyman 1975: 207; Aveni 1997: 75) How might these be related to subsistence pursuits and trends as evidenced at the site, and to the established time frames of the site's use?

- How has the appearance of these events changed since the site was established and inhabited? (Aveni 2001: 5)

- A time frame typically associated with cogged stone use in southern California is 8,000 - 5,000 YBP (Eberhart 1961), a period conclusively linked to significant environmental change along the southern California coast. Is there evidence geological and biological changes in the environment affected the CA-ORA-83 site's occupants' interests in certain astronomical phenomena over time? Was environmental change – evidently fostering

changes in subsistence patterns (Whitney-Desautels 1995) and, perhaps, in what the site's occupants thought about concerning the celestial realm – a factor in the development and use of the cogged stone artifact?

In addressing the nature of the relationship between these astronomical events and the cultural values and practices suggested by the CA-ORA-83 site's recorded material remains (see Aveni 2001: 341), another line of questioning would involve the site's physical plan.

According to Reyman, "systematic studies can be conducted even when one has only the site plan with which to work and there are no extant ethnographic materials" (1975: 214). At the least, the consistent orientation of material and physical remains within a site "suggests the possibility that a celestial referent was used. Thus the overall site plan may be another source for the formulation of specific hypotheses" (*ibid.*).

- Was the site's village oriented and located in relationship to certain celestial phenomena and/or the motion of certain celestial referents?

- Within it, were living, working and/or ceremonial spaces oriented to the positions or paths of celestial bodies?

- Were ceremonial constructs such as cairns and rock features established in orientational relationship to the seasonal positions of celestial bodies? Is there evidence by way of these constructs the site's potential alignments may have changed over time?

- Were cogged stones cached using a celestial referent?

- How do the site's potential alignments relate to the concentrated occurrence of cogged stones and other sacred sculpture within the nomination area? How do the astronomical phenomena which were/are observable from the site appear to relate to aesthetic concepts and ideals as reflected, expressed and recorded by the historically distinctive art which has been collected at it?

- Were burials at the site oriented to celestial referents (for example, to the rising or setting sun, or to the seasonal position of the Milky Way)? To geographical referents? Were certain individuals interred with prestige goods that are indicative of religious and

intellectual specialization? Were the burials of those interred with such goods spatially distinguished from other burials at the site?

An important area of research concerning the CA-ORA-83 site would also address the numerous correlations between it and the "cogged" stone sites of South America.

As previously discussed, remarkably similar configurations of natural and cultural elements, expressions, and features are evinced at the Quebrada Las Conchas, Huentelauquén and Los Vilos sites in the coastal provinces of Antofagasta and Coquimbo in northern Chile (Iribarren 1962; Gajardo 1962 - 1963; Llagostera 1979; Jeffredo-Warden, this publication and 2002). Although these sites were discovered in what is now the most barren and forbidding segment of coastal Chile, the Atacama desert, paleo-climatic and paleo-environmental research has demonstrated that "like Mars, there is plenty of evidence that things haven't always been the same in the Atacama" (Quade 1998: 1).

Today this desert is one of the least hospitable environments for land-based life on the planet (see Vesiland 2003). In light of the region's ecosystem, the mortars, metates and mullers which have been unearthed at Chilean cogged stone sites appear strikingly incongruent (e.g., Llagostera 1979: 319). Yet between 12,000 and 8,000 years ago, a prominent wet episode caused the expansion of grasses and other plants to barren elevations of the Atacama, producing a significantly wetter region than is the case today (Quade 1998: 3). According to Quade, "by Atacama standards, conditions were good when man first entered the region midway into this 'wet' phase" (*ibid.*: 2). (This is the time period during which the analogous sites at Huentelauquén [Coquimbo province] and Quebrada Las Conchas [Antofagasta province] were established [Dillehay 2000: 152, Llagostera 1979].) After approximately 8,000 years ago the region actually became drier than today, until another climate switch, also involving increased rainfall, occurred at approximately 3,500 years ago (Quade 1998: 2). (This is the time period [the middle Archaic] to which the bulk of the Huenteulaquén cogged stone specimens are attributed [Iribarren 1962; Gajardo 1962 - 1963].)

As the Chilean cogged stone sites exhibit so many similarities and correlations to the CA-ORA-83 site, explaining these parallel features as products of independent invention appears unlikely (cf. Meggers 1964: 521). To use Wallace's words regarding the Millingstone Horizon sites of southern California, the highly specific similarities between these sites and the CA-ORA-83 site "are of such a nature that they can, in light of the present knowledge, be logically explained only by postulating a historical connection" (1955: 120).

Foremost in investigating this probable historical connection would be a detailed comparison of

the archaeological, ecological and physical characteristics of the CA-ORA-83 and Chilean sites. Not only were the Chilean sites established in a region providing an ecosystem and topography strikingly similar to that of the Los Angeles-Orange County coast; they share highly analogous physical and visual characteristics with and exhibit an economic pattern and technology consistent with that reflected by the CA-ORA-83 site (Iribarren 1962; Gajardo 1962 - 1963; Llagostera 1979; Jeffredo-Warden 2002, this publication). If the markedly similar assemblages and features of these sites suggest analogous value systems and cultural behaviors were at work in their establishment and use, that the Chilean sites also evince astronomically-useful alignments regarding the seasonal extremes (see portions of the nomination not for public release) also suggests astronomically-based values, knowledge and practices may have traveled between the Americas. The presence of potential alignments at the Chilean sites further supports the position that the CA-ORA-83 site's potential alignments are almost assuredly not the product of simple chance, but elements of an ancient astronomy or astronomies focused on, informing, and enhancing the lifeways of shellfish gatherers inhabiting environmentally similar stretches along Pacific coastlines of the Americas during the Archaic.

Whereas the CA-ORA-83 site is the most prolific known site in North America for the cogged stone artifact (Herring 1968; McKinney 1968), the Huentelauquén site appears to be the most prolific known site in South America for this sculptural form (Gajardo 1962 - 1963). In addition to investigating the cultural relevancy and significance of the potential alignments at the Chilean cogged stone sites (see pp. 105 - 106 for the kinds of questions which would characterize such an effort), it is important for the purposes of archaeoastronomical study to ask why the CA-ORA-83 and Huentelauquén sites appear to have been the primary focal points for cogged stone use in the Americas.

Besides their apparent state as symbolically-evocative sacred environments (see portions of the nomination not for public release concerning this aspect of the CA-ORA-83 site's historic significance; for information pertaining to the dramatic visual and physical attributes [imposing sand dunes, castle-like offshore formations, brilliantly red earth] associated with the Huentelauquén site, see Gajardo 1962 - 1963), the CA-ORA-83 and Huentelauquén sites evince multiple astronomical alignments (attachments 21 and 30). This is evidently also true of the CA-ORA-58 site (see portions of the nomination not for public release), which is the second most prolific known site in southern California for the cogged stone artifact, but which produced less than 100 of these ground-stone sculptures (Eberhart 1961; McKinney 1968; Koerper and Mason 1998; Koerper et al. 1996). In comparison, the visually dramatic CA-ORA-83 and Huentelauquén sites produced at least as many as nearly 500 and 316 "cogged" stones, respectively, in addition to significant quantities of other ceremonial sculptures such as discoidals (Whitney-Desautels 1995; Gajardo 1962 - 1963). Do the relatively large number of cogged stones and other ceremonial sculptures attributed to the CA-ORA-83 and Huentelauquén sites relate not only to

their potential astronomical base, but, as apparently symbolically-evocative sacred environments, to their striking visual and physical attributes?

At the Quebrada Las Conchas site near the city of Antofagasta cogged stones remarkably similar to those removed from CA-ORA-83 (attachment 10) were found in a stratigraphic situation apparently contemporaneous to the upper dates associated with the CA-ORA-83 site, and to certain of the cogged stones removed from it (Llagostera 1979: 316, 318 - 319; Jeffredo-Warden 2002: 9). Another valuable archaeological correlate respecting the Chilean and Californian sites is that the same stone types and analogous manufacturing techniques were utilized in Chile and southern California to produce these sculptures (Eberhart 1961: 362; Gajardo 1962 - 1963: 28 - 38; Herring 1968: 7; McKinney 1968: 41 - 42; Llagostera 1979: 318). In light of the apparent contemporaneities and correlations in these two shellfish-gathering complexes, the investigator(s) might explore, for example, whether any of the sandstones from which the apparently contemporaneous cogged stones and/or other sandstone artifacts from Quebrada Las Conchas evince a connection to material resources of southern California. In other words, would a consideration of the properties and fossilized animal life of the sandstone(s) of which the analogous Quebrada Las Conchas artifacts are made demonstrate a linkage to deposits once utilized by indigenous southern Californians?

Additionally, both shellfish-gathering complexes produced convexed and concaved cogged stones and discoidals (Eberhart 1961: 363; Gajardo 1962 - 1963: 28 - 36; Iribarren 1962: 425; Dixon 1967: 62; Herring 1968: 8, 24; McKinney 1968: 45; Llagostera 1979: 318 - 319). At the Quebrada Las Conchas site Llagostera unearthed small mortars which appear to have been used for grinding hallucinogenic seed, relating to the apparently "very early existence of a psychotropic tradition in America" (1979: 319). As Native Southern California is a region well noted for a psychotropic tradition said to have been introduced via the intentional spread of the (here, via a Luiseño pronunciation) *Changichngish* belief system into mainland populations by Island Shoshones (see, e.g., Du Bois 1908: 75; Boscana 1978), it is important for investigators to bear in mind analogous "mortars" may also have been encountered at the precursive CA-ORA-83 site. Two cogged stones which were extracted from CA-ORA-83 are so deeply concaved they resemble small cups (McKinney 1968: 45). What this perhaps suggests is that the origins of a psychotropic tradition in southern California and, perhaps, North America may, like astronomical observation itself, have great antiquity. It might be useful for the investigator(s) to consider this possibility not only in relation to ecofactual and artifactual data obtained at the CA-ORA-83 and Chilean sites, but, for a broader perspective concerning the history of religion in the Americas, in view of other Native American cases in which the use of psychotropics may have been integrated into astronomically-based belief systems and practices.

Historic Context

Geologic uplifting during the Pleistocene and sea levels that continued rising during the Holocene created the characteristically higher elevations and flourishing wetlands and embayments of the Los Angeles - Orange County coast (LSA Associates, Inc. 2001: 4.3 - 6; 4.11 - 1), which was inhabited at least 9,000 YBP by marine-oriented people (Moratto 1984: 108) whom, data obtained at Millingstone Horizon sites established in and in close proximity to this coastal stretch support, were apparently utilizing specific natural features of and outlying this coastal stretch for the purposes of the astronomical observation of the seasonal extremes (see portions of the nomination not for public release). That the same appears to have been true of other shellfish gatherers utilizing remarkably similar "cogged" stone sites along the environmentally and topographically analogous coast of northern Chile strongly speaks to the potentiality that astronomically-based geographical orientations, aesthetic values, religious practices, and knowledge systems – cultural values, preferences, and behaviors predating the earliest known observatory sites in the continents of Africa, Asia and Europe – may have traveled between the Americas during the Archaic (*ibid.*).

In southern California, the area of the greatest concentration of cogged stone sites and finds is centered on the central and northern Orange County coast and coastal region (Eberhart 1961: 364). Of the cogged stone sites established within this apparently astronomically-useful area of concentration (see portions of the nomination not for public release), the CA-ORA-83 site was located and oriented such that it facilitated views of numerous potential alignments, as well as of what appears to have been a symbolically-evocative environmental setting (*ibid.*). The combination of these and other attributes, including the site's elevation, topography, and physical form, apparently provided for, and continue to well express, the site's functionality for astronomically-based and -associated religious expressions, practices, and symbolic concerns. All told, these characteristics and attributes, analogous to those encountered at "cogged" stone sites in the provinces of Antofagasta and Coquimbo on the northern coast of Chile, outstandingly represent what seems to be a very particular type site in the prehistory of the Americas – a Pacific-based, solstice observation point (*ibid.*), respecting which the CA-ORA-83 site appears to be the most significant North American example. It is apparently also the last known case of this type site on the North American Pacific coast which has yet to be built on.

The number and variety of ceremonial items collected at the CA-ORA-83 site, several forms of which are only rarely or limitedly encountered at Millingstone Horizon sites (a group also including other southern Californian sites with cogged stone finds attributed to them), appear to indicate that, among such potential observation points, CA-ORA-83 was accorded a significantly differentiated status regionally. Material evidences removed from the nomination area, including the greatest number of

cogged stones recorded for a North American cogged stone site (refer to PCASQ Issue 4: 3 [1968]), indicate its Encinitas Period occupants accorded a substantial degree of religious/ceremonial significance to this area of the site, within which the dead were buried and reburied (Whitney-Desautels 1995: 53 - 55); cairned burial grounds were undoubtedly established (Jeffredo-Warden, this publication); the seasonal extremes were evidently observed (*ibid.*); and time-sensitive mourning ceremonies and activities were conducted (Whitney-Desautels 1995: 44, 53 - 55).

The Millingstone Horizon component of the nomination area, which is believed to have been principally used for ceremonial purposes (Whitney-Desautels 1995: 53 - 55), was dated to from 8,660 - 4,040 RYBP (*ibid.*: 47 - 50). It produced what appear to be the earliest reliably-dated evidences of astronomically-based belief systems, ceremonialism, and aesthetic expressions and motifs in Native Southern California (Jeffredo-Warden, this publication; see also Whitney-Desautels 1995: 48 - 50 for radiocarbon dates pertaining to materials removed from the site's Millingstone Horizon component). These include classically-identifiable ritual paraphernalia and ceremonial items such as portable ground-stone sacred sculpture, stone pipes, charmstones, quartz crystals, and shell whistles, rattles and beads (Whitney-Desautels 1995), the use of several analogous varieties of which are ethnographically known to have been associated with astronomically-based belief systems and practices in indigenous southern California (e.g., Miller 1991: 105; Lee 1981; Hudson and Underhay 1978: 34, 49, 63 - 66; Hudson 1988[a]: 37; Hudson 1988[b]: 104).

What is noteworthy about the collection of these artifacts at CA-ORA-83 is that they appear to more than strongly point to continuities in the belief and knowledge systems of historic Native Americans and their prehistoric ancestors, and to further attest to the significant historic role of this or these early, and as yet unknown, marine-oriented people (see also portions of the nomination not for public release). Whether so-called "Encinitas People" (Chartkoff and Chartkoff 1984: 108) were the first Californians to engage in systematic astronomical observations is unknown, but the fact that many of their intellectual concepts and achievements (most noticeably, portable, ground-stone sacred sculpture, time-sensitive mourning ceremonies, and, potentially, positional astronomy, horizon calendrics, and the establishment of permanent observatory sites for the observation and monitoring of the seasonal extremes) became salient cultural features within their apparent territorial range and among later populations of Southern Channel Islanders and adjacent coast mainlanders (refer to portions of the nomination not for public release) encourages the recognition that these innovators likely impacted the subsequent character of Native Southern California in potent and enduring ways.

When Cabrillo reached what is now called Catalina Island in 1542, he encountered what Romani et. al describe was a "highly stratified, and socially and technologically complex" society in which

"astronomically-based ceremonialism may have played the dominant role" (1988: 129). By the time this contact occurred, Island Shoshones were also producing, besides their celestially-evocative "doughnut" stones, some of the most memorable three-dimensional ground-stone sculptures (figurative works depicting birds, fish and sea mammals) in the Americas (Berlo and Phillips 1998; Feest 1980; Disselhoff and Linne 1966; Bushnell 1965). Yet the historic backdrop for the region's characteristic – and now renown – religious emphases on astronomy and the sculptural arts is almost assuredly a precursive people or peoples, Horizon (chronological time period) and Tradition (technology and economic pattern) not currently associated with such intellectual influence in Native North America.

Although we do not [1] now how far back in the world's prehistory calendric systems actually reach (Robbins 2000: 31), taken together, the strong physical, material and visual evidences from and concerning the CA-ORA-83 site (refer to portions of the nomination not for public release) reasonably support the position that horizon astronomy, effectively reflected by several of the Millingstone Horizon sites and cultural expressions of Native Southern California's so-called Encinitas Tradition (*ibid.*), was probably in use in North America more than 8,000 calendar years ago.

In Ireland it likely took 800,000 hours of effort to construct a passage grave like Newgrange (Krupp 1997: 140). One way of appreciating the apparent astronomical expertise of Encinitas People is to realize that – thousands of years before the world's populations were constructing towers with clear views of the horizon or building structures to provide distinguishable horizon markers for astronomical observations – their probable astronomical use of Los Angeles-Orange County's tall coastal plateaus and the horizon features outlying and surrounding these may have freed their societies from committing the hundreds of thousands of hours, massive caloric energy, and potentially serious impositions upon the environment which would have been required to create large-scale, man-made constructs for the purposes of astronomical observation.

The artistic attainments of Encinitas People are also extremely significant in terms of the CA-ORA-83 site's historic context, the Archaic, which in Native California spanned from approximately 11,000 to 4,000 years ago (Chartkoff and Chartkoff 1984: 99 - 124). The peoples living during this period are noted for achieving wider, more diversified economic bases than did the Clovis and Folsom period (from approximately 11,500 - 10,200 YBP) peoples, whose specialized forms of hunting (megafauna, big game) stand in contrast to the more generalized hunting and gathering lifeways (focused, for instance, on the procurement of small game, fish, shellfish, vegetable and seed foods) that are exhibited in the ecofacts and artifacts of early Archaic sites (*ibid.*: 74 - 97; Dillehay 2000: 6 - 7).

Unlike the peoples of the Early Archaic, the paleo-Americans apparently did not produce stone tools using the techniques of grinding, pecking, polishing and abrading, due, it is thought, to their focus on fewer food resources, including seasonally available plant-based foods (Chartkoff and Chartkoff 1984: 78). However, in Native California especially, the peoples of the Early Archaic were apparently exploiting many more kinds of environments and resources, especially plant-based ones, than had been or were being exploited by the big-game hunters (*ibid.*: 77). Most noticeably in Native Southern California then, they would use this stone-working knowledge to develop a ground-stone industry with which to produce milling and other specialized tools to help them more efficiently process, among other ground foods, hard grass seeds and nuts (*ibid.*: 78).

By 8,000 YBP, or at the beginning of the Middle Archaic, millingstones occur in significant numbers at coastal Native Southern Californian (i.e., Encinitas Period) sites (Warren 1968), as do the ground-stone sculptures now referred to as cogged stones and discoidals (Eberhart 1961: 367). Thus, at least by the early Middle Archaic the stone-working techniques used to produce utilitarian, food-processing items were being more profoundly expressed in non-utilitarian items as well (Chartkoff and Chartkoff 1984: 78).

In contrast, irrefutable, conclusive evidences for representational sculpture (and, it appears, representational art) elsewhere in North America 8,000 YBP apparently have not been found (Jeffredo-Warden 2002: 14 - 21; see also portions of the nomination not for public release). Although evidence for weaving in the Southwest and Great Basin has been shown to be as much as 9,400 years old (Berlo and Phillips 1998: 43), and scant remnants of baskets have been found at pre-Clovis, paleo-American and Early Archaic sites (dating to as far back as 7,770 BC in the southwest [Irwin-Williams 1967; see also Fagan 1989: 221] and 6,000 BC in the Great Basin [Fiedel 1987: 119]), the fact that organic materials rarely survive the injuries of time prevents us from knowing how artistically embellished these ancient works were, or if they were embellished at all. Hence, this is not to say permanent, representational sculpture and art did not exist elsewhere in North America at this time (or exist in other styles, forms and mediums), but that reliably-dated evidences of representational sculpture elsewhere in North America at this point in its history is currently lacking except within the so-called Encinitas Tradition of coastal southern California, with the most outstanding and prolific source of this early American sculpture having been the CA-ORA-83 site (Jeffredo-Warden 2002: 14 - 21).

As what appears to be North America's earliest reliably-dated observatory site, CA-ORA-83 reflects the importance of positional astronomy and horizon calendrics and calendric-type behavior in human prehistory, and highlights, through its visually captivating sacred landscape, orientational significance, and historically significant artistic associations, the hitherto unrecognized role of Encinitas

People with respect to apparently pivotal intellectual advances in the development of art (North America's earliest reliably-dated sculptural tradition, reflecting Native North America's technologic move to permanent, representational sculpture), science (North America's earliest reliably-dated type site for astronomical observation and calendric or calendric-type behavior), and religion (North America's earliest reliably-dated evidences of astronomically-based religious practices, expressions, and motifs) during a significant span of the North American Archaic – California's Millingstone Horizon. While apparently exemplifying the religious significance and social importance of astronomical observation in Native North America and Native California and the relationship of astronomy to, for example, indigenous settlement patterns, land use, aesthetic expressions, and, potentially, intercontinental intellectual interchange (via the site's probable historic association with the analogous Quebrada Las Conchas, Huentelauquén, and Los Vilos sites on the northern coast of Chile), together the CA-ORA-83 site, the hundreds of celestially-evocative sculptures, or cogged stones, which have been collected at it, and the memorable symbolic environment of which it remains a part uniquely and outstandingly represent universally fundamental connections between art, science and religion in human prehistory. Moreover, these irreplaceable resources do so in light of a markedly early period of significance, 6,660 - 2,000 BC.

With respect to the development of astronomy in Native North America, it is this period of significance that makes the site exceptionally important in the area of Archaeoastronomy as well.

If "archaeoastronomy has moved away from the study of building alignments toward trying to understand the role of astronomy in ancient cultures in general – in other words toward the history of astronomy" (Aveni 1997: 5), it is possible the field's practitioners will not find a more informative route for addressing the potentially earliest astronomies of the Americas – and apparently some of the earliest astronomies of the world – than by way of the North and South American "cogged" stone sites, the CA-ORA-83 site being a particularly extraordinary representative of the distinctive characteristics, patterns, and probable functions and values associated with and expressed by this strikingly analogous group of Pacific-based sites.

As previously addressed, CA-ORA-83's informational potential, pertinent to a securely-dated antiquity for American astronomical skills and the roots and complexities of astronomy in prehistory (strategies employed to monitor and observe the seasonal extremes and other astronomical phenomena prior to the construction of megaliths or other large-scale edifices for the purposes of astronomical observation), is extremely rare. In relation to other astronomically-based sites in North America (pp. 30 - 39), CA-ORA-83 appears to offer a chronological baseline for the presence of astronomical skills, concepts, and belief systems in Native North America. Thus, archaeoastronomical considerations of the

site's physical functionality for astronomical observation and the concentration, nature, placement and age of material evidences recorded for the nomination area has the potential to consequentially impact current understandings regarding the cogged stone artifact, the cogged stone sites of southern California, and the social, intellectual and ideological lives of so-called "Encinitas People" and other early Americans of the Pacific littoral, for such study may also have the potential to affect the interpretation and conservation of markedly analogous sites in South America.

The nationally significant feature that best relates to the CA-ORA-83 site is the Bighorn Medicine Wheel, which, located in the Bighorn National Forest in Bighorn County, Wyoming, was listed on the National Register of Historic Places April 16, 1969.

The Bighorn Medicine Wheel is not located in an urban environment and has not sustained the kinds of historic impacts the CA-ORA-83 site has; however, its national importance and historic integrity arguably do not exceed those of the CA-ORA-83 site when the CA-ORA-83 site's chronological significance and, consequently, extremely rare historic associations are considered.

Like the CA-ORA-83 site, the Bighorn Medicine Wheel appears to be a still-functioning observatory site that is located in a symbolically-evocative environment (http://library.thinkquest.org/CO118421/wheel2.html). Evidently constructed in the time frame of 1000 - 1800 AD, its potential alignments appear to anticipate and mark the summer solstice (*ibid.*). The CA-ORA-83 site, apparently tracking and marking both winter and summer solstices as well as other astronomical phenomena pertinent to the seasonal extremes (see portions of the nomination not for public release) is, by comparison, at least 9,000 calendar years of age (see Whitney-Desautels 1995: 48 - 50 for uncorrected radiocarbon dates recorded for the site). Supporting what appears to be a previously unsubstantiated antiquity for astronomical observations and knowledge bases in Native North America, it uniquely addresses one of the most important areas of American archaeoastronomical research – "the time and place of origin of American astronomical and calendric skills" (Baity 1975: 380). The site is also associated in an outstanding and unparalleled way with what appear to be some of the earliest celestial depictions in the world (see portions of the nomination not for public release) as well as with what is evidently the earliest reliably-dated evidences, achievements and refinements of a sculptural tradition in Native North America (Jeffredo-Warden 2002). Hence, in exceptionally important ways the Bighorn Medicine Wheel cannot, the CA-ORA-83 site articulates the fundamental relationship of astronomy to pivotal human achievements in the areas of art, science and religion.

What is more, the CA-ORA-83 site evidentially retains and conveys a potential historic association with remarkably analogous "cogged" stone sites on the northern coast of Chile (Iribarren

1962; Gajardo 1962 - 1963; Llagostera 1979; Jeffredo-Warden 2001, 2002; this publication), constituting yet another nationally significant association for this particular site and type site, as the coastal cogged stone sites of southern California appear to be the only astronomically-based sites in the United States providing evidences of intercontinental connection, interchange and influence with respect to the development of astronomy and calendrics in the Americas (Jeffredo-Warden, this publication). The most outstanding representation of this type site in North America, the CA-ORA-83 site, is also the earliest reliably dated and last remaining case of this type site on the North American Pacific coast which has yet to be built on. The coastal cogged stone sites of southern California, of which the CA-ORA-83 site appears to be the rare survival, may also be the only astronomically-based sites in the United States providing evidences, where astronomical knowledge and observation are concerned, of cultural interchange and influence beyond the geographical boundaries of what are now the United States (see Williamson 1981: 75).

These associations – addressing intellectual exchange between the Americas and beyond the geographical boundaries of what are now the United States – have implications for gaining not only a "more complete," but more complex, understanding of cultural developments in the Americas (cf. Meggers 1964: 522). As they also have implications for understanding the peopling and colonization of Pacific coastlines of the Americas, it is argued they are not surpassed by the significance and integrity of the Bighorn Medicine Wheel's associations.

Whereas the elements, features and patterns exhibited by the coastal cogged stone sites of southern California are so consistent there is an accepted recognition of their probable connection to an early migration in American prehistory (Wallace 1955: 122), "the lack of an overall pattern" to North America's Medicine Wheels (http://library.thinkquest.org/CO118421/wheel2.html) prevents such a recognition being drawn about these wheels and the people(s) who(m) constructed them:

> Design similarities between the Bighorn and Moose Mountain wheels and other wheels have caused people to speculate that they were made by the ancestors of the Plains tribes or some other aboriginal culture that had widespread influence or movement across the plains. However, a study of all the 135 known medicine wheels by Canadian astronomer David Vogt carried out around 1990 concluded that while the wheels were intentionally oriented to serve symbolic religious purposes, the lack of an overall pattern to them prevents us from drawing clear cut conclusions on the identity of the cultures that built them (*ibid.*).

By way of this nomination I have argued that the CA-ORA-83 site has numerous sensitive resource values associated with it, and that these unique values are nationally significant in terms of

American history. However, even as the exceptionally important contributions of Encinitas People to global prehistory are far from adequately understood, these nationally significant resources remain particularly susceptible to degradation and destruction resulting from impending development. Recognition of the CA-ORA-83 site's national significance establishes a desperately needed standard for the significance and integrity of extremely threatened yet exceptionally important sites that, despite historic impacts, nonetheless remain uniquely and unequally suited for scientific and/or educational purposes.

Cultural Affiliation

The marine-oriented people living at and utilizing the CA-ORA-83 site prior to the influx of Hokan and Uto-Aztecan speakers into the southern Californian coastal region have been associated with southern California's so-called Encinitas Tradition (Warren 1968), which, reflecting an economy in which manos and millingstones were prominent technological mainstays, appears along the southern California coast from the Santa Barbara region to San Diego County by at least 6,000 B. C. (*ibid.*; LSA Associates, Inc. 2001: 4.11 - 2). In the absence of a known indigenous appellation, the people(s) associated with this tradition have been referred to as "Encinitas People" (Chartkoff and Chartkoff 1984: 108). While the ultimate geographic and cultural origins of Encinitas People are presently unknown (Wallace 1955: 122), the strikingly congruent elements exhibited by their sites has logically led to the view that "they represent a complex which spread as a unit, perhaps carried by a migrating people" (*ibid.*: 123).

The cultural alignment(s) of the peoples of the Southern Channel Islands and adjacent Los Angeles-Orange County coast is/are extremely ancient, reaching at least as far back as the early Millingstone Horizon: evidently early mariners, Encinitas People were the principal colonizers of the Northern and Southern Channel Islands (they also created some of California's earliest cemeteries and produced, for the first time in California, the ground-stone sculptures now referred to as cogged stones and discoidals) (Chartkoff and Chartkoff 1984: 108). Cultural alignments between the people(s) of the Southern Channel Islands and adjacent mainland coast appear to have continued throughout the Intermediate Horizon (*ibid.*: 163), which commences "after about 1,000 B. C." (LSA Associates, Inc. 2001: 4.11 - 2). At CA-ORA-83 such alignment is evidenced by the distribution and presence of highly distinct Southern Channel Islander artifact forms, traditions and types (e.g., *olivella* grooved rectangle beads [Howard and Raab 1997: 8]; barbed bone spear points [Koerper et al. 1996]; artistically consistent portable ground-stone sculpture [Treganza and Malamud 1950: 147]).

In Orange County, as elsewhere along the southern California coast, Encinitas People enjoyed an

incredibly long span of continuity – there doesn't appear to have been an abrupt end to their tradition (Chartkoff and Chartkoff 1984: 109). According to Chartkoff and Chartkoff, theirs "was a way of life so attuned to its environment that it persisted for several thousand years, well beyond the arbitrary end of the Middle Archaic" (*ibid.*: 108 - 109).

It is not known when Shoshonean speaking people first arrived at the southern California coast – "how and when Shoshoneans adapted to the maritime environment remains one of the crucial problems of southern Californian prehistory" (Warren 1968: 9). However, artifacts which may assist in establishing a chronological baseline for Shoshonean presence at the Los Angeles-Orange County coast were excavated at CA-ORA-83 and CA-ORA-86. These include a rare and distinctive bead type, the *olivella* grooved rectangle bead, which was unquestionably determined to be Southern Channel Islander in its manufacture and origin, and which has been found as far into the Americas as the western Great Basin (Howard and Raab 1993: 1). This bead type, in southern California evincing a distinct cultural interaction sphere as it is found only on the Southern Channel Islands and at adjacent Los Angeles-Orange County coastal village sites such as CA-ORA-83, dates to at least 5,000 YBP (*ibid.*). By 4,000 YBP the bead type apparently begins to appear in the Great Basin as well (Whitney-Desautels 1995: 18), perhaps indicating that elements of Southern Channel Islander creativity and ingenuity were diffusing well into the Americas, and/or that active trade, contact and cultural exchange between the marine-oriented people(s) of the Southern Channel Islands and adjacent mainland coast and Great Basin people (i.e., Shoshones) was in place at least 4,000 YBP, a possibility which certainly has implications for understandings of when Shoshones may initially have entered the southern California coastal zone. The presence of Pinto Basin type points and jasper artifacts at CA-ORA-83 and CA-ORA-86 (formerly deemed the northern portion of CA-ORA-83) and other Orange County sites similarly suggests that as early as 3,000 to 2,500 B. C. there was a connection between the cultures of the Great Basin desert region and the southern California coast (Cottrell and De Chario 1984: 20, 69).

The assumption that Shoshones migrating into the southern California coastal zone "displaced" and "replaced" earlier-arriving people to the region – a hegemonic portrayal fathered nearly a century ago by the anthropologist Alfred L. Kroeber – has especially not been archaeologically corroborated in coastal Orange County. Although archaeological data strongly shows the Campbell Tradition, exhibiting an increased emphasis on fishing and sea mammal hunting (Warrren 1968: 9), replaced the collection-focused Encinitas Tradition in Ventura and Santa Barbara Counties around 5,000 years ago, it does not evince such a replacement along the Los Angeles-Orange County coast, where the Encinitas Tradition continued for at least another 3,000 to 3,500 years:

Southward along the coast from Ventura County, through Los Angeles, Orange and San Diego

> counties, the influence of the Campbell Tradition becomes progressively less strongly felt. From Los Angeles County south, it is most often recognized as certain artifact types mixed with the assemblage of the Encinitas Tradition (*ibid.*: 7).

In coastal Orange County the Encinitas Tradition evinces such as remarkable consistency that it endures even unto and into Late Prehistoric times, despite the subsequent migration of others into the coastal zone (*ibid.*: 3 - 4). Data obtained at CA-ORA-83 is in keeping with this pattern, and points to the assimilation rather than displacement of people(s) at the site (Whitney-Desautels 1995).

Evidence that Island and coastal Shoshones may have been assimilated by earlier-arriving people to the southern California coast and offshore islands has been encountered in the linguistic record. According to Bright and Bright (1969: 10), while linguistic data shows nearly half of the available Gabrielino and Luiseño terms are relatable to Proto-Uto-Aztecan words, it also suggests roughly half of them "are not directly derived from Proto-Uto-Aztecan." Furthermore, "Of these words [not directly derived from Proto-Uto-Aztecan], a very low percentage seem to be borrowed from the neighboring Hokan language" (*ibid.*; bracketed clarifications my own). Since a large number of Gabrielino and Luiseño words do not derive from either Proto-Uto-Aztecan or from Hokan borrowings, Bright and Bright conclude that:

> [I]t seems likely that the Uto-Aztecan speakers encountered other Indians speaking a language (or languages) now presumably extinct, and that they lived in the same area long enough to take over a lot of vocabulary. It seems most likely that the moving out to the coast by Shoshonean speakers was both gradual and peaceful. . . . Furthermore, Kroeber's assumption that Shoshoneans replaced a specifically Hokan population, thereby splitting off the Chumash from the Yumans, is clearly unwarranted (*ibid.*: 21, 22).

While CA-ORA-83 falls within territory traditionally and ethnographically attributed to "Gabrielinos" (Bean and Smith 1978: 538; Kroeber 1976 [1925]: 620 - 621; **Attachments 35** and **36**) and Island/Adjacent Mainland Coast Shoshones (whose villages were on the Southern Channel Islands and at adjacent Los Angeles - Orange County coastal sites) maintained ethnic differences from interior groups of Gabrielinos along territorial (Harrington 1986: R102, F785; Bean and Smith 1978: 546; Heizer and Elsasser 1973; 41; Roberts 1933: 4), religious (Harrington 1986: R102, F5; Kroeber 1976 [1925]: 633; Gleason 1958: 9), linguistic (Harrington 1986: R102, F6, 26 and R104, F40), technologic and economic (Kroeber 1976 [1925]: 566 - 567; Bean and Smith 1978: 546; Kroeber 1976 [1925]: 629 - 630), and social (Harrington 1986: R102, F343; Johnson 1962: 179) lines, it is important to note they also interacted with their neighbors in diverse and connective ways (Bean and Smith 1978: 547 - 548;

Kroeber 1976 [1925]: 620 - 622). For example, they resided and held political and religious offices among Chumash, to whom aspects of their *Changichngish* belief system spread (Lee 1981: 15; McCawley 1996: 23; Applegate 1975); participated in trade and marriage alliances with mainland and interior groups of Gabrielinos (Kroeber 1976 [1925]: 630, Bean and Smith 1978: 547 - 548); instituted new art forms (particular styles of dance and ceremonial regalia), laws, rites and ceremonies among Juaneños (Boscana 1978 [1934]: 29 - 35); and engaged not only in trade but a boat-building industry with Luiseños as far inland as Palomar Mountain and the Santa Margarita River in San Diego County (Cox 1968: 19).

Especially in areas regarding religious orientations and values, there was a great deal of intellectual interchange and exchange in the region (see, e.g., DuBois 1908: 75, Kroeber 1976 [1925]: 622). Thus, religious values embodied and expressed by the CA-ORA-83 site, a regionally-precursive, time-sensitive ceremonial site and burial grounds, have spiritual resonance for many indigenous southern Californians today, and at various junctures in the site's history certain descendants of Island/Adjacent Mainland Coast Shoshones, mainland and interior Gabrielinos, Juaneños, and Luiseños have initiated and/or participated in protective actions regarding the site.

This nomination is dedicated to the memory of two such individuals, Dr. John V. Jeffredo, President and CEO of Maritime Shoshone, Inc., and Mrs. Vera Rocha, tribal chair of the Gabrielino-Shoshone Nation. Despite grave health concerns, Dr. Jeffredo and Mrs. Rocha continued to educate the public about the early people(s) of Native Southern California, and to seek desperately-needed protections for their sites, including CA-ORA-83. Had they not exposed me to particularly helpful and guiding aspects of their cultural and historical knowledge, views and orientations, my own work to address CA-ORA-83's significance would have been significantly impoverished.

NHL THEMATIC FRAMEWORK

Evidence obtained at the CA-ORA-83 site strongly supports its recognition as a rare example of the archaeoastronomical record left by some of the very early shellfish gatherers who occupied southern California's Pacific littoral at least 9,000 YBP. Together this potential observatory site, the hundreds of celestially-evocative sculptures, or cogged stones, which have been collected at it, and the memorable symbolic environment of which it remains a part outstandingly express universally fundamental connections between art, science and religion in human prehistory, and document hitherto unrecognized strategies apparently employed by non-agriculturalists to monitor and observe the seasonal extremes and other astronomical phenomena prior to the confirmed antiquity of astronomy and calendrics in the

Americas, and, throughout the world, to the construction of megaliths or other large-scale edifices for the purposes of astronomical observation (Robbins 2000). As the site addresses the religious significance and social importance of astronomical observation in Native North America and Native California and the relationship of astronomy to indigenous settlement patterns, land use, aesthetic expressions, and, potentially, intercontinental intellectual exchange via the site's probable historic association with markedly analogous sites on the northern coast of Chile, its resources and features best relate within the National Park Service's framework for identifying and interpreting historic properties to the theme of "Expressing Cultural Values."

Expressing Cultural Values

In the ancient world the attentive observation and study of the recurring cyclic movements of celestial objects was integral to tracking and marking time; understanding and predicting crucial environmental changes and cycles; and planning and regulating all manner of pursuits, creations and events, from subsistence-related activities and religious undertakings (including the burial and commemoration of the dead), to social relations and organization (Aveni 2001: 2; Fabian 2001: 10; Fabian 1992: 3 - 4; Selin 2000: *xix*; Schiffman 1988: 1; Krupp 1997: 136 - 140, for example). Among many other significant uses, the ancients employed astronomical knowledge to hunt, gather, farm, and fish; to travel and to navigate the seas; and to situate, spatially orient, pattern and design their residences and home communities (Aveni 2001: 1, 303 - 308, for example; Fabian 2001: 10, 106; Fabian 1992: 3 - 4; Selin 2000: *xix*; Hartung 1981: 33 - 41).

An apparent example of the impact of astronomical observation and astronomically-based knowledge and beliefs on indigenous settlement patterns and land use, the CA-ORA-83 site well reflects the astronomically-based functions and religious concerns, it is difficult to reason otherwise, it was established to articulate and serve. Considered together, the site's enduring physical features, form, orientation, setting and location outstandingly represent what seems to be a very particular type site in the prehistory of the Americas: a Pacific-based, solstice observation point.

In both Americas, sites which appear to belong to this group share certain physical and visual characteristics. They are situated on elevated points or outlooks along Pacific coastlines, typically overlooking a beach and/or coastal estuary (Eberhart 1961: 364; Salls 1980: 57; Willey 1971: 208, 210), with unobstructed views of the Pacific ocean, the horizon, and surrounding features of the local and regional environment, including coastal configurations such as points, peninsulas and/or bay formations, and/or one or more offshore features, such as an island or islands (Jeffredo-Warden, this publication). Invariably, they evince astronomically-useful alignments relevant to the seasonal extremes (see portions

of the nomination not for public release). They may be pinpointed not only by the distinctive physical characteristics and patterns they embody and express, but by the astronomically-evocative ground-stone sculptures, or "cogged" stones, they produce (e.g., Iribarren 1962).

The CA-ORA-83 site – potentially one of the earliest fixed astronomical observation points in the world (see Robbins 2000) – is a particularly extraordinary representative of the distinctive characteristics, patterns, and probable functions and values associated with and expressed by this strikingly analogous group of American sites, and remains the earliest and last known case of this type site (i.e., a Pacific-based, potential solstice observation point) on the North American Pacific coast which has yet to be built on. The location of what is evidently the earliest reliably-dated observatory site in North America, CA-ORA-83 is an integral component of a sacred environment potentially in which one of the Americas' earliest horizon calendars was developed and utilized. The site also represents the only known type site in the United States for potential astronomical observation and calendric or calendric-type behavior with probable intercontinental associations, as the remarkable similarities between it and the "cogged" stone sites of northern Chile strongly speak to the potentiality that astronomically-based orientations, values, religious practices and knowledge systems may have traveled between the Americas during the Archaic.

CA-ORA-83 remains part of a visually stunning sacred environment that, in consideration of how little is understood about the religious and intellectual lives of the people(s) of this Horizon, retains a rare informational capacity with respect to its potential illustration of important religious concepts and philosophical concerns in human prehistory (see portions of the nomination not for public release; also Krupp 1997). Whereas most North American sites of this age articulate very little about the religious practices and belief systems of the peoples whom occupied them, the CA-ORA-83 site appears to be an extremely valuable exception in this regard. Its physical functionality for certain religious practices and symbolic expressions apparently exceeded that of other known cogged stone sites in southern California (see portions of the nomination not for public release), and CA-ORA-83 appears to have produced the most prolific evidences of and surrounding the astronomically-based religious aspects of the lives of these early shellfish gatherers, or so-called "Encinitas People".

Some of this evidence consists of an extremely distinct (Eberhart 1961: 361) form of rock art: palm-sized basalt, granite or sandstone discs with indentations in their edges that make them evocative of celestial elements such as stars or planets. In antiquity art rendered of and upon stone was often associated with astronomical observation and observatory sites (Hudson et al. 1979: 51 - 52; Krupp 1988: vi; Aveni 2001: 1). As Robert Schiffman has written, "Rock has been interpreted as a timeless medium for expressing the feelings, history and beliefs of a people. Such a system of recordation would

surely contain elements of a culture's interpretation and observation of the heavens" (1988: 1). CA-ORA-83 is historically the source of the world's largest occurrence of these portable ground-stone ceremonial sculptures, which are popularly referred to as "cogged" stones. Cogged stones represent the earliest reliably-dated evidences, achievements and refinements of a sculptural tradition in North America. Not only are these extraordinarily-rendered stone sculptures, nearly 500 of which are known to have been collected at CA-ORA-83 (Whitney-Desautels 1995: 26), extremely early expressions of the notion of portable sacred art (Lee 1981) – they may be some of the earliest remaining celestial depictions in the world.

In the United States, such permanent, painstakingly-produced visual remains constitute some of the best evidences we have of the astronomical knowledge and astronomically-based religious practices and concerns of prehistoric Native Americans (Krupp 1977: 136). It is now accepted that most Native Californian rock art was produced "in a sacred context and perhaps for ceremonial purposes" (Krupp 1988: vi). Since the CA-ORA-83 site can be associated with recurring celestial events, reexamining the poorly understood cogged stone artifact in the context of archaeoastronomy could result in the astronomically-based symbolism potentially inherent in this ancient art form becoming more accessible to those interested in its study (cf. *ibid.*). That is, the potential orientational significance and astronomical alignments of the CA-ORA-83 site may assist researchers in their attempts to interpret these enigmatic sculptures.

Their recorded concentration in the nomination area also has highly significant implications for interpretation of this site and its national significance. Horizon astronomy and/or horizon calendars are not easily detected or substantiated archaeologically (Robbins 2000: 51) because it is difficult to ascertain where a religious specialist might have stood to make his/her observations (Zeilik 1988: 187). Therefore the recorded concentration and placement of special-use ceremonial items, including classically-identifiable ritual paraphernalia, in the Millingstone Horizon strata of the nomination area; the primary occurrence of cogged stones and other celestially-evocative sculptures in the nomination area; ecofacts establishing the time frames of the site's use; and the physical form, orientational significance, and visual functionality of the nomination area itself are crucial historic resources and evidences where knowledge of astronomy in prehistory is concerned, as they collectively point to the astronomically-based religious functions, values and concerns apparently expressed by the CA-ORA-83 site. In light of these potentially decisive resources and evidences, this potential observatory site may be regarded as the most important representative of this ancient type site in North America, and, consequently, as a remaining national treasure.

9. Major Bibliographical References

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Primary thanks are due to my husband and daughter for their sure and steady support of this effort. Thomas M. Warden had an integral role in this nomination, computing astronomical alignments and assisting me in logistics at several of the cogged stone sites we visited. Elizabeth Villiana Jeffredo Warden, ever spirit-lifting, gifted at humor, caused the many tiring days of this writing process to be vastly more tolerable.

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I am also deeply indebted to Dr. Alicia M. Gonzalez, Executive Director, Museum of the American West, Autry National Center, for her valuable contributions to this effort. Dr. Gonzalez shared information and insights with me regarding trans- and circum-Pacific navigation and intercontinental interchange and exchange along Pacific coastlines of the Americas; participated in astronomical observations at the CA-ORA-83 site; and recommended that her colleague, honored photographer Roberto Ysais, assist us in visually documenting the CA-ORA-83 site's astronomical potential. Mr. Ysais cannot be thanked enough for his generous gifts of talent, time and attention to this nomination, one which plainly could not succeed in the absence of his beautiful and decisive images.

Dr. Ed Krupp, Observatory Director, Griffith Observatory, contributed significant time on several occasions to answering my questions about archaeoastronomy and astronomical observation at CA-ORA-83. He and his writings had a definite impact on the documentary efforts and directions I have taken with respect to this site and its significance, and I thank him for those productive discussions and the prominent contributions to this nomination that they and his writings made possible.

This nomination also came to fruition as a result of the support I received from Maritime Shoshone, Inc. The not-for-profit Native corporation provided its attorney, R. William Ferrante, to assist me in representing and defending Native American rights and interests in this state and federal process. I am additionally grateful attorney Paul Kleven joined us during the most difficult and trying

times of this essential intervention, skillfully protecting my and our constitutional rights to freedom of speech and due process. We also sincerely thank the Keeper of the National Register of Historic Places, Carol D. Shull, and her staff, including historian and reviewer Paul Lusignan, for firmly and unquestionably upholding the National Historic Preservation Act, its regulations and consultation requirements, and my and our constitutional rights to freedom of speech and due process.

As the preservation of historical and sacred sites is an international human rights issue, I asked the International Indian Treaty Council (IITC) for its support of our nomination and the conservation of the CA-ORA-83 site. Alberto Saldamando, General Counsel for the IITC, wrote some of the most cogent and moving words I have read about the CA-ORA-83 site, and the relationship of conserving indigenous Californian sites to overcoming the injurious legacies of California's racist and destructive past. This statement of support, as well as several powerfully key conversations I had with Mr. Saldamando relevant to rights issues and my and our interactions with the state and non-Native archaeologists concerning this site, instilled in me not only the desire, but the *necessity*, to create the strongest document I could respecting this site and its national significance.

Dr. Timothy McKeown, Native American Graves Protection and Repatriation Act Program Leader, National Park Service, compassionately advanced the CA-ORA-83 site cause, as well as Native American rights, by helping me interpret federal laws and requirements, and recommending Native American rights advocates and resources I would not otherwise have been aware of. On those days when I was markedly discouraged he was also responsible for the particularly heartening words, "You're folding up your tent too soon." Needless to say, those words mattered.

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Throughout this effort we have sought to improve the current state of conditions for Native Americans and Native Hawaiians involved in processes to nominate their historic and sacred sites to the National Register, for these processes will in no way become more equitable for Native Americans and Native Hawaiians unless Natives and non-Natives alike become more critically conscious of their engagements in them.

For our part, we concentrated on individual and collective rights for ourselves and all Native Californians engaged in similarly unbalanced state processes. We focused on the right to not only request consultation, but timely consultation, and to speak for and represent our own selves, interests,

and sites. We hope what can be learned from our efforts will contribute to making the future nomination efforts of other Native Californians less painful and contested ones, especially where the profession of archaeology is concerned.

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10. Verbal Boundary Description and Boundary Justification

The boundaries of this nomination effort mirror those of Hammon 1981 and are defined by man-made as well as natural features. Following Hammon:

> CA-Ora-83, The Cogstone Site, is located on the edge of a bluff facing Bolsa Chica Bay (slough) to the south and southeast. The site forms an irregular pentagon whose major axis is approximately 240 meters long (East-West along the northern boundary of the site area being nominated). Maximum site width (N-S) is 180 meters with the narrow tip at the southernmost bluff edge (see Enclosed Maps).

While the nomination area's northern and eastern boundaries consist of unimproved roads, the southern and western boundaries are constituted, respectively, by the bluff edge and the 50' contour level (*ibid.;* see also Attachment 2).

The heaviest concentrations of cultural materials, including the cogged stone artifact and other ceremonial items and ground-stone sculpture, occurred within these boundaries, which indicate the parameters of that portion of the site which apparently were used for the purposes of astronomical observation, time-keeping and astronomically-based ceremonialism. Currently the nomination area is reasoned (at this point by way of at least 10 surveys, 10 surface collections, and 10 excavation programs [Whitney-Desautels 1995: 22 - 25; see also Attachment 7 for a map of previous archaeological investigations and disturbances]) to have been "the primary focus of the Cogstone Complex with periphery areas . . . containing only scattered artifacts and very little undisturbed subsurface material" (Hammon 1981; also Whitney-Desautels 1995). The nomination area includes an area of the site within which the dead were buried and reburied (Whitney-Desautels 1995: 53 - 55); cairned burial grounds were undoubtedly established (Jeffredo-Warden, this publication); the seasonal extremes were evidently observed (*ibid.*); and time-sensitive mourning ceremonies and activities were conducted (Whitney-Desautels 1995: 44, 53 - 55).

The selection of these boundaries is also justified by the topographic features and physical form and/or state of the nomination area itself, a naturally-formed, elevated plateau/potential observation point demonstrably fit for direct and indirect methods of solar observation. Thus, the nomination area's boundaries are additionally justified by its still-functioning orientational significance and astronomical potential.

Attachment 1, Panoramic view of the CA-ORA-83 site showing elevation above sea level as viewed toward the north. Photographs and montage by Roberto Ysais.

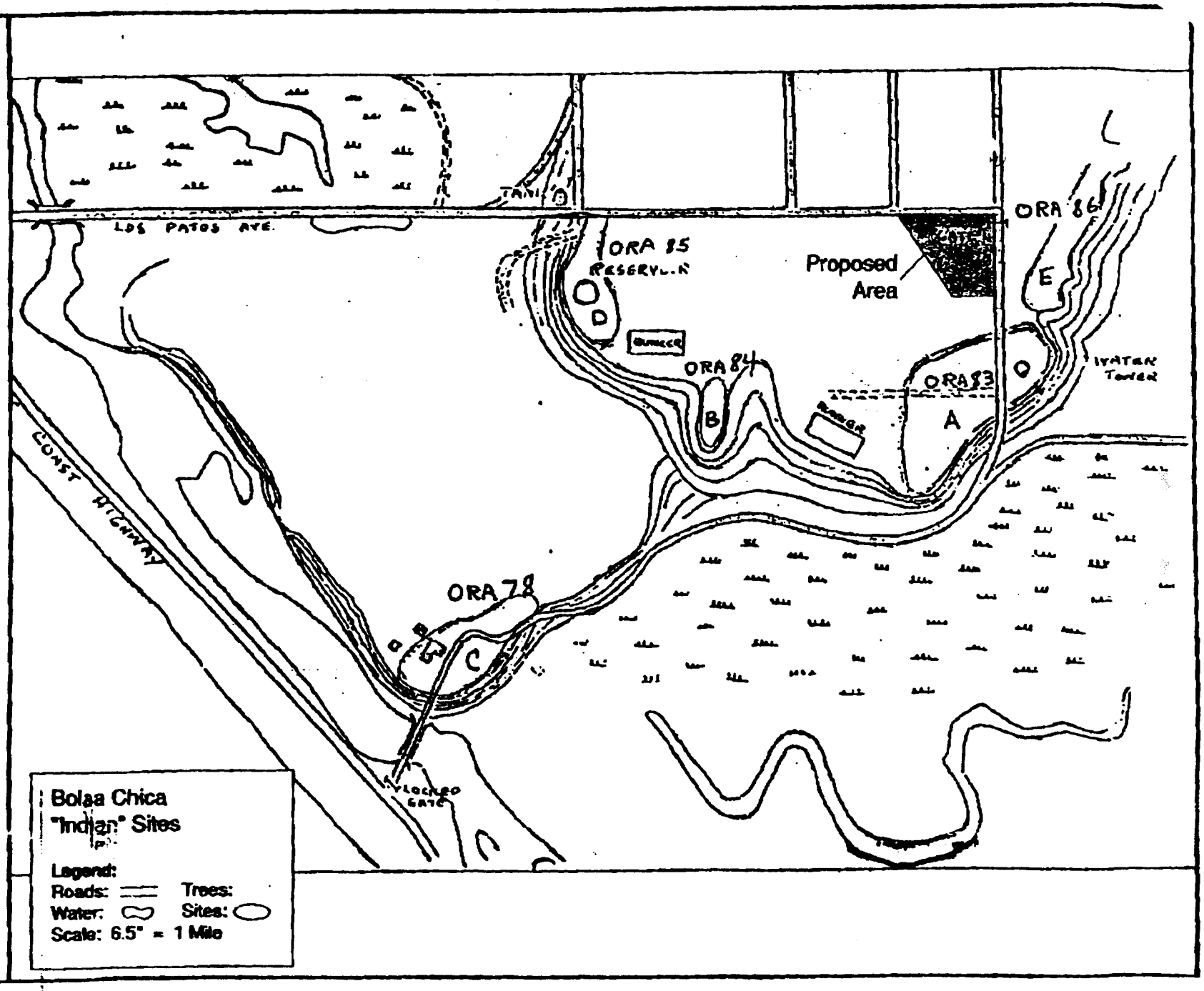
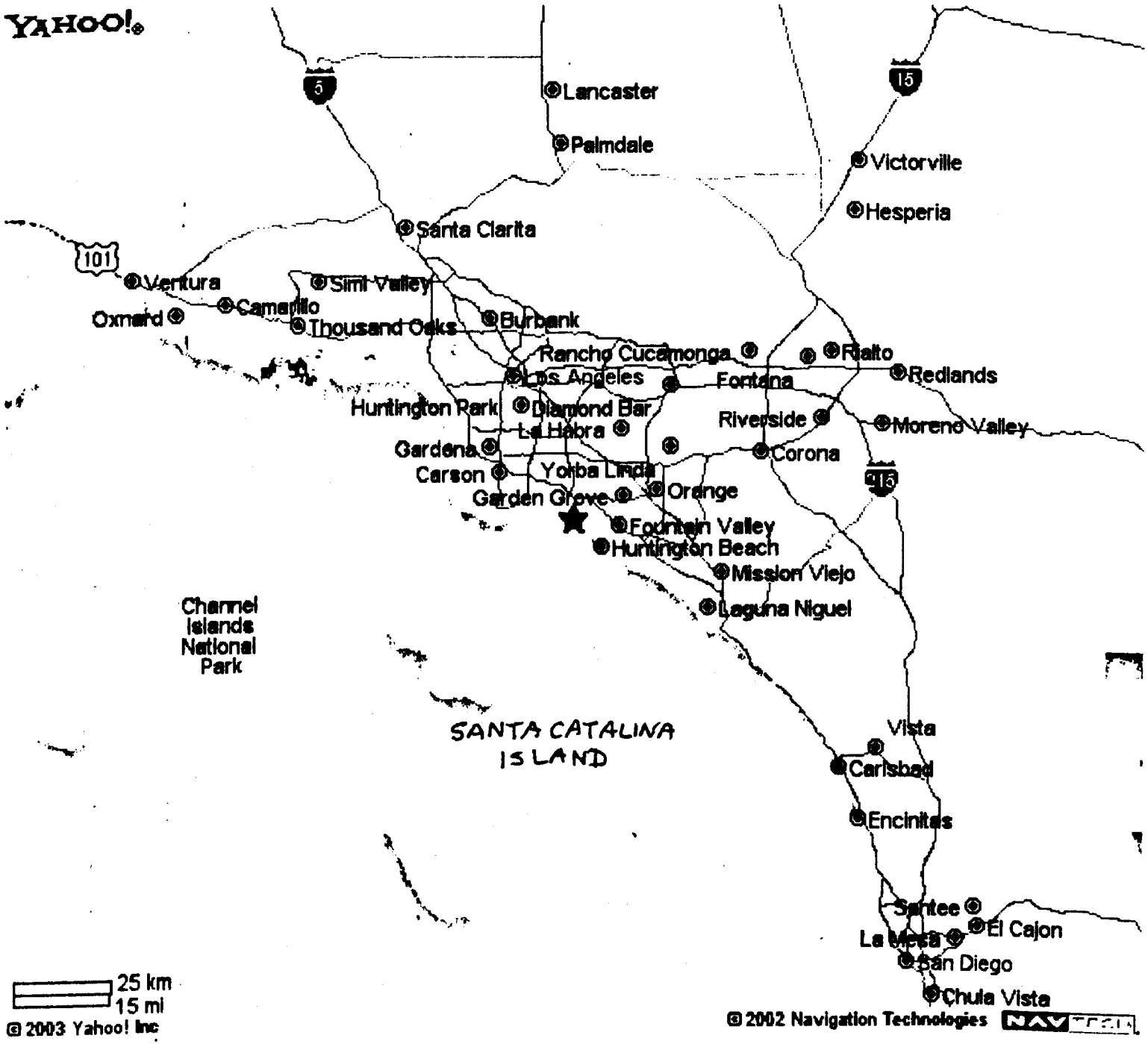


Figure 5: Alika Herring's 1961 Map of Bolsa Chica "Indian" Sites, from his monograph: "Bolsa Chica- A Prolific Cogged Stone Site". Shaded area showing Project Boundaries

Attachment 2, Location of the CA-ORA-83 Site on the Bolsa Chica Mesa's Upper Bench
(Portion designated as "A" corresponds to the nomination area.)



Attachment 3, Position of the CA-ORA-83 Site in Relation to the Southern Channel Islands

Table 7. Radiocarbon Date ecorded for CA-ORA-83.

Unit	Quad	Level	Feature	Soil Facies *	Sample No.	Uncorrected Date
K1				A1p (IIb)	UGA-6345	1098 + 72
J				A1p (II)	UGA-6527	1706 + 77
J				A1p (II)	UGA-6528	1810 + 103
K1				A2p (IIa)	UGA-6344	1905 + 77
CS #1		15-30			UCLA-2563 B	2335 + 55
K1		45-65		A2p (IIa)	UGA-6401	2414 + 73
CS #3-1		75-90			UCLA-2560 F	2470 + 45
S5		20-45		A2p (V-II)	UGA-6410	2607 + 87
K1		50-60		A2p (IIb)	UGA-6403	2755 + 95
T6		65-75		A2p (III-V)	UGA-6406	2814 + 80
K1		60-75		A2p (IIa)	UGA-6402	2895 + 88
T6		10-20			UGA-6189	3066 + 55
T6		50-60			UGA-6193	3211 + 63
S5		15-30		A2p (V-II)	UGA-6411	3239 + 100
CS #2		15-30			UCLA-2564 B	3325 + 65
CS #3-1		0-15			UCLA-2560 A	3370 + 100
D45	NE	90-100	BC-XI		Beta-75137	3420 + 60
CS #3-1		60-75			UCLA-2560 E	3530 + 50
CS #2		0-15			UCLA-2564 A	3570 + 55
T6		30-40			UGA-6191	3605 + 92
CS #1		0-15			UCLA-2563 A	3725 + 60
CS #2		30-45			UCLA-2564 C	3745 + 60
CS #1		60-75			UCLA-2563 E	3900 + 70
K2	SW	60-70			UGA-6601	3991 + 36
D16	SW	70-80	BC-IX		Beta-75129	4040 + 130
K2	SW	60-70			UGA-6602	4126 + 63
D15	NW	50-59			UGa-6612A	4185 + 110
T6		5-25		A2p (V)	UGA-6351	4262 + 73
CS #3-1		30-45			UCLA-2560 C	4310 + 70
L3	SW	90-100			Beta-72578	4410 + 60
CS #3-2		0-15			Beta-10867	4430 + 100
CC8	SW	60-70			Beta-72577	4500 + 60
D11	SE	50-60	BC-III		Beta-75124	4560 + 50
D8	NW	80-90	BC-II		Beta-75123	4600 + 80
J				A2p (IIIa)	UGA-6530	4626 + 55
BB8	NE	60-70			Beta-72576	4720 + 60
D8	SW	50-60			UGA-6204	4725 + 408
CS #1		90-105			Beta-10743	4750 + 80
D5		50-60			UGA-6598	4796 + 37
CS #2		60-75			UCLA-2564 E	4845 + 75
T6		40-50			UGA-6192	4881 + 87
T6		20-30			UGA-6190	4906 + 101
CS #1		30-45			UCLA-2563 C	4920 + 65
T4	SW	30-40			UGA-6604	5063 + 61
CS #3-2		15-30			Beta-10868	5100 + 90
S5	SW	60-70			UGA-6603	5125 + 58
T6		70-80			UGA-6195	5140 + 79
D52	NE	140-150			Beta-72580	5150 + 60
T6		10-20		A2p (V)	UGA-6407	5160 + 105
T6		0-10			UGA-6188	5167 + 93
CS #3-2		30-45			Beta-10869	5190 + 100
AA5	NE	80-90			Beta-72575	5240 + 60
CS #1		45-60			UCLA-2563 D	5275 + 80
CS #3-1		15-30			UCLA-2560 B	5300 + 65
CS #2		75-85			UCLA-2564 F	5370 + 80
CS #2		85-100			Beta-10744	5380 + 100
CS #2		45-60			UCLA-2564 D	5470 + 80
D11	SW	100-110			Beta-72579	5470 + 70

[ ] Early Tivela Dates.

Table 7 Cont. Radiocarbon Dates Recorded for Ora-83.

Unit	Quad	Level	Feature	Soil Facies *	Sample No.	Uncorrected Date
T6		100-110			UGA-6198	5476 ± 101
K1				A2p (IIIa)	UGA-6346	5512 ± 56
CS #3-1		45-60			UCLA-2560 D	5530 ± 70
CS #3-2		45-60			Beta-10870	5530 ± 70
C1	NE	220-230			UGA-6538	5578 ± 56
S5		65-85		A (III)	UGA-6409	5735 ± 78
C1	NW	240-250			UGA-6541	5748 ± 36
T6		90-100			UGA-6197	5768 ± 109
CS #3-2		90-105			Beta-10873	5940 ± 80
D8	SW	64	1		UGA-6205	5988 ± 71
CS #3-2		120-130			Beta-11044	5990 ± 150
C1	SW	150-160			UGA-6534	5995 ± 75
J				A2p (IIIb)	UGA-6532	6008 ± 86
CS #3-2		60-75			Beta-10871	6070 ± 80
CS #3-2		75-90			Beta-10872	6100 ± 80
C1	NW	200-210			UGA-6536	6132 ± 88
CS #1		75-90			Beta-10742	6140 ± 80
J				A2p (IIIa)	UGA-6529	6203 ± 75
K1				A2p (IIIb)	UGA-6347	6215 ± 80
J				A2p (IIIb)	UGA-6531	6226 ± 81
C1	SW	200-210			UGA-6537	6342 ± 75
S5		70-90		A (III)	UGA-6408	6357 ± 96
C1	NE	240-250			UGA-6540	6418 ± 86
C1	NE	200-210			UGA-6535	6477 ± 80
CS #2		100-115			Beta-10745	6480 ± 110
T6		60-80		EA (III-IV)	UGA-6349	6608 ± 81
C	Fissure	280-290			UGA-6596	6635 ± 57
FF6	SE	27-33	F25		Beta-75121	6680 ± 100
D15	SE	70-80	BC-VIII		Beta-75128	6710 ± 90
K1		65-90		A2p (IIIb)	UGA-6405	6723 ± 43
K1				E (IV)	UGA-6348	6725 ± 102
CC8	NW	50-60	BC-XXIII		Beta-75133	6730 ± 50
T6		140-150			UGA-6202	6731 ± 105
T6		120-130			UGA-6200	6740 ± 62
L1	SE	50-60	BC-XV		Beta-75130	6750 ± 70
Z	S	40-50	BC-XXVIII		Beta-75134	6770 ± 140
C1	NE	150-160			UGA-6533	6790 ± 42
T6		130-140			UGA-6201	6800 ± 98
C1	NW	220-230			UGA-6539	6811 ± 82
CS #3-2		105-120			Beta-10874	6820 ± 80
AA5	E	60-70	F13		Beta-75117	6830 ± 120
L2	NE	40-50	F12		Beta-75116	6840 ± 180
T6		80-105		E (IVa)	UGA-6350	6853 ± 80
CS #3-1		90-105			UCLA-2560 G	6880 ± 80
N2	NW	60-80	F15		Beta-75119	6900 ± 90
L1	SE	50-60	BC-XV		Beta-75131	6900 ± 140
T6		80-90			UGA-6196	6910 ± 79
Z1	SE	80-90	BC-XXX		Beta-75135	6910 ± 100
D8	SW	50-60			UGA-6206	6938 ± 101
X2	SE	70-80	F14		Beta-75118	6950 ± 80
X2	SE	70-80	BC-XVIII		Beta-75138	6960 ± 60
D8	SW	64	1		UGA-6203	6970 ± 118
D14	NW	60-70	BC-VII		Beta-75127	6990 ± 110
D8	SW	60-70			UGA-6207	6995 ± 108
D8			1		UGA-6302	7005 ± 105
D11	NE	60-70			UGa-6609A	7050 ± 75
D8			1		UGA-6301	7086 ± 108
C1	Fissure	280-290			UGA-6597	7096 ± 43
Z6	SW	90-100	BC-XXXII		Beta-75136	7120 ± 50

[ ] Early Tivela Dates.

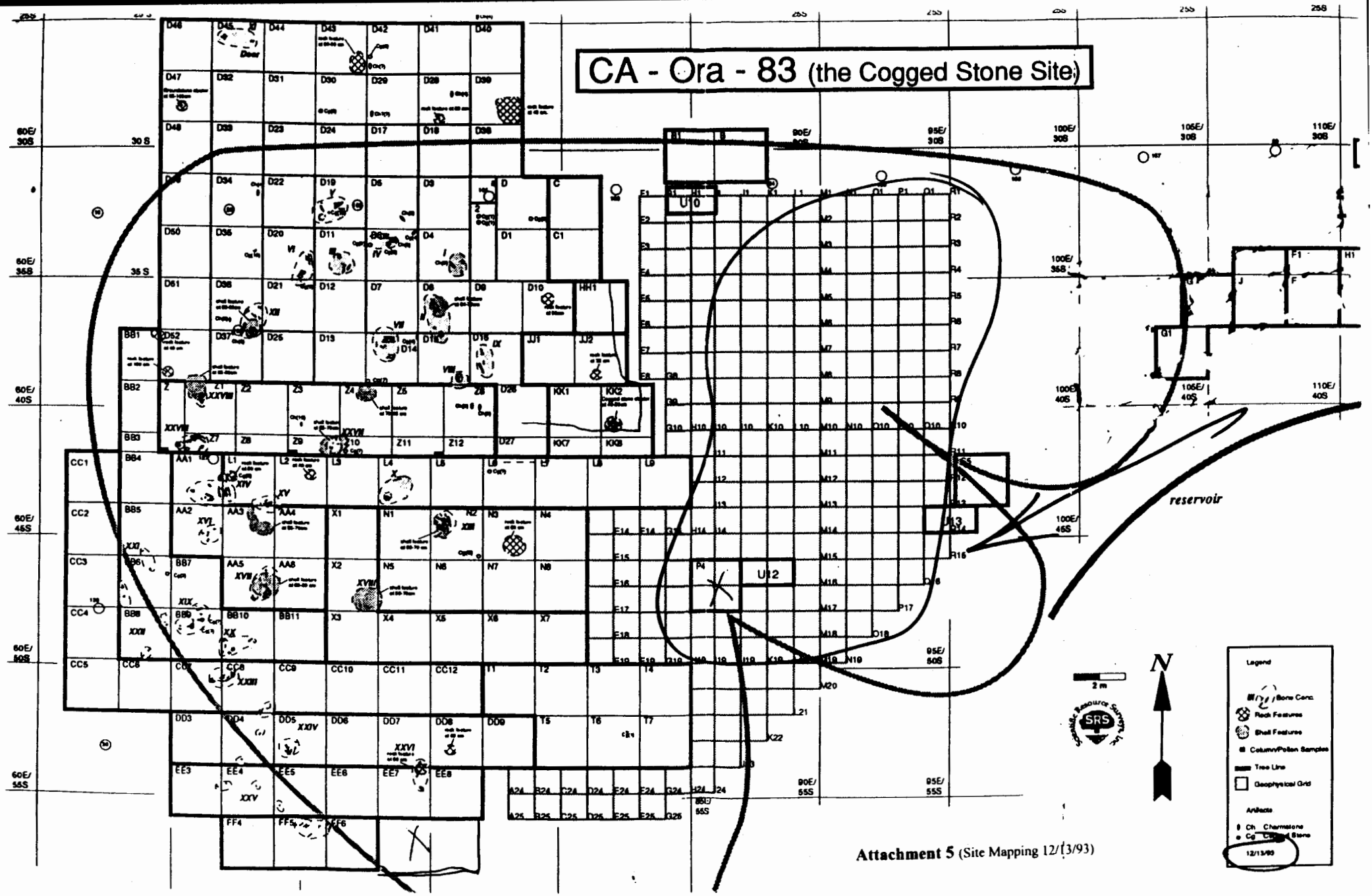
Table 7 Cont. Radi[illegible]rbon Dates Recorded for Ora-83.

Unit	Quad	Level	Feature	Soil Facies *	Sample No.	Uncorrected Date
D19	SW	50-60	BC-V		Beta-75125	7140 ± 110
T6		60-70			UGA-6194	7149 ± 141
BB10	SW	60-80	BC-XX		Beta-75132	7150 ± 70
CS #3-1		105-120			UCLA-2560 H	7160 ± 80
D14	NW	60-80	BC-VII		Beta-75126	7190 ± 80
C1	SW	130-140			UGa-6606A	7195 ± 85
D8	W	60-70	F1		Beta-75112	7200 ± 90
N3	SW	40-60	F8		Beta-75115	7200 ± 100
D17	NW	70-80			UGa-6613A	7250 ± 125
T6	SW	70-80			UGa-6615A	7265 ± 80
T6		110-120			UGA-6199	7304 ± 108
G	SE	110-120			UGa-6607A	7305 ± 155
Z9	E		23		Beta-69406	7320 ± 50
X2	SE		14		Beta-69414	7320 ± 90
KK2	SW		17		Beta-69415	7320 ± 50
D13	SW	40-50			UGA-6600	7326 ± 42
Z1, D52	NW, SE		11		Beta-69405	7360 ± 50
JJ2	SW	40	18		Beta-69416	7390 ± 60
D36	SE	120-130	F7		Beta-75113	7400 ± 100
Z4	N		22		Beta-69407	7410 ± 60
AA3	NE	60-70	F19		Beta-75120	7440 ± 120
D18	NE	60-70			UGa-6614A	7460 ± 70
X2	SE		14		Beta-69408	7500 ± 60
Z9	E		F23		Beta-69410	7560 ± 60
D14	SE	40-50			UGa-6611A	7595 ± 125
D5		70-80			UGA-6599	7621 ± 44
CS #3-1		120-130			UCLA-2560 I	7635 ± 30
T6	SE	70-80			UGA-6616A	7690 ± 85
Z9	E		F23		Beta-69411	7770 ± 60
D36	NE	120-130	F7		Beta-75114	7780 ± 60
C1	SW	130-140			UGa-6605A	7790 ± 165
D11	NE	60-70			UGa-6610A	7885 ± 165
D4	SE	70-80	BC-I		Beta-75122	7970 ± 70
BB1	N	40-50	F10		Beta-75139	8020 ± 70
G	SW	150-160			UGa-6608A	8045 ± 115
Z9	E		F23		Beta-69412	8120 ± 60
Z9	E		F23		Beta-69409	8520 ± 60
Z9	E		F23		Beta-69413	8660 ± 60

Attachment 4, Continued

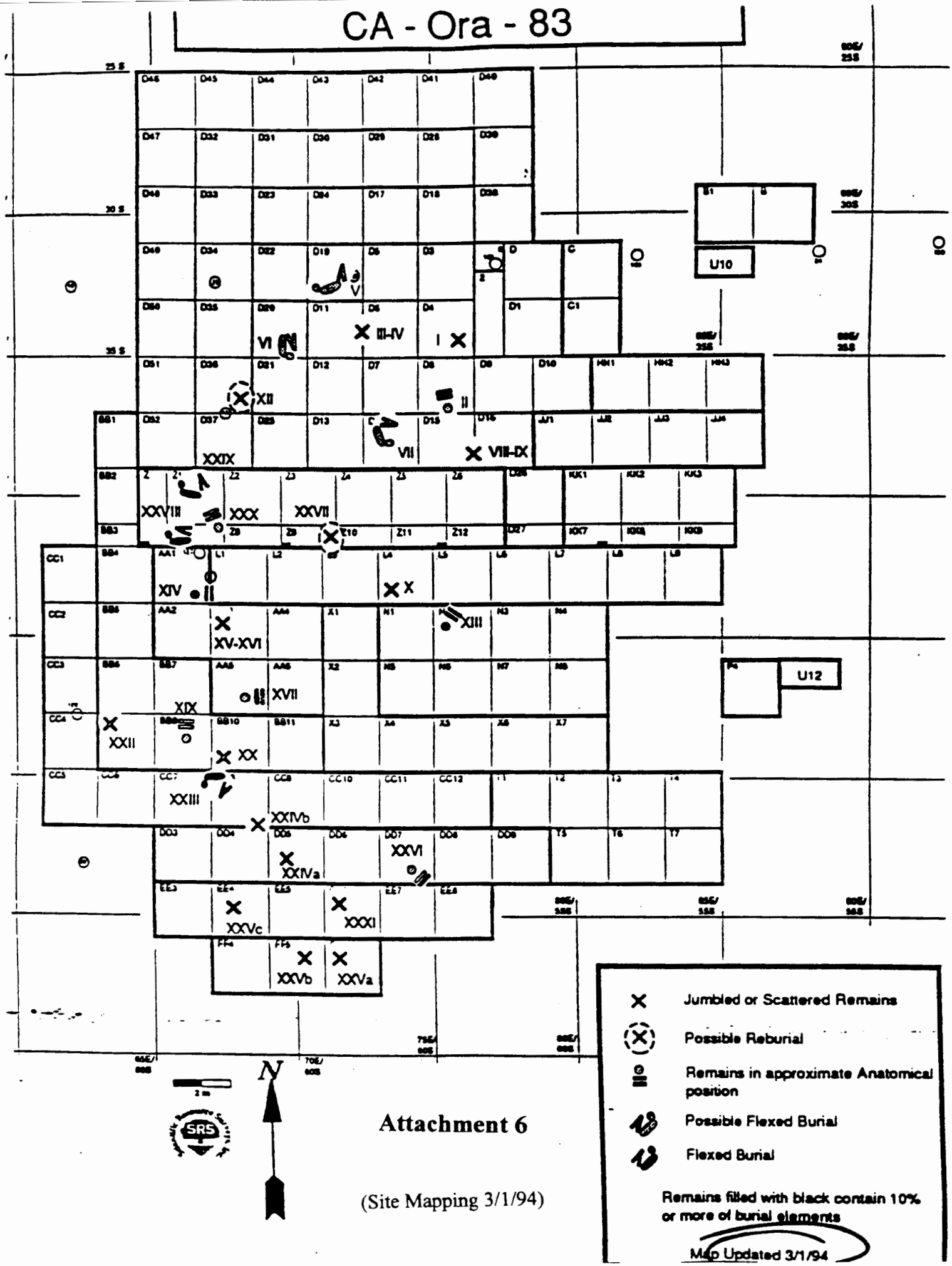
[ ] Early Tivela Dates.

* Soil Facies in parenthesis represent [illegible]



Attachment 5 (Site Mapping 12/13/93)

CA - Ora - 83



Attachment 6

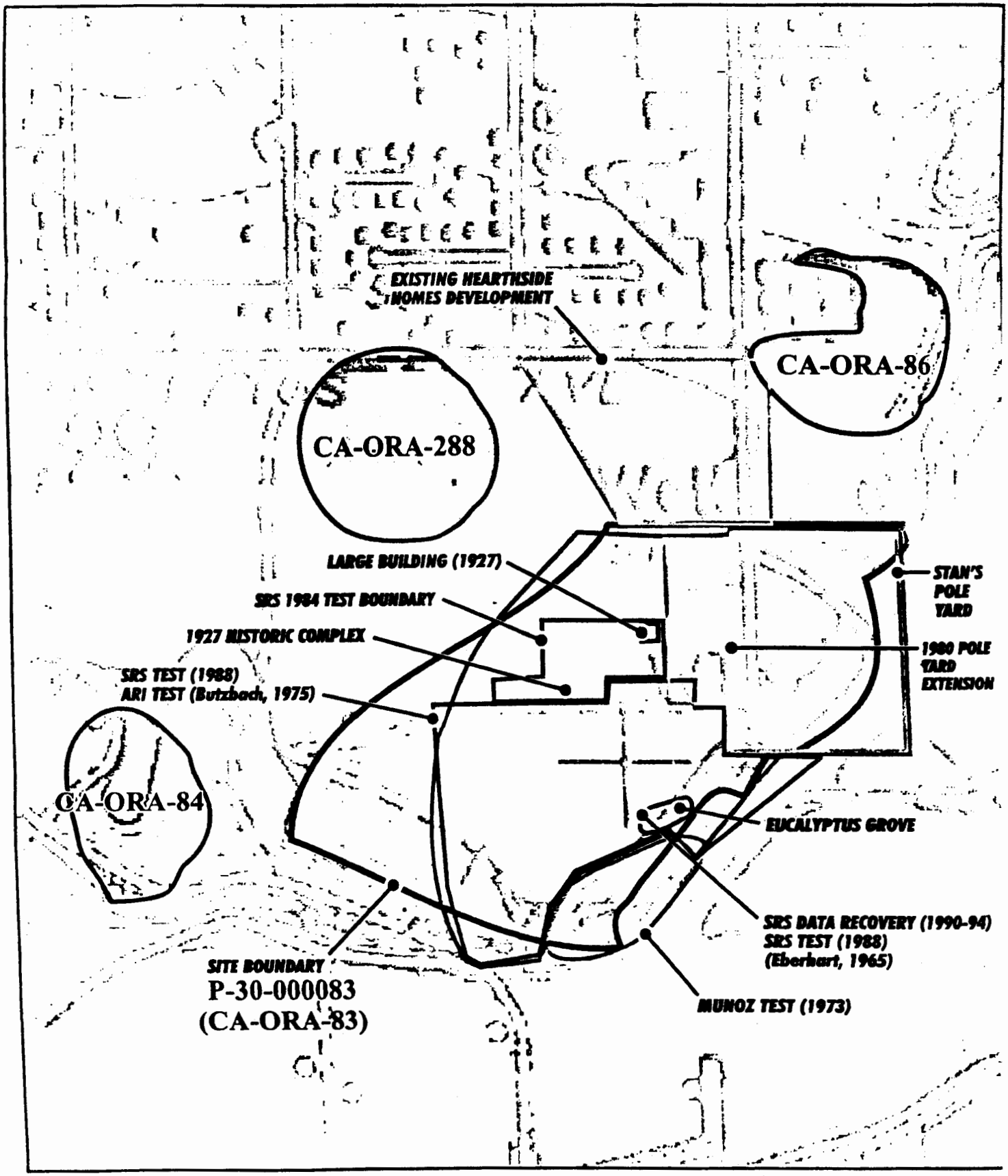
(Site Mapping 3/1/94)

DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

HRI #
Trinomial

Page ___ of ___ *Resource Name or # (Assigned by recorder) Bolsa Chica Mesa P-30-000083 (CA-ORA-83)

*Map Name: Previous Archaeological Investigations and Disturbances *Date:



DPR 523K (1/95) *Required Informati

Attachment 7, Location of Eucalyptus Grove

Attachment 8

Like the Heavens Were Brought Down to Meet the Earth: Groundstone Sculpture from CA-ORA-83

(Photograph from McKinney 1968: 48)

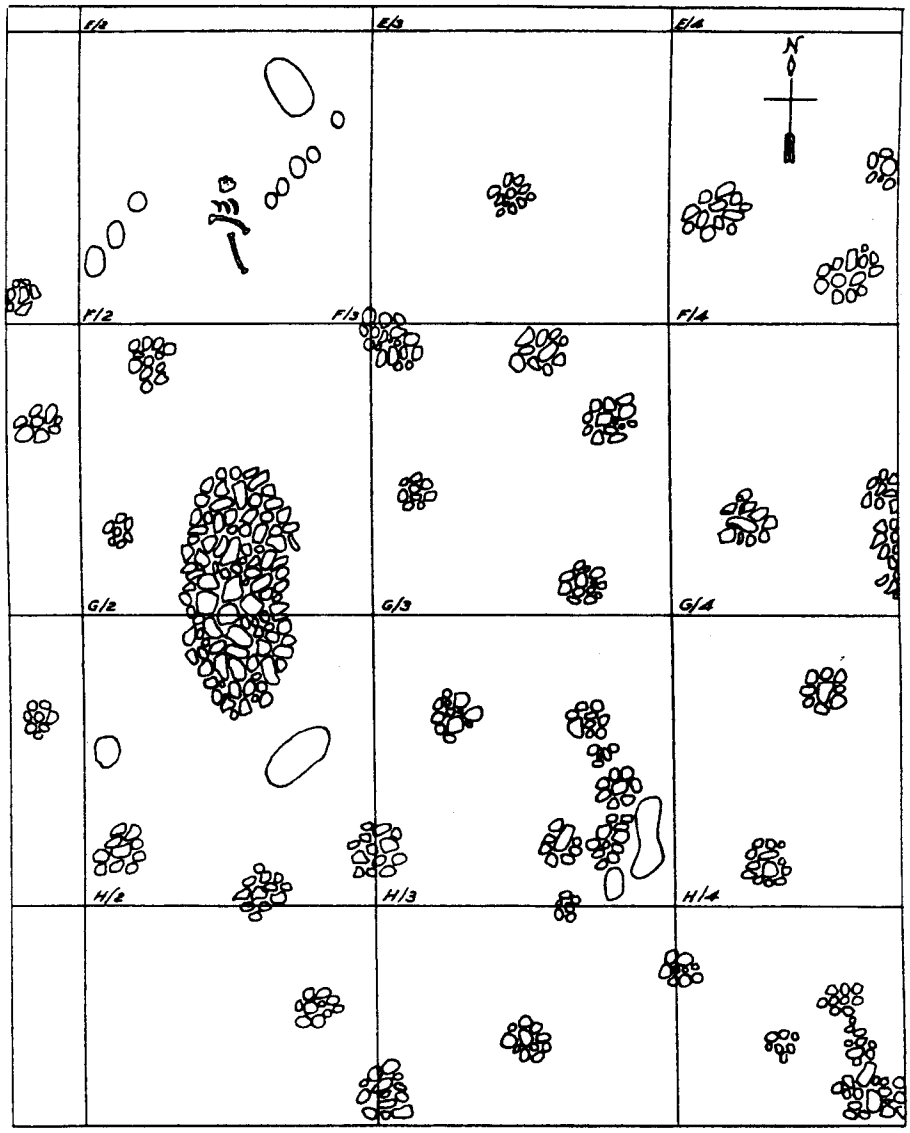
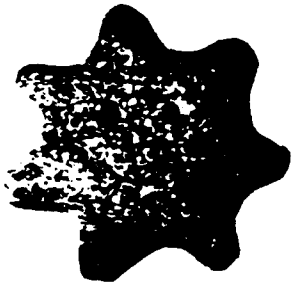
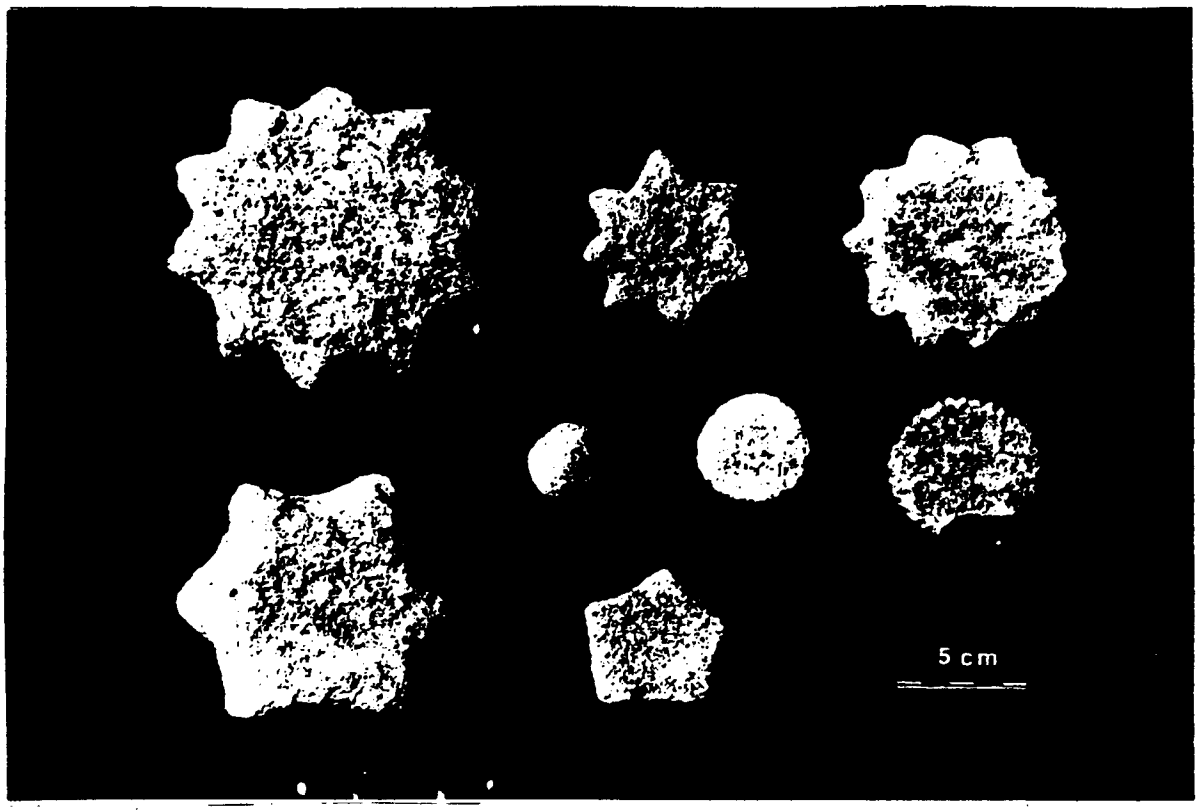


FIG. 13—CHART OF CAIRNS, LEVEL 2

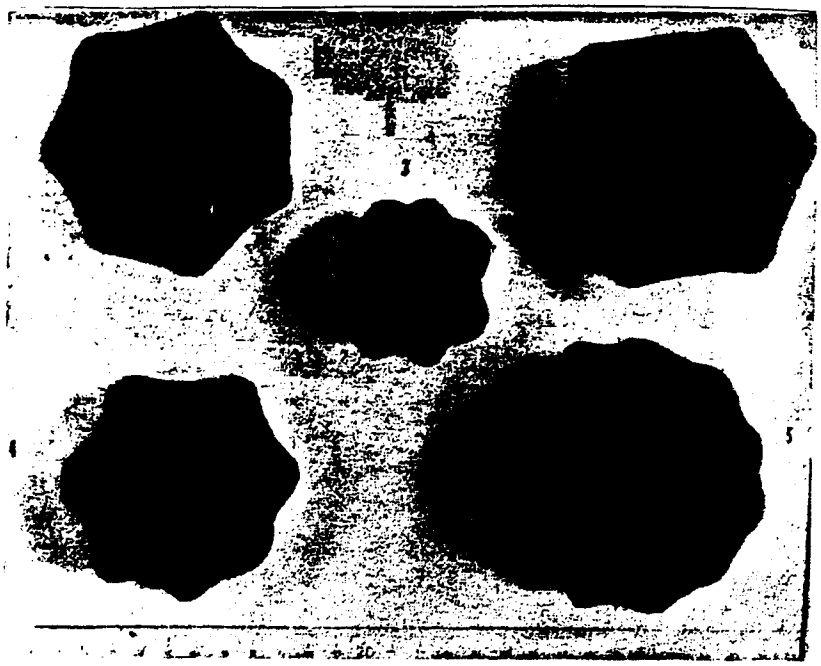
Attachment 9, Early Millingstone Horizon Cairns, Malaga Cove Cogged Stone Site
(from Walker 1952: 54. According to Walker, "the limits of this ceremonial area were not reached, as the cairns extended into the walls of three sides of our small excavations" [*ibid.*: 53].)

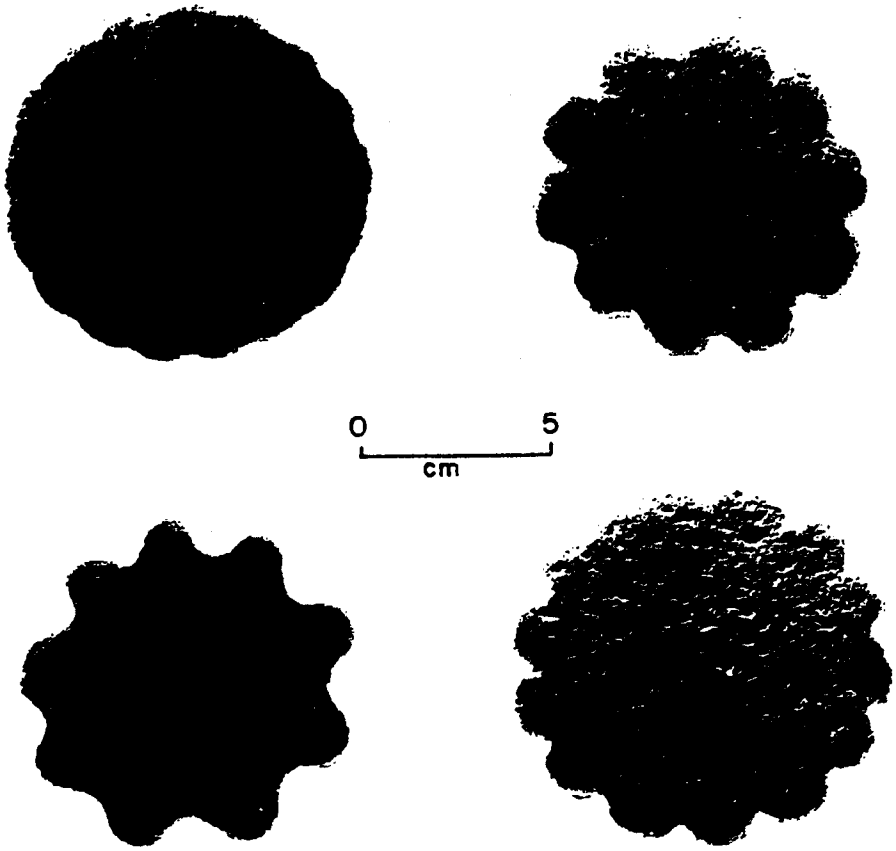




Attachment 10, Bolsa Chican and Chilean "Cogged" Stones

(Photographs from [top, CA-ORA-83 Site] McKinney 1968: 49; [bottom, *Quebrada Las Conchas* Site, Antofagasta Province, northern Chile] Llagostera 1979: 318)





Attachment 11, Cogged Stones Excavated from Coastal Southern California and the Huentelauquén Site, Coquimbo Province, Northern Chile

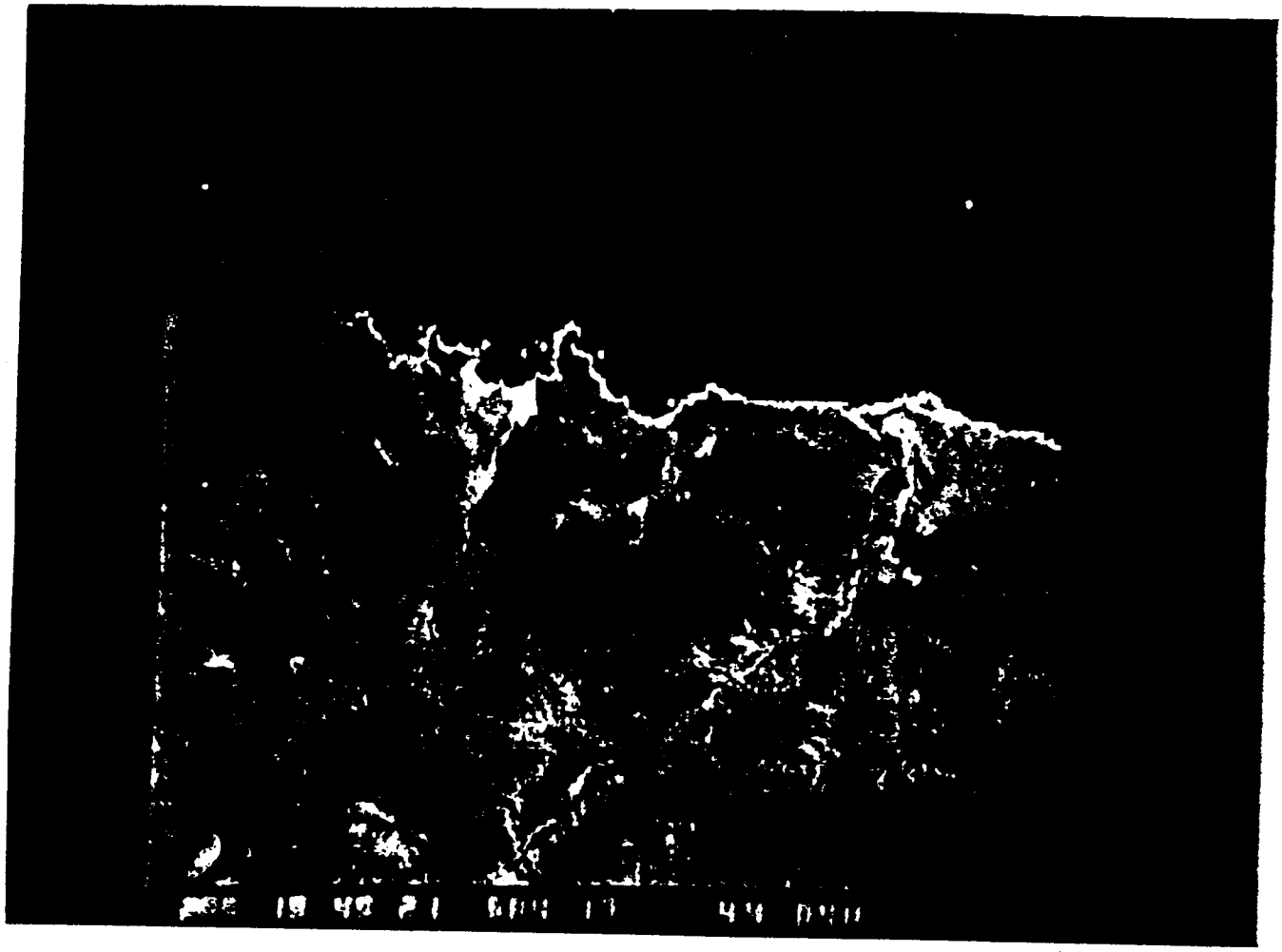
(Photographs from [top, Heuentelauquén Site, northern Chile] Gajardo 1962 - 1963: 33; [bottom, Long Beach site, Los Angeles County, southern California] Moratto 1984: 150)

Attachment 12, Shuttle Imagery of Palos Verdes Peninsula, Santa Catalina Island and Los Angeles-Orange County Coast

http://images.jsc.nasa.gov/iams/images/earth/STS058/lowres/20110795.jpg 8/23/2003

Attachment 13, Shuttle Imagery of Antofagasta and Peninsula de Mejillones (pertinent to the *Quebrada Las Conchas* site), Northern Chile

http://images.jsc.nasa.gov/iams/images/earth/STS067/lowres/20189360.jpg 8/22/2003



Attachment 14, Shuttle Imagery of Los Vilos and Huentelauquén (pertinent to the Los Vilos and Huentelauquén sites), Northern Chile (The Rio Choapa is pictured to the far right)

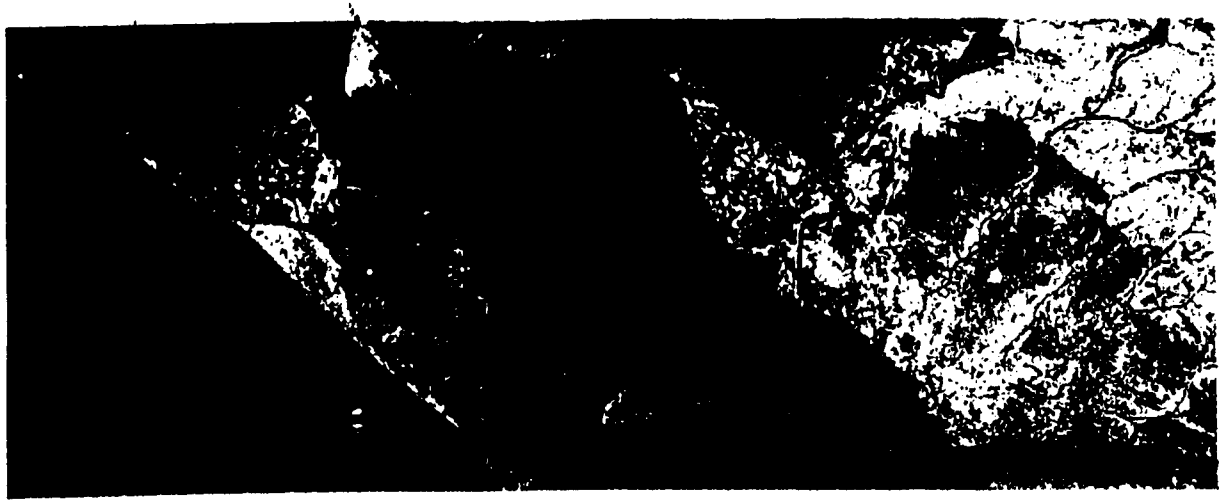
http://images.jsc.nasa.gov/iams/images/earth/STS41G/lowres/10044386.jpg 8/22/2003

Attachment 15, Antofagasta (pertinent to the *Quebrada Las Conchas* site), Northern Chile
(an offshore feature, *La Portada*, is shown to the far right)

http://community.webshots.com/s/image3/7/40/57/73674057TUDgLz_ph.jpg 8/22/2003

Attachment 16, The Physically-Analogous Southern California Coast
(at top, today's "Portuguese Bend"; at bottom, a spot near "Abalone Cove", Palos Verdes Peninsula)

Attachment 17, Baja, Mexico



Isla Santa Margarita aerials

Attachment 17 (continued),
Equally analogous landforms and features,
Baja California

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human prehistory,
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such as *H. habilis*
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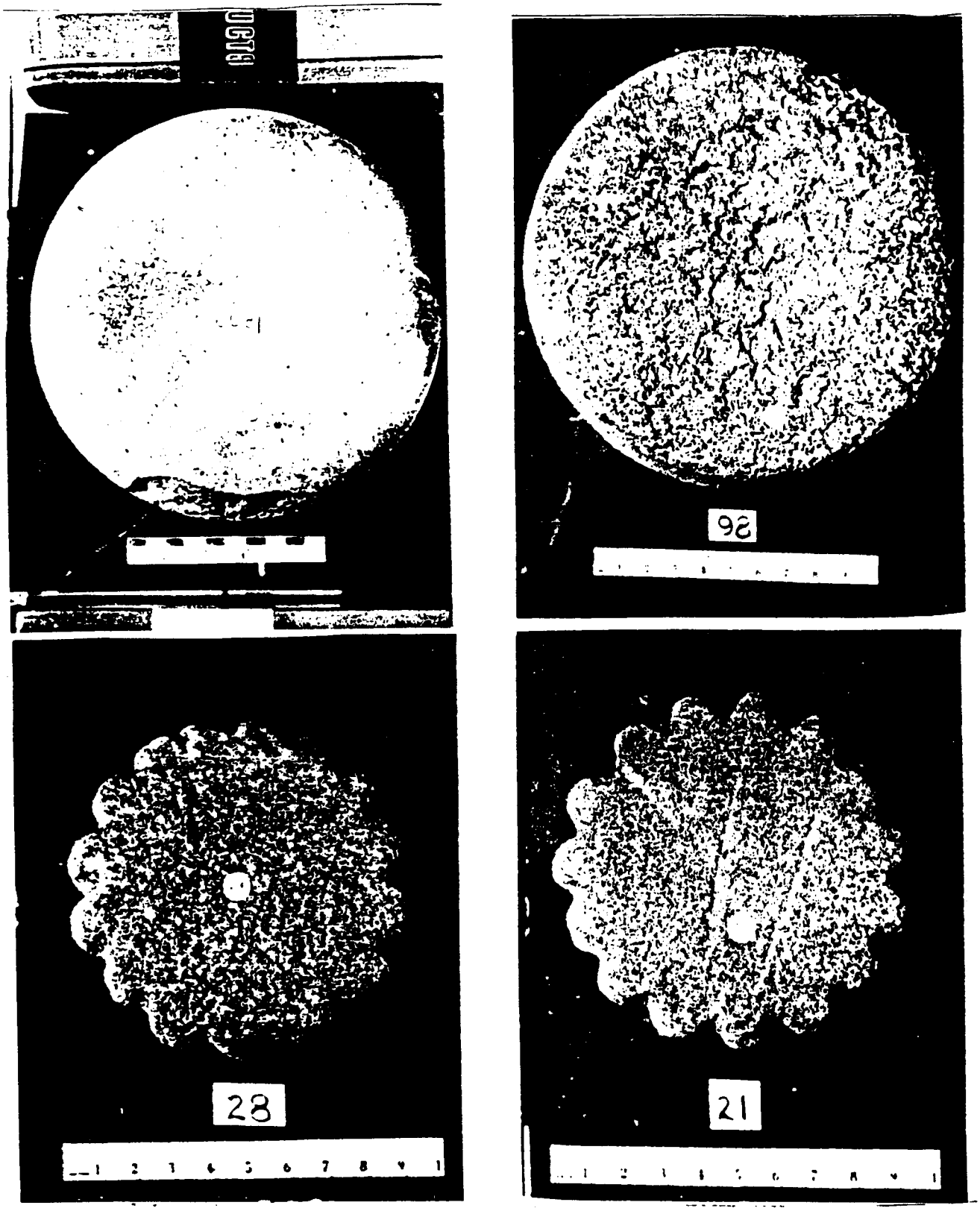
Table 1 Chronology

- **Hominids appear by about 5 million years ago in East Africa**
  - Earliest hominids are best known from various species of Australopithecines (5–1.6 MYA). (MYA = Million years ago).
  - Bipedal locomotion, small brains. Probable seasonal use habitat.
- **Lower Palaeolithic: 2.6 Million–200,000 years ago, *Homo habilis*, *Homo erectus* = best known hominid species**
  - Stone tools appear by 2.6 MYA in East Africa, *Homo habilis*.
  - First definite seasonal sites evident *ca.* 1.8 million BP, *Homo habilis*, seasonal responses may have been natural rather than predicted.
  - *Homo erectus* appears *ca.* 1.6 MYA, brain enlargement, proto-language. First hominid to leave Africa.
  - Fire appears, 1.6 MYA, *Homo erectus*: possible extension of early human activities into the night. Increased possibilities for observation of the night sky.
  - First wooden spears, *ca.* 400,000 years old, sign of cultural complexity. Controversial evidence of 'concept marked bones.'
- **Middle Palaeolithic (Middle Stone Age)–200,000–35,000 years ago, Neandertals and Early *Homo sapiens***
  - Fire becomes more frequent *ca.* 100,000 years ago among Neandertals of Europe and the Middle East.
  - Burial of the dead appears among Neandertals, possible evidence of orientation of the dead towards rising/setting sun, at La Ferrassie.
  - Observation of tidal changes by early *Homo sapiens* of coastal South Africa *ca.* 100,000 years ago. Relationship of tides to moon?
  - First crossing of large area of open water by *Homo sapiens* to reach Australia, *ca.* 60,000 years ago. Knowledge of tides, directions?
  - Modern behavior and cognitive skills established between 60,000–35,000 years ago. Theoretical development of 'cognitive fluidity' allows for the development of complex myths and rituals, possibly including the sun, moon and stars.
- **Upper Palaeolithic–35,000–10,000 years ago, fully modern *Homo sapiens***
  - Modern behavior, cognitive skills and language are well established.
  - Fire used widely and effectively.
  - Cave art, no representation of sun, moon, stars or planets; shamanistic beliefs are present. Complex rituals and myths seen in art and burial symbolism.
  - Orientation of burials appears in Europe and along the Nile. Best case in Nubia, numerous individuals facing rising sun.
  - Possible evidence for lunar calendars seen on marked bones including possible marking of summer solstice.
  - No evidence of permanently marking the landscape for sighting purposes. No 'observatory' sites are known.
- **Neolithic etc.**
  - Food production is evident, establishment of permanent sighting points and alignments (Megaliths, wooden posts, tomb alignment, earthworks). 'Observatory' sites are present. Much ritual concern with sun and moon is evident.
  - Earliest Megalithic site with archaeoastronomical significance at Nabta Playa, southern Egypt: marking summer solstice and directions.
  - Newgrange, Ireland, Passage Grave, *ca.* 3,150 BC: tomb aligned with midwinter sunrise.
  - Neolithic/Bronze Age: Stonehenge, southern England (*ca.* 3,000–1,500 BC). Summer solstice sunrise over Heel Stone.
  - Bronze Age: Recumbent stone circles, Scotland, marking passage of the moon.

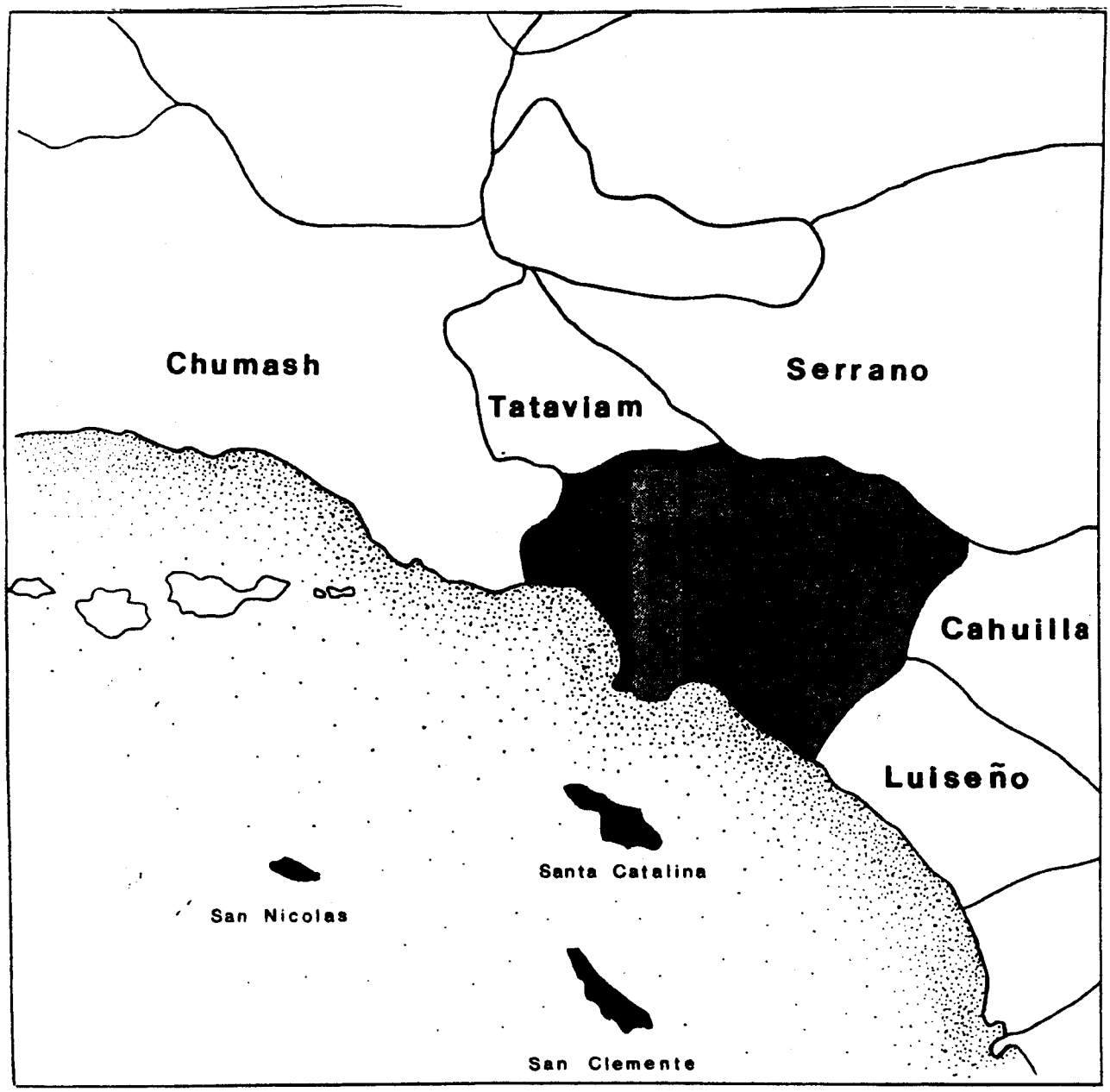
Attachment 18
Robbins' (2000) Timeline of Astronomy in Prehistory



Attachment 34

Discoidals and Cogged Stones from ORA-83

(Photographs from Herring [1968: 17 - 19])



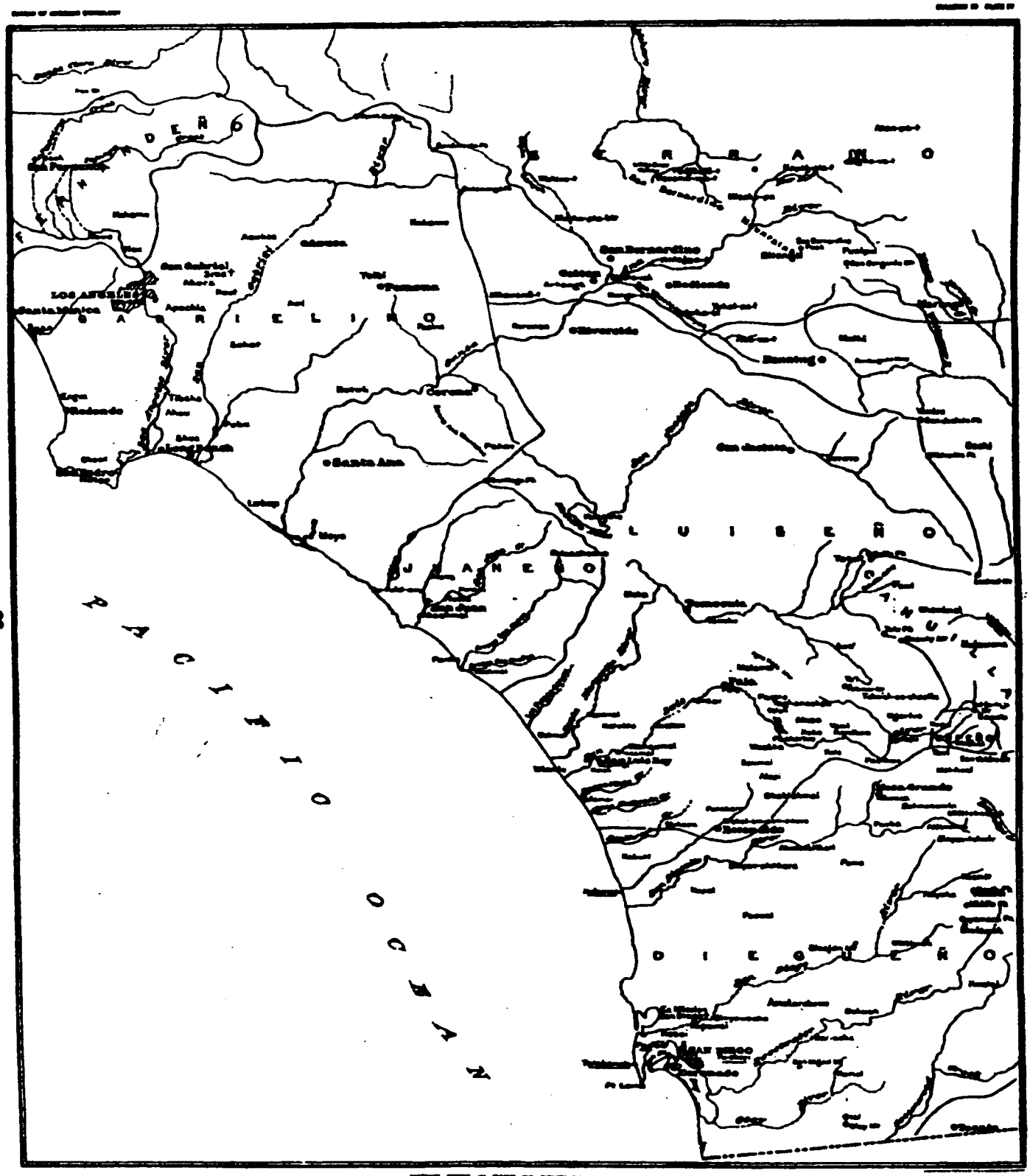
Attachment 35

Territories (shaded) attributed to Island, Coastal and Interior "Gabrielino" groups

(map, McCawley 1996: 22)

HANDBOOK OF THE INDIANS OF CALIFORNIA

By: A. L. Kroeber (Pet. Ex. RH-50)



78

NATIVE SITES IN PART OF SOUTHERN CALIFORNIA

Attachment 36, Traditional territorial areas, Native Southern California

The little Lizard, in order to find out what was going on in the world, would play the flute.

And the Coyote, in order to take it in, would cock his ear.

Kitsepawit

Heron and Nest

This nomination is dedicated to the memory of Dr. John V. Jeffredo and Mrs. Vera Rocha.
Images of the animal life that still abounds within the area of the site
by Mr. Roberto Ysais.

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

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COASTAL COMMISSION

August 9,2004

Mr. Peter Douglas, Executive Director
California Coastal Commission
45 Fremont Street
Suite 200
San Francisco, CA 94105

RE: Mitigation of Impacts at CA-ORA-83 (Cogstone Site-Bolsa Chica), Orange County

Dear Mr. Douglas:

The Native American Heritage Commission (NAHC) has acknowledges the Cogstone site as a spiritually significant cultural landscape to its culturally affiliated Native Americans. The NAHC has been involved in preservation issues related to the site since the 1980s. And, while the site has been subjected to archaeological excavation under the California Environmental Quality Act (CEQA), its integrity as an archaeoastronomical site remains undiminished. The site may in fact be North America's earliest observatory sites and horizon calendar sites, and one of the world's earliest direct solstice alignments. A 7.4-acre area has been identified in a pending National Register Nomination as the area that contains the solstice alignments.

It is our understanding that the Coastal Commission will be considering a new application by Hearthside Homes/Signal Landmark to develop the site, on August 12, 2004. The NAHC requests that the Coastal Commission ensure that mitigation measures are in place to preserve the features associated with the Cogstone Site's winter and summer solstice alignments. Destroying known alignments and others yet to be identified at site could result in destroying critical information concerning America's most ancient naturally occurring astronomical observation site.

Thank you for you attention to this matter.

Sincerely,

Larry Myers
Executive Secretary

CC: Teresa Henry, Coastal Commission
Louise Jeffredo-Warden, Maritime Shoshone, Inc

DIANNE FEINSTEIN
CALIFORNIA

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COASTAL COMMISSION

COMMITTEE ON APPROPRIATIONS
COMMITTEE ON ENERGY AND NATURAL RESOURCES
COMMITTEE ON THE JUDICIARY
COMMITTEE ON RULES AND ADMINISTRATION
SELECT COMMITTEE ON INTELLIGENCE

United States Senate

WASHINGTON, DC 20510-0504
http://feinstein.senate.gov

August 4, 2004

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CALIFORNIA
COASTAL COMMISSION

Mr. Peter Douglas, Executive Director
California Coastal Commission
45 Fremont Street, #2000
San Francisco, California 94105

Dear Mr. Douglas:

I am writing in regard to the California Coastal Commission's pending consideration of a permit to allow for the development of 379 homes on the Bolsa Chica Mesa at a site referred to as CA-ORA-83 or "Cogged Stone."

I was recently contacted by Louise Jeffredo-Warden, a Native American activist working on behalf of the Maritime Shoshone, who is concerned that the Commission may act on this issue without fully considering the impact on the site's sacred, historical and archeological values, especially as it relates to Native Americans. As you know, the Cogged Stone site has been nominated to the National Register of Historic Places.

I recognize that development of Bolsa Chica has been the subject of intense debate over the last three decades, and significant effort has been made to negotiate acceptable terms with the land owners to preserve some of the land. However, I would urge the Commission to fully consider the concerns being raised by Ms. Jeffredo-Warden on behalf of the Maritime Shoshone. I would also ask that you consider identifying mitigation appropriate measures to protect the sacred and historical values of this site.

If I can be of further assistance, please do not hesitate to contact James Peterson in my San Diego office at (619) 231-9712. Thank you very much for your consideration of this important matter.

Sincerely,

Dianne Feinstein

FRESNO OFFICE:
1130 O Street
Suite 2446
Fresno, CA 93721
(559) 485-7430

LOS ANGELES OFFICE:
11111 Santa Monica Boulevard
Suite 915
Los Angeles, CA 90025
(310) 914-7300

SAN DIEGO OFFICE:
750 B Street
Suite 1030
San Diego, CA 92101
(619) 231-9712

SAN FRANCISCO OFFICE:
One Post Street
Suite 2450
San Francisco, CA 94104
(415) 393-0707

INTERNATIONAL INDIAN TREATY COUNCIL

2390 Mission St., Suite 301
San Francisco, CA. 94110

Telephone (415) 641-4482
Fax (415) 641-1298
email:alberto@treatycouncil.org

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JUL 2 1 2004

CALIFORNIA
COASTAL COMMISSION

July 15, 2004

Mr. Peter Douglas
Executive Director
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: CA-ORA-83 Bolsa Chica Mesa (Cogged Stone) Site

Dear Mr. Douglas,

Please receive our respectful greetings.

The International Indian Treaty Council is a not-for-profit 501(c) 3 California corporation. Since its founding in 1974 at Standing Rock, South Dakota, by the American Indian Movement, the IITC has worked internationally for the Sovereignty and Self Determination of Indigenous Peoples and the recognition and protection of Indigenous Rights, Treaties, Traditional Cultures and Sacred Lands. In 1977 the United Nations Economic and Social Council accorded the IITC Consultative Status II, now Special Consultative Status, the first Indigenous Non-Governmental Organization in the world accorded this status. It is in this role that we write to you to express our profound concern about the California Coastal Commission's refusal to require mitigation measures to protect the unique nature and spiritual significance of the archaeoastronomical resources at the CA-ORA-83 Bolsa Chica Mesa site.

The Indigenous Peoples of the Western Hemisphere, particularly Native Americans in California have had to endure much since contact with Europeans. Our people have been massacred, their histories, cultures and spirituality destroyed. You may not be aware that the Great State of California floated a bond issue during the gold rush, to pay $5 for an Indian man's head, $2.50 for a woman's head and 50¢ for the head or scalp of a child. We did not become citizens of the United States until 1936. This racism, both individual and institutional, continues to plague us.

Our spirituality is tied to the land and places of spiritual and historical significance. Bolsa Chica Mesa is one such place, where the survivors of California's genocidal history are attempting to recover historical memory. I would refer you to a recent PBS broadcast, "Thieves of Time" (search Chaco Canyon at http://www.pbs.org) where it was shown that the extensive Chaco Canyon ruins in New Mexico were studied for decades before their archaeoastronomical significance were even faintly realized. The Costal Commission would have this Sacred Place, the Bolsa Chica Mesa site, CA-ORA-83,

destroyed even before its significance is realized. There is a historical debt owed California Native Americans by the State of California including its Coastal Commission. The uncountable wealth of this State was generated at the expense of Native American lives, lands and cultures. It is time to deal fairly with California Indians.

The Coastal Commission should be aware that archaeoastronomy is a recognized sub-field of archaeology and is clearly recognized as such under California law. The Bolsa Chica Mesa site is not only North America's oldest observatory site, it is the world's oldest known solstitial alignments. We have our own Stonehenge here in California. We didn't ravage the land nor build megaliths – our ancestors found, though intelligence and ability alone, extremely accurate observatories already in existence in the environment

We are particularly concerned that your staff person who was formerly in charge of the Bolsa Chica project apparently never incorporated the Bolsa Chica Mesa materials in the materials to be considered by the Commission. We understand that the Coastal Commission is just now learning of its nomination to the National Register of Historic Places. We are informed that the Commission should have been aware of this nomination for more than a year and a half. The nominators apparently did not receive timely notification of the Coastal Commission process, a denial of due process. For most holders of public office even the appearance of impropriety is something to be avoided. If our understanding is correct, in this case there is at a minimum an appearance of impropriety.

For these and other reasons, we urge the Coastal Commission to properly consider this site and the mitigation measures necessary to protect this Sacred Place in its totality, not only in the interests of Native Americans, but of all Americans and posterity. Would the Coastal Commission allow the destruction of Stonehenge? How would it mitigate that?

Thank you for your consideration.

for all my relations,

Alberto Saldamando
IITC General Counsel

cc: Louise V. Jeffredo-Warden
Andrea Carmen, IITC Executive Director

Utah Valley State College

School of Science and Health
Department of Physical Science

South Co
JUL 19 2004
CA
COASTAL CO

13 July 2004

Mr. Peter Douglas
California Costal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Dear Mr. Douglas,

As one who has done cultural astronomy research for more than three decades as well as having been involved in public science education in museums and planetariums for more than four decades, I am writing to express concern about and to encourage protection of the CA-ORA-83 (Cogged Stone) Site. Having reviewed informational reports and documents regarding this site, I consider it to be an archaeological treasure of the highest importance. The age of the site alone classifies it as one of the most important cultural sites in the country, and the fact that it relates to other costal sites from California clear down into South America makes it all the more important. The distinctive sculptured stones found at these sites suggests that they are of particular significance in ways which are not yet well understood. If any of the sites are lost the chance of understanding how they relate to the development and spread of cultures in the Americas will be irreparably reduced. Thus, I urge you to do everything possible to be certain that this site is not destroyed through development, vandalism or any other means that are avoidable.

The fact that CA-ORA-83 is located on a high point with spectacular vistas all the way around the horizon, combined with the carved stone artifacts that distinguish the site, makes it one of particular interest in the field of cultural astronomy. Since detailed archaeoastronomy field work has not yet been done at the site, it is imperative that it be protected so that such work can be done. Please also note the growing public interest in cultural astronomy that should make anyone with authority to control the site want to preserve it in ways that can be enjoyed by the public for all time. Thus, this place offers an excellent opportunity both for research and for public enrichment.

It is my understanding that individuals well qualified for research in archaeoastronomy are eager to begin research at CA-ORA-83 if the site will be protected and made available to them for their work. Again, I urge you to help make this possible.

Cultural astronomy is often said to be an interdisciplinary science, but it really should be classified as part of anthropology. It can be divided broadly into archaeoastronomy and ethnoastronomy. My own work has been primarily in ethnoastronomy with focus on Native American astronomical traditions. The part of archaeoastronomy which deals with investigations relating to astronomically significant sight lines is, without question, simply an extension of well-established methods of archaeology, and thus should be considered to be part of archaeology. Please do not be mislead to think that archaeoastronomy is not part of archaeological research. As long as archaeoastronomy research has not yet been done at CA-ORA-83, the archaeological work at the site remains incomplete.

800 West 1200 South • Orem, UT 84058-5999, Telephone 801 • 222 • 8980, Facsimile 801 • 222 • 8064

Every time we lose archaeological sites to development it is a disaster to those interested in understanding our rich American cultural heritage. We are so often so very short-sighted to what is really important and let short-term economic factors become determining factors when we should be considering what is best for everyone in the future rather than just for a few at the moment. We have lost and continue to lose cultural treasures of immense value. So, I urge you to be clear in recognizing the significance of CA-ORA-83 and do whatever is required to preserve it. Even if the greater site must be developed, please be sure that at least the prime location is preserved in some kind of small park, monument or National Historic Site that is made available for continuing research and for the enjoyment of residents in and visitors to the area.

Should you wish any further information from me, please communicate with me at my home address. I am infrequently at my college office. My home information is: 3583 Eastwood Dr., Salt Lake City, Utah 84109; telephone (801) 277-8104; email von_del@lgcy.com. I will be pleased to help with the preservation of this highly interesting and important site in any ways I can.

Sincerely,

Von Del Chamberlain
Scholar in Residence
Pope Southwest Desert Institute

cc: Teresa Henry

July 14, 2004

JUL 19 2004
CALIFORNIA
COASTAL COMMISSION

Mr. Peter Douglas
Executive Director
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: The CA-ORA-83 (Cogged Stone) Site

Dear Mr. Douglas,

I am writing in support for the preservation of archaeological resource CA-ORA-83, also known as the Cogged Stone Site. As an archaeologist, and having been involved with archaeoastronomy for almost 30 years, I cannot stress how important it is to preserve important cultural resources such as the Cogged Stone Site.

Although this site has been extensively recorded and test excavation has taken place, there are a number of reasons why this site should be protected from development and further damage, particularly since many adjacent sites have already been destroyed. Among these reasons include, the antiquity of the resources present, making it among the oldest documented sites in California; the presence of human burials, the uniqueness of the cogged stones, and perhaps most important, the astronomical significance of the site. Throughout the world, governments, landowners, and individuals have recognized the important of astronomy to the cultural heritage of a people and a region. That is why today, we can visit places such as Stonehenge in England or the observatory at Chichen Itza, in the Yucatan Peninsula.

One of the last publications issued from an archaeological pioneer, Francis Riddell, recently chronicled the status of the archaeology of the San Joaquin Valley (Riddell 2002, The Status of San Joaquin Valley Archaeology. An Essay in California Archaeology; University of California Archaeological Research Facility, Contribution Number 60. Berkeley). He suggested that up to 90% of all the archaeological sites, including most of the significant and important village sites have been largely destroyed. While Riddell was addressing California's central valley, the same can be said for most of California, particularly those regions that have been and continue to face the pressures and demands of a growing need for residential and commercial development.

It is rare to have the opportunity to protect and preserve a site with such obvious cultural significance as CA-ORA-83. Such an opportunity does not occur often. Right now your commission has such an opportunity. Setting aside a few acres out of many may prevent a few houses from being built, but it preserves a fragile and significant cultural resource. We can always build new houses, but we cannot bring back a site once it has been destroyed. It is indeed sad that so many of California's significant cultural resources have either been damaged or destroyed and lost forever. Much of this destruction took place before California had adequate laws in place to protect our fragile

heritage and cultural landmarks. It is even sadder when we have the chance do something to preserve a tiny piece of real estate, but for economic, personal or other reasons, choose not to do so. All too often, during the expansion of American society and culture, we have built over or through countless remains of past cultures and periods of American history, particularly the cultural remains of native peoples.

In this age of cultural enlightenment, I am surprised that anyone would challenge or question the need to protect the Cogged Stone site. Please do not allow such a mistake to occur here. I urge you and your commission to take the necessary steps to preserve the few acres of land that comprise CA-ORA-83. Thank you.

Sincerely,

Robert A. Schiffman

Professor of Anthropology
Bakersfield College
1801 Panorama Drive
Bakersfield, CA 93305

University of Washington

Department of Earth and Space Sciences
Campus Box 351310
Seattle, WA 98195-1310

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CALIFORNIA
COASTAL COMMISSION

13 July 2004

Mr. Peter Douglas
Executive Director
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: CA-ORA-83 (Cogged Stone) Site

Dear Mr. Douglas:

I understand that the California Coastal Commission has declined to require the mitigation measures to protect the CA-ORA-83 archaeological site on Bolsa Chica Mesa. The purpose of this letter is to support the preservation of the site.

Let me establish first that I am a professor of geology (Earth & Space Sciences; Caltech, 1982) and not archaeology. However, I have published on the dating of archaeological artifacts and sites and also on archaeoastronomical sites in eastern California, and I am the Editor of the prominent journal *Quaternary Research*, dedicated to interdisciplinary research covering the last million years and certainly including Holocene (last 10,000 years) archaeology. Therefore, I have been exposed to a lot of pertinent articles and talks, and have done research in pertinent fields.

My understanding is that the site is characterized by four unique or unusual features:

1) Radiocarbon dating has established that the site was continuously or intermittently occupied through most of the Holocene, from about 9500 years ago until about 1000 years ago.
2) Numerous ground-stone artifacts such as "cogged" stones, discoidals (well-rendered discs), and spheres have been recovered from early dated horizons, suggesting to some an astronomical theme for the early inhabitants.
3) Viewed from the site, the sun at the winter and summer solstices rises and sets over prominent landmarks, a pattern documented elsewhere (e.g., Gila River) to represent intentional and systematic astronomical-calendrical observation.
4) Comparative studies have suggested an affinity between artifacts and solar-sighting patterns with South American coastal sites.

To me, the documented duration of occupation is a strong reason for preservation. Very few sites have that long of a record. There is a village in the Aleutian Islands, for example, but most sites have been inhabited for shorter periods of time. Why does this matter? Big issues in archaeology and anthropology concern the way in which people adapted their culture and economic systems to changing climate and environmental pressures. These have affected California in the past – for example, Dr. Scott Stine (Cal State Hayward) documented severe droughts in California that far exceed anything European man has witnessed here since contact. One of the most severe climate excursions that modern man has had to cope with was at the close of the ice age, when after a warming period glacial conditions (Younger Dryas period) returned abruptly for 800 years. A town in Syria was documented to have been inhabited from 13,000 to 8000 years ago, a span of time that includes this sudden climate worsening. Before, villagers were hunters; immediately after, the hunt failed and made the irrevocable change to agriculture, all caught in the archaeological record. At Bolsa Chica, settlement began after the Younger Dryas, but the 8500-year-long record is a precious resource for study. If Signal Landmark's proposed development is permitted, this precious resource will be lost for ever.

Nor is this a matter for rushed salvage archaeology. Often it is the spatial context, lost during archiving in a museum, that perhaps future questions to be addressed successfully. A site with an 8500-year-long record is simply to valuable to be subjected to development.

The next compelling reason for preservation has to do with the possible connection with Chilean sites. This is not as far-fetched as it might seem. Today, the oldest commonly accepted sites in the Americas are in the Southern Hemisphere (e.g., 14,000 years ago, Monte Verde, Chile). How did the inhabitants get there? If the walked from the Bering Land Bridge, why have we found no sign of there passage in North America? Could they have paddled or rafted that long distance? They had to get there somehow, and a correlation of artifacts and practices to maritime California – even one as late as 9500 years ago – still may have much to teach us about the peopling of our hemisphere. (For a recent published discussion, please see David J. Meltzer, 2004, Peopling of North America, in Gillespie, A.R., Porter, S.C., and Atwater, B. F., *The Quaternary Period in the United States*, Elsevier, 584 pp.)

The third reason for preservation is the possible astronomical evidence. It is well-known that California Indians practiced a sophisticated measurement and observation of the sun and stars throughout the year, with an emphasis on the solstices (beginning of summer and winter). For example, the Chumash people – and people in Baja California – painting calendrical and astronomical pictographs on the walls of rock shelters in the period leading up to contact. Similarly, people in the Four-Corners area also made solar observations that established specific days of the year, for example by observing the sun's image against a marked wall. The Coso Shoshone of eastern California also marked the seasons with simple but surprisingly accurate petroglyphs that delineated interplay between light and shadow patterns as the setting sun moved north or south on the horizon – as long ago as 2300 years, as estimated from discrepancies introduced by the progressive change in the tilt of the earth's axis.

So it is not surprising that the Island Shoshone and Luiseno people or their ancestors might have practiced some kind of astronomy... but the possibility that it is such an ancient practice begs further study. Here is why: most archaeological artifacts give some indication about the day-to-day habits and practices of people. Others show off the unusual environment of some head of state. But little evidence showcases the thinking of ancient peoples. Tools maybe come closest, but clues left in astronomical sites must be high on the list. For example, in Inyo County there is a petroglyph that clearly refers to the sun rising on what is known as the cross-quarter day (Mayday or Beltane, for example), halfway between the equinox and the solstice. Here is the problem: because the earth's orbit is not a perfect circle, you are free to define "halfway" several ways. For two examples: take the day of the equinox, and the day of the solstice, and divide the time difference in two. Or, take the azimuth of the setting sun on those days, and bisect that. The two definitions of the cross-quarter day correspond to two different sunset azimuths, and the difference can be deduced from the workings of the solar petroglyphs and the light/shadow interplay. So, was angular measurement understood in California 8000 years ago? If the Bolsa Chica site is astronomical, and if the astronomical evidence is ancient, then this site must be preserved.

I hope this letter has not taken too much of your time. Many find the questions raised here interesting and important in our continuing effort to chronicle and understand the development of modern man. If the Bolsa Chica site furthers that effort, then I feel that it should be protected from development.

Sincerely

Alan Gillespie

Alan Gillespie,
Professor

cc: Teresa Henry (fax: 562-590-5084)

CALIFORNIA STATE UNIVERSITY, LONG BEACH

DEPARTMENT OF ANTHROPOLOGY

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AUG 4 2004

CALIFORNIA
COASTAL COMMISSION

August 4, 2004

California Coastal Commission
PO Box 1450
Long Beach, CA 90802-4416

Dear California Coastal Commission:

I am writing to express my concern about Hearthside Homes/Signal Landmark's proposed development plans for the Bolsa Chica Mesa (Item #:Th 23e on you August 12 Agenda). Orange County does not need these homes, nor the two guard houses associated with them. Orange County does need to protect its remaining open space, especially in the densely urbanized area surrounding Bolsa Chica.

The entire Mesa area of Bolsa Chica needs to be preserved not only for its ecological and recreational value as open space, but also for its archaeological significance and its significance to living Native Americans.

It has been over ten years since, became I first became involved in the struggle to save all of Bolsa Chica, together with my good friend Lillian Robles, an elder of the Juaneno Nation. Lillian has since passed away, but her spirit still lives at Bolsa Chica, just as it does at Puvungna on my campus, and at the many other sacred sites Lillian fought so hard to preserve.

Unfortunately, I will not be able to attend your meeting on August 12, but I ask you, please, do not approve this development. Honor the memory of those who can before us and preserve all of the Bolsa Chica.

Thank you for your consideration,

Sincerely

Eugene E. Ruyle
Emeritus Professor of Anthropology

document it to understand the site's potentially important significance in the Native history of astronomy.

I realize the potential economic significance to the developer of holding up development plans. On the other hand, I am deeply aware from numerous similar examples of the loss to scientific and cultural knowledge engendered by overhasty decisions to develop a potentially highly significant historical site. Too much of America's patrimony has already been irretrievably lost.

A few words are in order regarding my qualifications in commenting on the astronomical significance of CA-ORA-83. I have long been involved in archaeoastronomical studies and was one of the first North American scholars to examine the astronomy of Native North American peoples in a systematic way, with an extensive study of Ancestral Pueblo (Anasazi) sites in the Southwest. I am a founding editor of the journal *Archaeoastronomy* and have published several books on American Indian astronomy, ritual and mythology, as well as on the use of new technologies for the research and preservation of archaeological sites. I have attached a short version of my C.V. for your interest.

Ms. Jeffredo-Warden contacted me in Adelaide, Australia, where I am currently Chair of the Department of Policy and Law in the Summer Session Program of the International Space University, which is held in a different country each year. I am Research Professor of Space Policy and International Affairs at The George Washington University, Washington, DC, where part of my research is focused on the use of satellite remote sensing to document and provide information for preserving archaeological remains in threatened landscapes.

I hope the information will be of use in deciding about the disposition of the Cogged Stone Site. I can provide further information about the importance of archaeoastronomy in prehistoric Native studies if you have need of it.

Sincerely yours,

Ray Williamson
Research Professor
rayw@gwu.edu

BIOGRAPHICAL SKETCH

Ray A. Williamson
Research Professor
Space Policy Institute
2013 G St., NW Stuart 201
George Washington University
Washington, DC 20052
202-994-7292/fax: 202-994-1639
email: rayw@gwu.edu

Ray Williamson is a scientist/public policy analyst with a long-term scholarly involvement in archaeology, the history of the U.S. space program, historic preservation, and the folklore/folklife of the American Indian. At the Elliott School of International Affairs, his research focuses on the use of satellite remote sensing and geographic information systems for natural and cultural resources. Earlier, as a Senior Associate at the Office of Technology Assessment of the U.S. Congress, he was project director for: *Technologies for Prehistoric and Historic Preservation* (1986), *Technologies for the Preservation of Prehistoric and Historic Landscapes* (1987), and *Technologies for Underwater Archaeology and Maritime Preservation* (1987).

Dr. Williamson received his B.A. in physics from the Johns Hopkins University and his Ph.D. in astronomy from the University of Maryland, and spent two years on the faculty of the University of Hawaii studying diffuse emission nebulae. He taught philosophy, literature, mathematics, physics and astronomy at St. John's College, Annapolis for ten years, the last five of which he also served as Assistant Dean.

In 1977-78, he was named a Smithsonian Fellow to study the astronomical practices of precolumbian and historic Native Americans. He has published numerous articles on historic preservation and the astronomy and ritual of the prehistoric Pueblo Indians. He has written or edited seven books on archaeology and/or Native American traditions. Published books include:

2000 *Advances in Science and Technology for Historic Preservation*, Plenum Press, co-editor.

1997 *Cowboys and Cave Dwellers: Basketmaker Archaeology in Utah's Grand Gulch*, School of American Research Press, co-author, with Fred Blackburn.

1993 *First Houses: Native American Dwellings and Sacred Structures*, Houghton Mifflin, co-author.

1992 *Sky and Earth: Visions of the Cosmos in Native American Folklore* (University of New Mexico Press,), co-editor, with Claire R. Farrer.

1987 *They Dance in the Sky: Native American Star Myths*, Houghton Mifflin, co-author.

1984 *Living the Sky: The Cosmos of the American Indian* Houghton Mifflin; University of Oklahoma, 1987.

1981 *Archaeoastromy in the Americas,* Ballena Press, editor.

Dr. Williamson is a contributing editor to the journals *Archaeoastronomy* and *Space Policy*, and writes extensively on historic preservation issues, space program history, Native American mythology, ritual, and cosmology. He has lectured on remote sensing and geographic information systems at national and regional forums. He has also served as seminar leader for the Crow Canyon Archaeological Center, Cortez, Colorado, and on the Society for American Archaeology Committee, "Saving the Past for the Future." Dr. Williamson was one of the few non-Indian participants in the 1994 Indian-sponsored conference, "Indian Astronomy," Boulder, CO. He has served as consultant to University of Pennsylvania Museum Permanent Exhibit, "Living in Balance: The Universe of the Hopi, Zuni, Navajo and Apache" (1995) and to the Carnegie Museum's Alcoa Foundation Hall of American Indians (1998). He was also a principal consultant and participant in The Discovery Channel documentary, *America's First Astronomers* (1996). More recently, he reviewed part of the permanent exhibit for the new Smithsonian Museum of the American Indian.

Dr. Williamson is past president of the Commission on Professionals in Science and Technology. His awards include recognition from The American Society for Conservation Archaeology, "for outstanding contributions to the cause of archaeology and historical preservation and the appreciation of our cultural heritage."

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Sincerely yours,

Ray Williamson
Research Professor
rayw@gwu.edu

INTERNATIONAL SPACE UNIVERSITY
ISU
for future space leaders

South Coast Region
SEP 03 2004
CALIFORNIA COASTAL COMMISSION

Mr. Peter Douglas
Executive Director
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Adelaide, South Australia 21 July 2004

Subject: **The Cogged Stone Site**

Dear Mr. Douglas,

I am writing at the request of Louise V. Jeffredo-Warden, agent for the Maritime Shoshone. She has forwarded to me the Registration Form and Nomination of the Cogged Stone Site, CA-ORA-83, to the National Register of Historic Places. She also forwarded additional written materials that would help me understand the geographical and archaeological setting of the site, including detailed maps. I am also generally familiar with Huntington Beach and the surrounding area, having visited there numerous times in connection with my professional work in the U.S. space program.

I have examined these materials with care and concluded that the site may be a highly significant archaeoastronomical site that deserves additional, systematic research related to its astronomical potential. It is well known that the historical Indians of the region had an extremely sophisticated knowledge of astronomy related to their needs to provide sufficient sustenance during the yearly solar cycle. Much of this knowledge is related to the sun, but they were also keen observers of the moon and stars. It is highly likely that their distant ancestors possessed equivalent celestial information. If, indeed, the alignments can be linked with confidence to the age of the site and its material remains, it would add immeasurably to our understanding of the prehistoric knowledge of the Native Peoples of the State of California.

Although the material remains at the site have been well documented, it is unlikely that the astronomical information from the Cogged Stone Site is sufficiently well recorded to reach scholarly conclusions about its astronomical significance. Because I have attempted with scant success to use detailed maps and other archaeological information to understand the astronomical significance of well documented sites, I can attest that recording and interpreting the potential astronomical information of a site requires first hand examination and recording by a professional skilled in archaeoastronomical techniques.

Ideally, the site should be preserved, but if that is not possible under California law, then it is my view that any development of the site should be held in abeyance until qualified professionals with a knowledge of both California archaeology and astronomy can examine and sufficiently

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South Coast Region

SEP 2 2 2004

CALIFORNIA
COASTAL COMMISSION

LAW OFFICES OF
PAUL KLEVEN

1604 SOLANO AVENUE
BERKELEY, CA 94707

TELEPHONE (510) 528-7347
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e-mail: pkleven@aol.com

September 20, 2004

Milford Wayne Donaldson
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 94296-0001
Sacramento, CA 94296-0001

RE: CA-ORA-83 (Cogged Stone Site)
Nomination to National Register of Historic Places

Dear Mr.Donaldson:

On behalf of Louise V. Jeffredo-Warden, I am writing in response to Susan K. Hori's September 3, 2004 letter to you. While I believe there are some misstatements in that letter that need to be corrected, I was relieved to see that Ms. Hori did not resort to the personal attacks used by Nancy A. Whitney-Desautels in her August 10, 2004 letter to the California Coastal Commission. Since Ms. Hori attached the Whitney-Desautels letter to hers, I have also attached my September 13, 2004 response to that letter.

At the outset, and as I imagine you have already noted, Ms. Hori's letter contains a glaring internal inconsistency that largely undermines her purported reason for sending it. While Ms. Hori expresses outrage that the Commission did not provide earlier notice of Ms. Jeffredo-Warden's nomination because the landowner could be "significantly impacted," she insists that the nomination is "totally redundant" because the Commission could never require "any greater degree of protection" for CA-ORA-83 than it will receive from a November 2001 nomination.

Obviously, Ms. Hori would not have wasted the time and effort necessary to write her letter if the second proposition were true, and it is not.

Contrary to Ms. Hori's implications, the November 2001 nomination did not result in comprehensive protection for CA-ORA-83, and in fact was rejected and returned by the National Register of Historic Places in May 2002. Ms. Jeffredo-Warden had disagreed with many of the positions taken by Dr. Patricia Martz in that nomination, objecting repeatedly to what she viewed as Dr. Martz's inaccurate scholarship and her unauthorized use of Ms. Jeffredo-Warden's own work. In returning the nomination, the National Register largely agreed with Ms. Jeffredo-Warden.

When Dr. Martz submitted her revised nomination in May 2003, she specifically claimed that she was not relying on Ms. Jeffredo-Warden's extensive scholarship regarding CA-ORA-83, and the nomination made no mention of archaeoastronomical mitigation. Ms. Jeffredo-Warden

objected to the unauthorized and undocumented use of certain elements of her scholarship, and again expressed serious concerns about the nomination as a whole, which she felt still fell below generally accepted academic standards.

In contrast to the Martz nomination, Ms. Jeffredo-Warden's May 2004 nomination of the CA-ORA-83 site to the National Register of Historic Places contains voluminous documentation of the archaeoastronomical characteristics of the site. The nomination does not simply reflect Ms. Jeffredo-Warden's "theories," but the opinion of the nation's leading experts in the fields of Native American and Native Californian archaeoastronomy and astronomy, as well as other nationally prominent scholars in the fields of archaeology and anthropology. Dr. Anthony Aveni, Dr. Von Del Chamberlain, Dr. Alan Gillespie, Dr. Alicia Gonzalez, Dr. Robert Schiffman, Dr. Deward Walker, Dr. Ray Williamson, Dr. Tom Hoskinson, and Dr. Ed Krupp have all expressed support for mitigation and preservation of the site.

Since the Martz nomination does not even acknowledge this critical scholarship, and Ms. Hori's client has lined up "experts" in an attempt to refute it, it is ludicrous to suggest that CA-ORA-83 is already adequately protected. There are no archaeoastromomers on the "peer review team." The archaeological work done by Scientific Resource Surveys was designed only to recover in-ground archaeological resources and ignored the unique archaeoastronomical characteristics of the site. The Commission should not be misled by Ms. Hori's vague claims about the preliminary conclusions of archaeologists who lack the expertise of archaeastronomers such as Dr. Hoskinson, who has done extensive work to document that the site's solstitial alignments were astronomically functional at the site from the time of its earliest dated occupation at least 9,000 calendar years ago.

Ms. Jeffredo-Warden's nomination meets all necessary documentation standards and, pursuant to state and federal law, you should certify CA-ORA-83 for inclusion in the National Register after the appropriate hearing.

Please call if you have any questions or concerns.

Very truly yours,

PAUL KLEVEN

cc: Teresa Henry
Peter Douglas

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September 13, 2004

VIA FACSIMILE AND FIRST CLASS MAIL

Teresa Henry, District Manager
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

Re: Defamatory letter from Nancy A. Whitney-Desautels
In Support of Application No. 5-04-192 (Brightwater)

Dear Ms. Henry,

On behalf of Louis V. Jeffredo-Warden, I am writing to reiterate my client's concerns about the false and defamatory statements contained in the August 10, 2004 letter from Nancy A. Whitney-Desautels of Scientific Resource Surveys, Inc. in support of Application No. 5-04-192 (Brightwater).

Unfortunately, we had not seen or heard about the letter until the end of last week, and so have not been able to respond previously. It is now my understanding that the Commission staff will be making recommendations about the issues addressed in this letter sometime this afternoon, which causes me considerable concern given our inability to respond in detail on such short notice.

Instead of responding scientifically to Ms. Jeffredo-Warden's objections, Ms. Whitney-Desautels primarily levels an *ad hominem* attack on Ms. Jeffredo-Warden. While I would hope the Commission would ignore such attacks, I am writing to ensure that Ms. Whitney-Desuatels' attack does not mislead the Commission.

As one example of Ms. Whitney-Desautels' approach, she makes the following statement:

> *To my knowledge, Ms. Jeffredo-Warden has never been on Ora-83, and if she has, she certainly has not spent the necessary time in the field to test her hypothesis that this site once functioned as a prehistoric astronomical observatory.*

Ms. Whitney-Desautels would, of course, have no way of knowing whether Ms. Jeffredo-Warden had ever been on the site, and her statement that Ms. Jeffredo-Warden has written a 140 page nomination of the CA-ORA-83 site to the National Register of Historic Places without ever setting foot there is not only false but also defamatory. As is clear from the nomination and other documents with which Ms. Whitney-Desautels is undoubtedly familiar, Ms. Jeffredo-Warden has

visited and documented aspects of this site numerous times, and has made the requisite observations accompanied by nationally known scholars such as Dr. Alicia Gonzalez (Executive Director, Museum of the American West, Autry National Center.)

Ms. Whitney-Desautels also states that:

> *Ms. Jeffredo-Warden's theories about the archaeoastronomical characteristics of Ora-83 are unfounded and have never been demonstrated as factual by Ms. Jeffredo-Warden or any other individual.*

As you are aware, the nomination of the CA-ORA-83 site to the National Register of Historic Places contains voluminous documentation of the factual basis for its statements about the archaeoastronomical characteristics of the site, which are not simply Ms. Jeffredo-Warden's theories, but also the opinion of the nation's leading experts in the fields of Native American and Native Californian archaeoastronomy and astronomy, as well as other nationally prominent scholars in the fields of archaeology and anthropology. Dr. Anthony Aveni, Dr. Von Del Chamberlain, Dr. Alan Gillespie, Dr. Alicia Gonzalez, Dr. Robert Schiffman, Dr. Deward Walker, Dr. Ray Williamson, Dr. Tom Hoskinson, and Dr. Ed Krupp have all expressed support for mitigation and preservation of the site.

Through measurements and sophisticated, era-specific astronomical computations, Dr. Hoskinson has confirmed that the site's solstitial alignments were astronomically functional at the site from the time of its earliest dated occupation at least 9,000 calendar years ago, through the current era, supporting our position that the CA-ORA-83 site apparently constitutes North America's earliest reliably dated observatory site.

Ms. Whitney-Desautels attempts to counter the universal scientific opinion against her by referring vaguely to opinions expressed privately to her by members of the peer review team with whom she shared Ms. Jeffredo-Warden's July 14, 2004 letter to Peter Douglas. It is unclear which of the reviewers provided such an opinion, or whether any of them performed any actual work before responding. Apparently, Ms. Whitney-Desautels chose not to share the nomination itself with any of the reviewers. In the absence of any documentation of such opinions, the Commission should disregard these statements.

Ms. Whitney-Desautels states and implies that Ms. Jeffredo-Warden is misleading the Commission about the need for mitigation, because prior archaeological mitigation measures addressed all astroarchaeological concerns. This is simply false – the prior archaeological mitigation was specifically designed to recover in-ground archaeological resources (whether or not the artifacts are associated with astronomical observation), but was not intended to ensure, and did not ensure the protection of CA-ORA-83 site's archaeoastronomical resources.

Without citing a single document or any other proof, Ms. Whitney-Desautels states:

> *Ora-83 has been evaluated for astronomical features, and its physical location does not support the use proposed by Jeffredo-Warden.*

This claim that a scientific evaluation has completely undermined Ms. Jeffredo-Warden's position is false and defamatory. Ms. Whitney-Desautels simply ignores the evidence given to the Commission by recognized experts in the field, while providing no support for her statements about observations made by unnamed archaeologists.

Ms. Whitney-Desautels' attempt to bolster her vague claims by referring to Native American consultations at the site ignores the actual history of development at the site, which has excluded the most knowledgeable Native Americans. While CA-ORA-83 falls within territory traditionally and ethnographically attributed to Island/Adjacent Mainland Coast Shoshones, these maritime people are not currently functioning at the site as the Native American Heritage Commission's recommended Most Likely Descendants.

Finally, Ms. Whitney-Desautels states and implies that due to Ms. Jeffredo-Warden's deceptions she and her client have been unaware of "any of the concerns she has regarding cultural resources." Ms. Jeffredo-Warden has been quite vocal about her position on CA-ORA-83 for decades, and has personally attended meetings where Ms. Whitney-Desautels has been present. She has followed all appropriate notice requirements pertaining to her nomination.

Ms. Whitney-Desautels' claim that Ms. Jeffredo-Warden deceptively "omit[ted] the fact" that she had submitted a "request ... to nominate" CA-ORA-83 in 2001 is completely misleading, because she was simply responding to a nomination made by non-Natives which contained inaccuracies. At her request, the nomination was returned. The information contained in the current nomination regarding the site's archaeoastronomical resources was never taken into consideration when mitigation measures were developed for the CA-ORA-83 site, because this information was not contained in the non-Natives' nomination.

On behalf of Ms. Jeffredo-Warden, I urge the Commission to disregard the misstatements contained in the letter, and consider the actual evidence in formulating your deliberations regarding the Application.

If you have any questions or comments, please do not hesitate to call.

Very truly yours,

PAUL KLEVEN

PK:kky

SCIENTIFIC RESOURCE SURVEYS, INC.
ARCHAEOLOGY HISTORY PALEONTOLOGY GEOSCIENCES

RECEIVED
South Coast Region
AUG 23 2004
CALIFORNIA
COASTAL COMMISSION

August 10, 2004

Teresa Henry
California Coastal Commission
200 Oceangate, 10th floor
Long Beach, CA 90802

Re: Mitigation of CA-Ora-83, The Cogged Stone Site (Bolsa Chica).

Dear Ms. Henry,

It has come to my attention that you and your staff have been receiving letters from Ms. Louise Jeffredo-Warden and the law offices of Paul Kleven in Berkeley, California, regarding the alleged use of archaeological site Ora-83, the Cogged Stone site, as an ancient astronomical observatory and regarding the need for additional mitigation. Ms. Jeffredo-Warden's theories about the archaeo-astronomical characteristics of Ora-83 are unfounded and have never been demonstrated as factual by Ms. Jeffredo-Warden or any other individual.

1. The archaeoastronomical allegations regarding Ora-83 are unfounded.

As you know, Ora-83 has been one of the most studied archaeological sites in California. The Coastal Commission approved peer review team for archaeological work at this site has included highly respected archaeologists such as Dr. William Wallace, Dr. Claude Warren, Dr. Henry Koerper, Professor Franklin Fenenga, Dr. Lowell Bean, Dr. Roger Mason, Dr. Paul Chace, and Mr. Paul Langenwalter. Each of these experts has spent considerable time on the site and reviewed the findings of the archaeological mitigation. All of the peer reviewers are very familiar with the extensive literature and research regarding prehistoric Native American settlement and site use in California. I have shared Ms. Jeffredo-Warden's July 14, 2004 letter to Peter Douglas with members of the peer review team, and they uniformly concluded that her statements about this site are without merit and not supported by any anthropological data.

To my knowledge, Ms. Jeffredo-Warden has never been on Ora-83, and if she has, she certainly has not spent the necessary time in the field to test her hypothesis that this site once functioned as a prehistoric astronomical observatory.

2. The Coastal Commission and County of Orange have imposed extensive mitigation requirements on Ora-83 to avoid adverse impacts of the proposed project.

As you are aware, Scientific Resource Surveys, Inc. and other archaeological firms have extensively investigated this site for a period of over thirty years. The Brightwater development application currently pending before the Coastal Commission will not adversely impact the archaeological site at Ora-83 because the special conditions imposed by the Coastal Commission on archaeological excavation permits and the mitigation measures and conditions of approval imposed by the County of Orange to mitigate the impact of future development on this resource have already been implemented. The adequacy of the County's cultural resource mitigation measures was also upheld by a court of law. These measures providing for mitigation through data recovery of the site were specifically designed to recover archaeological resources, including any artifacts associated with archaeoastronomy. Comprehensive and systematic archival efforts, surface surveys, test excavations and data recovery programs, conducted pursuant to Coastal Development Permit 5-89-772, were completed by SRS in 2002. The amount of archaeological work accomplished on this site over the past 33 years is staggering, far exceeding any normal investigative sample. The result of these data recovery programs is that approximately 97% of ORA-83 has been excavated, and the materials recovered during excavation are undergoing scientific analyses.

3. Ora-83 has been evaluated for astronomical features, and its physical location does not support the use proposed by Jeffredo-Warden.

The mitigation measures and special conditions imposed by the County and Coastal Commission further required that all work be monitored by Native Americans and that consultation with a number of Orange County Native American tribal representatives be undertaken. All of the Orange County Native American tribal representatives identified for this property by the Native American Heritage Commission have visited the site, been briefed on the archaeological work, and have had opportunities to study the artifacts in the overall context of the site. As a result of those Native American consultations and of discoveries elsewhere in Orange County of solstice related archaeological features, the studies at Ora-83 included repeated attempts to investigate whether or not Ora-83 was a solstice observation site. Solstitial observations were made several consecutive years between 1998 and 2002 in order to address the possibility that this site may have functioned as an ancient observatory. Astronomical and geographical alignments were calculated using the 'Voyager' program to see if any correlations existed between projected alignments and the position of the site. No exact correlations could be documented, a fact that was verified by numerous field observations of the horizon during seasonal solstices.

4. Response to the Jeffredo-Warden Nomination.

Ms. Jeffredo-Warden closes her letter requesting the opportunity to respond to the "developer's arguments" and alleging that the failure to adopt additional mitigation would be a violation of due process and equal protection. My client

and I find these statements highly ironic in that Ms. Jeffredo-Warden did not provide my client, the landowner of Ora-83, with a copy of her site nomination papers, nor has she communicated to either my client, the peer reviewers, or me any of the concerns she has regarding cultural resources. Moreover, Ms. Jeffredo-Warden omits the fact that in 2001 she submitted a request to the State Office of Historic Preservation to nominate Ora-83 to the National Register of Historic Places. The State Historical Resources Commission acted upon her request and has forwarded the nomination form, which includes her materials, to the Keeper of the National Register. This determination of eligibility was taken into consideration by the County in 2002 when it developed the mitigation measures for Ora-83 and approved the Brightwater project.

5. Conclusion.

In conclusion, given the extensive multi-disciplinary investigations and data recovery undertaken pursuant to coastal development permits, the site has been mitigated in accordance with Coastal Commission and County of Orange conditions and mitigation measures. There is no evidence to suggest that the Brightwater development will adversely impact ORA-83 or that any further mitigation measures are necessary other than grading monitoring and final site reporting which has been required by both the Coastal Commission and the County of Orange. Moreover, based upon actual studies conducted on site, there is no evidence to support the hypothesis that Ora-83 functioned as an astronomical site, and therefore no additional mitigation is required beyond that which have already been imposed by the County and the Coastal Commission.

If you have any questions or need further information, please feel free to call me

Sincerely,

Nancy A. Whitney-Desautels
President and Principal Investigator

cc: Ed Mountford, Hearthside Homes

SCIENTIFIC RESOURCE SURVEYS, INC.

ARCHAEOLOGY HISTORY PALEONTOLOGY GEOSCIENCES

August 10, 2004

Teresa Henry
California Coastal Commission
200 Oceangate, 10th floor
Long Beach, CA 90802

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To my knowledge, Ms. Jeffredo-Warden has never been on Ora-83, and if she has, she certainly has not spent the necessary time in the field to test her hypothesis that this site once functioned as a prehistoric astronomical observatory.

2. The Coastal Commission and County of Orange have imposed extensive mitigation requirements on Ora-83 to avoid adverse impacts of the proposed project.

ORANGE COUNTY OFFICE
tel 949/650-7728 fax 949/650-7758
P. O. Box 12268, Costa Mesa, CA 92627

• www.ScientificResourceSurveys.com •

INLAND EMPIRE OFFICE
tel 909/767-2555 fax 909/767-0305
P. O. Box 2349, Temecula, CA 92593

As you are aware, Scientific Resource Surveys, Inc. and other archaeological firms have extensively investigated this site for a period of over thirty years. The Brightwater development application currently pending before the Coastal Commission will not adversely impact the archaeological site at Ora-83 because the special conditions imposed by the Coastal Commission on archaeological excavation permits and the mitigation measures and conditions of approval imposed by the County of Orange to mitigate the impact of future development on this resource have already been implemented. The adequacy of the County's cultural resource mitigation measures was also upheld by a court of law. These measures providing for mitigation through data recovery of the site were specifically designed to recover archaeological resources, including any artifacts associated with archaeoastronomy. Comprehensive and systematic archival efforts, surface surveys, test excavations and data recovery programs, conducted pursuant to Coastal Development Permit 5-89-772, were completed by SRS in 2002. The amount of archaeological work accomplished on this site over the past 33 years is staggering, far exceeding any normal investigative sample. The result of these data recovery programs is that approximately 97% of ORA-83 has been excavated, and the materials recovered during excavation are undergoing scientific analyses.

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The mitigation measures and special conditions imposed by the County and Coastal Commission further required that all work be monitored by Native Americans and that consultation with a number of Orange County Native American tribal representatives be undertaken. All of the Orange County Native American tribal representatives identified for this property by the Native American Heritage Commission have visited the site, been briefed on the archaeological work, and have had opportunities to study the artifacts in the overall context of the site. As a result of those Native American consultations and of discoveries elsewhere in Orange County of solstice related archaeological features, the studies at Ora-83 included repeated attempts to investigate whether or not Ora-83 was a solstice observation site. Solstitial observations were made several consecutive years between 1998 and 2002 in order to address the possibility that this site may have functioned as an ancient observatory. Astronomical and geographical alignments were calculated using the 'Voyager' program to see if any correlations existed between projected alignments and the position of the site. No exact correlations could be documented, a fact that was verified by numerous field observations of the horizon during seasonal solstices.

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and I find these statements highly ironic in that Ms. Jeffredo-Warden did not provide my client, the landowner of Ora-83, with a copy of her site nomination papers, nor has she communicated to either my client, the peer reviewers, or me any of the concerns she has regarding cultural resources. Moreover, Ms. Jeffredo-Warden omits the fact that in 2001 she submitted a request to the State Office of Historic Preservation to nominate Ora-83 to the National Register of Historic Places. The State Historical Resources Commission acted upon her request and has forwarded the nomination form, which includes her materials, to the Keeper of the National Register. This determination of eligibility was taken into consideration by the County in 2002 when it developed the mitigation measures for Ora-83 and approved the Brightwater project.

5. Conclusion.

In conclusion, given the extensive multi-disciplinary investigations and data recovery undertaken pursuant to coastal development permits, the site has been mitigated in accordance with Coastal Commission and County of Orange conditions and mitigation measures. There is no evidence to suggest that the Brightwater development will adversely impact ORA-83 or that any further mitigation measures are necessary other than grading monitoring and final site reporting which has been required by both the Coastal Commission and the County of Orange. Moreover, based upon actual studies conducted on site, there is no evidence to support the hypothesis that Ora-83 functioned as an astronomical site, and therefore no additional mitigation is required beyond that which have already been imposed by the County and the Coastal Commission.

If you have any questions or need further information, please feel free to call me

Sincerely,

Nancy A. Whitney-Desautels
President and Principal Investigator

cc: Ed Mountford, Hearthside Homes

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SEP 10 2004

CALIFORNIA
COASTAL COMMISSION

146 La Grande
Moss Beach, CA 94038

September 10, 2004

Ms. Teresa Henry
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: Lawfully required mitigation of CA-ORA-83's archaeoastronomical resources

Dear Ms. Henry,

Thank you for your recent e-mails regarding the CA-ORA-83 observatory site.

As I have indicated to you, while I will attempt to respond to your e-mails as completely as possible, I cannot at this time provide the comprehensive mitigation plan which I believe is required under the California Coastal act. Under Public Resources Code sections 30006 and 30006.5, the Commission must interact with members of the scientific and academic communities in order to receive technical advice and recommendations before making its decisions.

While several experts in the fields of Native American and Native Californian astronomy, archaeoastronomy and calendrics have written to you regarding the need to mitigate the site, they need more time, as well as much more detailed topographic information, to prepare a comprehensive mitigation plan regarding the site's archaeoastronomical resources and informational values. Until expert, systematic archaeoastronomical investigation, research and analysis has been undertaken, the Coastal Act precludes development at the site.

As I have advised you, the map you faxed me (Exhibit 20, Brightwater [Bolsa Chica Mesa] project site plan), does not provide any topographic information, making it somewhat difficult to indicate the 7.4 acre nomination area's western boundary, which is defined by the 50' contour level. However, based on your assurance that our mark-up of this map will not be used to show the area's exact boundaries, we did the best we could to comply with your request to indicate the location of the astronomical observation grounds on the map, which I am faxing back to you as an attachment to this letter.

In response to your request that I also indicate the location of the 7.4 acre area in relation to referents such as the bluff edge, Los Patos Avenue, and Bolsa Chica Street, I referred you to attachment 2 of our nomination, which indicates the nomination area in relation to the entire Mesa, the bluff edge, and to Los Patos Avenue to the north, and Bolsa Chica Street to the east.

You have asked what types of development, if any, would be appropriate within the nomination area. Until the legally required, systematic archaeoastronomical investigation has occurred, of course, no development of any kind should occur. The staff's recommendation

that a 300 foot setback from the bluff edge be preserved, while welcome, does not constitute reasonable mitigation, and will not protect the CA-ORA-83 site's nationally significant archaeoastronomical resources and informational values from destruction.

Once historically relevant research and investigation has occurred, the site could be developed in a manner similar to that of the Honokahua Burial Site on the island of Maui. Visitors there are welcome to visit certain aspects of the site, but along designated paths leading to specific areas with interpretive information and the request that the sacred values of these specific areas (e.g., areas in which cairns were established and human remains excavated) be respected and not abused by foot traffic. Native Hawaiians also established historically consistent cultural reconstructions of particular religious resources at the site to increase public awareness and understanding respecting the cultural and religious values embodied and expressed by it.

The nomination area continues to retain the physical features and conditions – location, elevation, orientation, setting and visual attributes (the relevant horizon features outlying and surrounding it) – essential to conveying its historic associations, functions, and characteristics as an anciently enduring, Pacific-based solstice observation point.

After appropriate archaeoastronomical investigation and research has been conducted, graveled, non-permanent paths could be established to lead visitors to specific areas of the site at which significant sacred and religious resources and practices (including a burial cairn or cairns, rock features, cogged stones and other ceremonial sculptures, astronomical observation, time-keeping and astronomically-based ceremonialism) were apparently recognized, established, utilized and performed. Interpretive signage could be included at these locations to provide information concerning issues such as indigenous burial practices (including time-sensitive mourning ceremonies); the importance of solstitial and other astronomical observation to these practices and to the lifeways of indigenous Californians; the probable astro-cosmological significance of cogged stones; sacred geography; horizon calendrics and astronomy; and the significance of cogged stone sites in relation to the history of astronomy, art, religion and the colonization of Pacific coastlines of the Americas. A general kiosk coming into the site, which should probably be located in proximity to the nomination area's eastern boundary (the unimproved road currently extending south of Bolsa Chica Street), could explain the specific features of the Cogged Stone type site – one apparently found in both Americas.

Although historically accurate, non-invasive and non-permanent interpretive aids analogous to those encountered at the Honokahua site (e.g., illustrative examples of rock piles, cairns, and ceremonial rock art) could be established at the CA-ORA-83 site without affecting its historic integrity as a still functioning, naturally formed astronomical outlook and observation point which is also an integral component of a highly symbolic sacred environment, this would not be the case if permanent structures (residences or other buildings, a paved parking area, created

wetland or detention basin, etc.) were established within the 7.4-acre astronomical observation area.

Benches and public parking of any kind would not be appropriate within the 7.4-acre sacred site.

To maintain the historic integrity of one of the most culturally, religiously, historically and scientifically crucial aspects of this site and the nomination area, the site's solstice observation point, which is located in the southern portion of the nomination area, should in no way be degraded and impacted by the creation of a public hiking or biking trail through it; in fact, no trail, paved or unpaved, should run across it. To run a trail across it would be akin to placing a recreational path through a Christian church, Jewish synagogue, or Muslim mosque. Rather, the sanctity of this 9,000 - 9,500 year old sacred ceremonial site should be highly respected.

Concerning your questions regarding grading, the nomination area, relatively flat to begin with, has already been graded due to archaeological activities and programs. The grading did not affect the site's approximate elevation of 50' above sea level and so has not affected the site's historic integrity as an elevated plateau which is demonstrably fit for astronomical observation. Certainly, however, with any astronomical site, it is important to retain the existing site lines. As Dr. Tom Hoskinson, a recognized expert on Native American astronomy, archaeoastronomy, calendrics and rock art, has informed me, "With astronomical sites, particularly ones like CA-ORA-83 that will require further investigation, it is important to not obstruct/alter any of the site's local horizons."

Further grading of the area for the purposes of development could adversely impact the elevation, physical contours and form of the nomination area, and should not be permitted.

Are you also inquiring about grading in relation to potential landscaping (the removal of existing vegetation to be replaced with native vegetation)? If so, Native Americans do not support the unnecessary disturbance of habitat areas for cosmetic reasons. Any loss of environment, whether composed of Native and non-Native elements, is a significant loss. Animals, looking for concealment, food, nesting materials, and shelter, do not distinguish from non-Native and Native species. It has all become a part of their biological heritage. While including Native vegetation at interpretive points would certainly be welcome, and would probably facilitate the spread of certain species on their own, it would not be necessary to grade the 7.4 acres – or any portion thereof – for the purposes of replacing existing vegetation.

The 7.4-acre area of the CA-ORA-83 site that I, the nation's leading Native American organizations, and the nation's most prominent scholars in the fields of Native American and Native Californian astronomy and archaeoastronomy are requesting be preserved as the primary

element of the site's archaeoastronomical mitigation consists of elevated astronomical observation grounds which are demonstrably fit for both direct and indirect methods of solar observation. They include a naturally formed astronomical observation point with unobstructed, spectacular vistas of the surrounding horizon, the Pacific Ocean, certain coastal configurations (including an embayment and peninsula formation) and an offshore island, a pattern entirely consistent with the cogged stone sites of South America. They are also oriented to provide inland astronomical alignments and sight lines.

Their still functioning state and enormous research potential as one of the world's earliest observatory sites make them not only one of the Americas', but one of the world's, most significant 7.4 acres. Because their relevant outlying features are intact and functional in terms of their astronomical potential and we now know enough about the nature of astronomy in Native California to interpret, in relation to other important data obtained at the CA-ORA-83 site, observations made from these grounds as indicative of the CA-ORA-83 site's astronomical base, these 7.4 acres appear to retain the as yet untapped capacity to greatly push back the confirmed antiquity of astronomy in North America, as well as among the non-food producers of the ancient world. In light of this pivotal informational potential they are arguably among the nation's most historically and scientifically important treasures. As a recognized expert in Native Californian astronomy and calendrics, Dr. Robert Schiffman, has recently written regarding their preservation for future generations, "In this age of cultural enlightenment, I am surprised that anyone would challenge or question the need to protect the Cogged Stone Site."

Dr. Hoskinson has also written the following regarding the necessity of preserving the CA-ORA-83 site's archaeoastronomical resources, which include the entirety of the 7.4-acre nomination area and the site's known and potential alignments:

> The [CA-ORA-83] site has a naturally formed observation point (Jeffredo-Warden et al. 2004), which is at the intersection of the CA-ORA-83 winter and summer solstice alignments. These are the two times of the year when the sun "Stands Still" at the extreme southern and northern points of its yearly journey through the sky. In addition, the surrounding natural geographic features establish naturally occurring end points for these solstice alignments to make it a truly unique, naturally occurring solstice observation site – and a natural hierophany.
>
> The cogged stones that were an integral part of the CA-ORA-83 site are examples of portable American Indian rock art. Cogged stones are portable sacred sculptures that represent, among other things, celestial and cosmological motifs (refer to Jeffredo-Warden et al. 2004). American Indian rock art, by definition, contains spiritual power and is a potential portal to the sacred. In the American Indian worldview, stone may contain

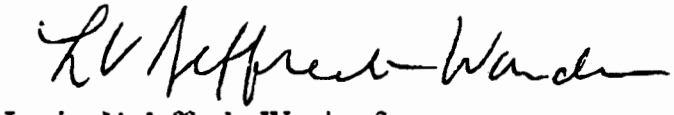
power that remains from Creation Time. Special stones or stone formations are often regarded as representations of and links to the First People.

Among American Indians the sacred is an embedded attribute of all natural phenomena. The geographic features of specific sacred sites like CA-ORA-83 (including their location and horizon features) are themselves sacred and thus are essential aspects of the site's sacredness. CA-ORA-83 is located at a geographically critical intersection of the solstitial lines. The geographic end point of the winter and summer solstice sunset lines are horizon features ethnographically identified with the Time of Creation and the First People.

It is inconceivable that the Commission would, with or without mitigation, permit the destruction of a site that was and is sacred to a non-Native group. Therefore, permitting the destruction of the CA-ORA-83 site's sacred, historical, and archaeoastronomical resources and values without, to use Senator Dianne Feinstein's words, "identifying mitigation appropriate measures to protect the sacred and historical values of this site," will violate indigenous Californians' rights to due process and equal protection under Article 1 of the California Constitution. Given the grave issues that are involved here, there should be no question regarding the preservation of the 7.4 acres currently nominated, under national significance, to the National Register of Historic Places.

Thank you for your attention to these critical matters.

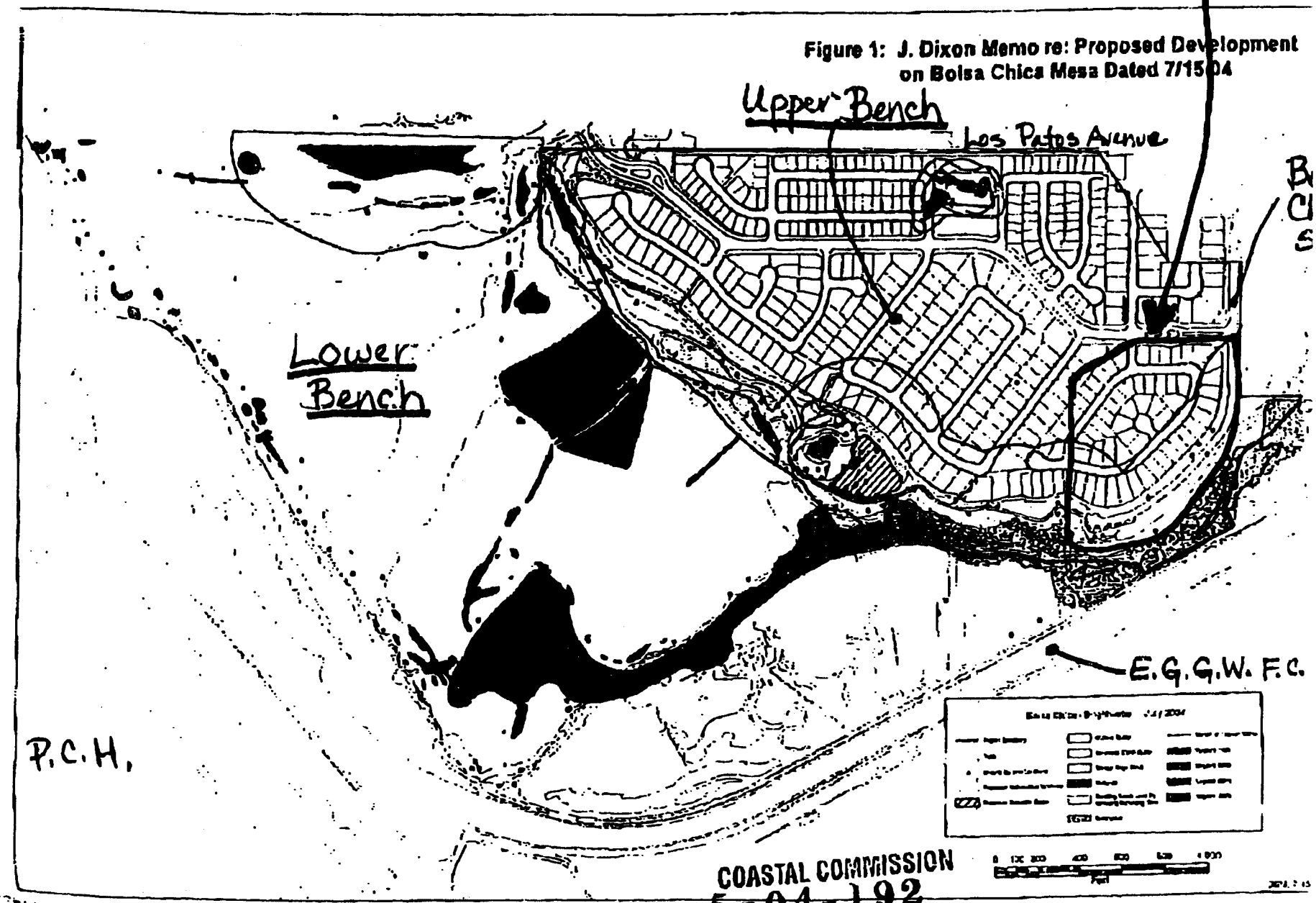
Sincerely,



Louise V. Jeffredo-Warden for
Maritime Shoshone, Inc.

cc: Board, Maritime Shoshone, Inc.
Dr. Tom Hoskinson
Dr. Robert Schiffman
Paul Kleven

Figure 1: J. Dixon Memo re: Proposed Development on Bolsa Chica Mesa Dated 7/15/04



COASTAL COMMISSION
5-04-192
EXHIBIT # 20
PAGE 12 OF 12

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CALIFORNIA
COASTAL COMMISSION

Susan K. Hori
Manatt, Phelps & Phillips, LLP
Direct Dial: (714) 371-2528
E-mail: shori@manatt.com

September 3, 2004

Client-Matter: 24970-030

VIA FACSIMILE AND U.S. MAIL

Milford Wayne Donaldson
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 94296-0001
Sacramento, CA 94296-0001

Re: CA-ORA-83; National Register of Historic Places Nomination Application

Dear Mr. Donaldson

My client, California Coastal Communities, Inc. and its subsidiaries Signal Landmark and Hearthside Homes (collectively "Hearthside"), are the landowner and developers of the Bolsa Chica property in Orange County, California, on which CA-ORA-83 ("ORA-83") is located. We were just recently made aware that the State Historical Resources Commission ("Commission") is considering an application (the "Jeffredo Nomination") submitted by Louise Jeffredo-Warden to nominate ORA-83 to the National Register of Historic Places ("National Register"). The purpose of this letter is to express our frustration with the Commission's decision to entertain this application given the Commission's prior action on this site and the manner in which your agency denies basic due process to landowners whose property is significantly impacted by the Commission's decisions and actions. We urge you to reject the nomination and to overhaul your administrative process so that landowners are provided fair and reasonable notice and equal treatment with that accorded the nominators.

1. No Notice Was Given to the Most Affected Entity: the Landowner.

Based upon my conversation with Steven Mikesell of your staff, it is my understanding that the Jeffredo Nomination was received by the Commission on May 18, 2004. Despite the fact that the Commission's action to recommend that a property be listed on the National Register could have a significant, adverse effect on property, the landowner was not notified of the Jeffredo Nomination. My client first became aware of the existence of the Jeffredo Nomination through a conversation with the staff of the Long Beach office of the California Coastal Commission who has also been in receipt of correspondence from Ms. Jeffredo-Warden. Surely, this is not an appropriate way for landowners to find out that an application affecting their property is pending before the Commission. The Commission should immediately notify the landowner of the receipt of a nomination application that affects its property and should

provide the landowner with a copy of the nomination package. This was not done. We received information only after I was able to speak to Mr. Mikesell who provided me with a copy of the nomination application. The nomination application does include my client's correct address and I find it very surprising that no correspondence from the Commission was received by my client until after my conversation with Mr. Mikesell.

It is my understanding from Mr. Mikesell that the Jeffredo Nomination will be placed on the Commission's agenda for action at a future meeting. We request that we be provided with notice as to the date and location of the meeting and an opportunity to review the staff recommendation/report in advance of the public hearing.

2. The Nomination is Redundant and Should be Rejected.

In November, 2001, the Commission considered nomination applications submitted by Dr. Patricia Martz and Louise Jeffredo-Warden to nominate ORA-83 to the National Register. The 2001 application covered an 11.9 acre area. The Commission voted to accept the nomination and to forward it to the Keeper of the National Register. ORA-83 has therefore already been deemed eligible for listing on the National Register by the Commission. Any action by the Commission in 2004 on the Jeffredo Nomination (for a smaller 7.4 acre area within ORA-83) would be totally redundant. The Commission has already considered the eligibility issues addressed in the Jeffredo Nomination because that information was previously submitted, reviewed and considered in 2001. Any action taken by the Commission on the Jeffredo Nomination would not and could not provide any greater degree of protection for ORA-83 as the site has already been deemed eligible for listing by the Commission. Why then is the Commission wasting valuable State resources to take a wholly redundant action? The time and effort that is being wasted by your Commission on a site that it has previously recommended as eligible is made all the more incomprehensible given the nomination's lack of substantive merit.

Furthermore, the Commission should also note that the landowner has already filed with the Commission its declaration in opposition to the listing. I have enclosed a copy of the declaration of Raymond Pacini, President and Chief Executive Officer of Signal Landmark that was submitted to your office in November, 2001 and according to Mr. Mikesell still accompanies the 2001 Martz/Jeffredo Nomination package that is currently pending before the Keeper of the National Register. So that the Commission is fully aware of the redundancy of its action – should it decide to accept and forward the Jeffredo Nomination to the Keeper of the National Register – we request that this letter together with Mr. Pacini's declaration be made part of the administrative record that is provided to the Commissioners so that they are aware of the landowner's position with respect to the Jeffredo Nomination.

3. The Nomination Lacks Academic and Substantive Merit.

ORA-83 has been one of the most intensely studied archaeological sites in California. Since the 1970's, my client has retained Scientific Resource Surveys to conduct test and data recovery excavations at the site. Since that time, over 97% of the site has been fully excavated. A final report on the excavations will be prepared by October 2004 as required by conditions of approval adopted by the County of Orange and the California Coastal Commission.

Because of the acknowledged significance of the site, my client and its archaeological consultant have consulted with a number of archaeological experts in the area of California prehistoric cultural resources. A peer review team was convened in the 1980's in compliance with Coastal Commission permit requirements which has overseen the data recovery excavations for this site. The peer review team consisted of Dr. William Wallace, Dr. Claude Warren and Professor Franklin Fenenga. Due to the death of Professor Fenenga, and the age of the other peer reviewers, the team now includes Dr. Roger Mason, Dr. Henry Koerper and Dr. Paul Langenwalter. In addition, the peer review team has consulted with Dr. Lowell Bean regarding ethnography issues presented by the site. Our peer review team is reviewing the Jeffredo Nomination and their preliminary conclusions are that there is no basis in archaeology to support the statements in the Jeffredo Nomination. The site has been studied in terms of its geographic orientation and its possible use as an astronomic site by prehistoric cultures. No evidence exists to support this "theory." (See letter from Nancy A. Whitney-Desautels to Teresa Henry, a copy of which is enclosed.)

Should the Commission decide to go forward with its consideration of the Jeffredo Nomination, we request that we be provided with notice of the hearing, and an opportunity to submit additional comments and materials to you and the Commission responding to the statements, allegations and conclusions presented in the Jeffredo Nomination.

We thank you for your consideration of our request to reject the Jeffredo Nomination. If you have any questions, please do not hesitate to contact me.

Very truly yours,

Susan K. Hori
Manatt, Phelps & Phillips, LLP

Enclosures

manatt
manatt | phelps | phillips

cc: State Historical Resource Commissioners
Teresa Henry, California Coastal Commission
Raymond Pacini
Ed Mountford
Nancy A. Whitney-Desautels, Ph.D.
Henry Koerper, Ph.D.

DECLARATION OF RAYMOND PACINI

I, RAYMOND PACINI, declare as follows:

1. I am the President and Chief Executive Officer of Signal Landmark.

2. Signal Landmark is the majority landowner of an approximately 230-acre parcel of property, located in unincorporated Orange County, known as the Bolsa Chica Mesa.

3. ORA-83, the "Cogged Stone" site, is a prehistoric archaeological site that is located on the Bolsa Chica Mesa. Attached as Exhibit A is a map of the boundaries of ORA-83 that was submitted to the State Office of Historic Preservation as part of a nomination form for listing ORA-83 on the National Register of Historic Places. The map delineates that portion of ORA-83 that is owned by Signal Landmark.

4. Signal Landmark notified the State Historic Preservation Officer of its opposition to the listing of ORA-83 on the National Register of Historic Places by letter dated October 31, 2001 to Dr. Knox Mellon from Susan K. Hori, Buchalter Nemer Fields & Younger.

5. On November 2, 2001, the State Historic Resources Commission recommended to the State Historic Preservation Officer that the nomination of ORA-83 be forwarded to the Keeper of the National Register.

6. Signal Landmark hereby declares its opposition to the listing of ORA-83 on the National Register of Historic Places.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed this 14 day of November, 2001, at Irvine, California.

Raymond Pacini
President and Chief Executive Officer
Signal Landmark

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary #
HRI #
Trinomial

Page ____ of ____ *Resource Name or # (Assigned by recorder) Bolsa Chica Mesa P-30-000083 (CA-ORA-83)

*Map Name: Current Site Boundaries *Date:

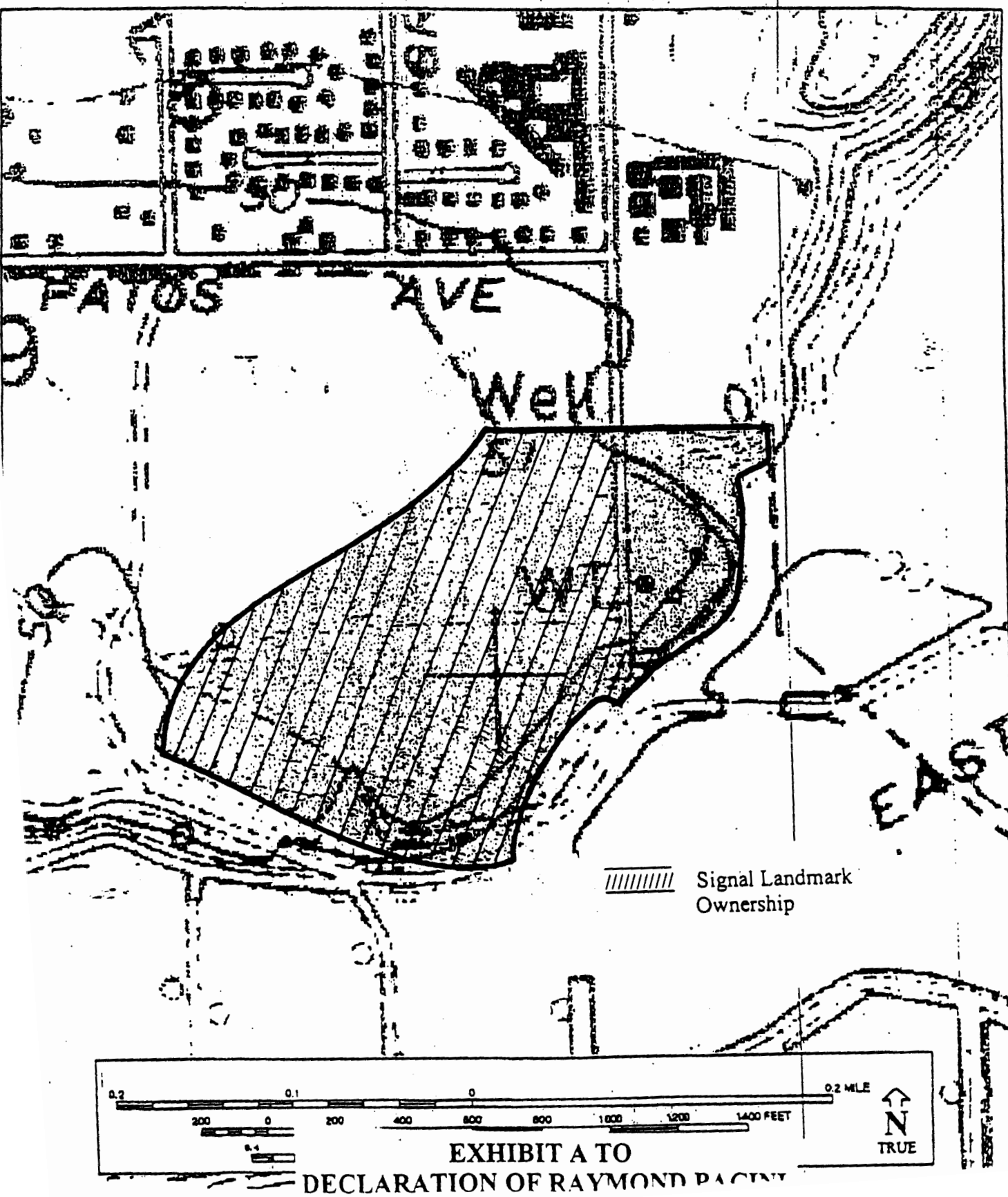

EXHIBIT A TO
DECLARATION OF RAYMOND RACINI

25

STATE OF CALIFORNIA
COUNTY OF ORANGE

On November 14, 2001, before me, MARJORIE E. GRAUPENSPERGER, a Notary Public personally appeared RAYMOND PACINI, personally known to me (~~or proved to me on the basis of satisfactory evidence~~) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity(~~ies~~), and that by his signature on the instrument, the person, or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

WITNESS my hand and official seal.

MARJORIE E. GRAUPENSPERGER
Commission # 1312159
Notary Public - California
Orange County
My Comm. Expires Aug 2, 2005

Signature Marjorie E. Graupensperger

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South Coast Region

SEP 13 2004

CALIFORNIA
COASTAL COMMISSION

146 La Grande
Moss Beach, CA 94038

September 12, 2004

Teresa Henry
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: Lawfully required mitigation of CA-ORA-83's archaeoastronomical resources

Dear Ms. Henry,

I have recently received a copy of Nancy A. Whitney-Desautels' August 10, 2004 letter to you. This unfortunate letter contains so many false, inaccurate and intentionally misleading statements it is difficult to know where to begin in response. For organization's sake, I have decided to address each in the order of its appearance in the letter.

Page 1, Paragraph 1: *"Ms. Jeffredo-Warden's theories about the archaeoastronomical characteristics of Ora-83 are unfounded and have never been demonstrated as factual by Ms. Jeffredo-Warden or any other individual."*

This extremely reckless, unprofessional and defamatory statement is, as you know, completely false.

I am the author of the most recent nomination of the CA-ORA-83 site to the National Register of Historic Places. This nomination was in part prepared to document the site's enormous potential for professional, expert, systematic archaeoastronomical research at the site. Not only was the nomination prepared and documented in strict accordance with National Register requirements, it far exceeds those rigorous requirements where documentation and proofs are concerned.

The nomination consists of 140 pages of single-spaced text, 33 attachments, including detailed maps, and several decisive photographic images. The result of more than three years of research, investigation, analysis and writing, it is explicitly detailed and documented, and provides a foundation of evidence based on our current state of knowledge regarding Native American and Native Californian astronomy; archaeological and archaeoastronomical data obtained at the CA-ORA-83 site, as well as at other cogged stones sites in southern California; cogged stone sites in Chile; and traditional and cultural knowledge pertinent to the astronomical resources and astronomically-based art which are present and which have been excavated at the CA-ORA-83 site. Absolutely no statement, no claim within the document is made without substantiation concerning the evidential and logical base for such statement or claim (in fact, the document contains over 160 citations covering anthropological, archaeological, archaeoastronomical, astronomical, ethnoastronomical, historical, ethnohistorical and ethnographic data which

substantiate the grounds, including archaeoastronomical, on which the site has been nominated for national significance to the National Register of Historic Places). In addition, where the site's archaeoastronomical resources are concerned, I and my co-nominators used investigative and documentary approaches that exceed the precision of standard, accepted practices of archaeoastronomical study which have been employed to locate and preliminarily document potential observatory sites (see, e.g., Jeffredo-Warden et al. 2004: 70 - 71 on methodology).

Moreover, my nomination was reviewed and is supported by the nation's leading experts in the fields of Native American and Native Californian archaeoastronomy and astronomy, as well as other nationally prominent scholars in the fields of archaeology and anthropology, including Dr. Anthony Aveni, Dr. Von Del Chamberlain, Dr. Alan Gillespie, Dr. Alicia Gonzalez, Dr. Tom Hoskinson, Dr. Ed Krupp, Dr. Robert Schiffman, Dr. Deward Walker, and Dr. Ray Williamson. As you know, as a result of my extensive investigation, research and documentation to confirm the need for further investigation and mitigation at the site, these highly respected and nationally recognized scholars have written to you and to Peter Douglas on my behalf and in support of the site's preservation, archaeoastronomical mitigation, and systematic archaeoastronomical investigation by expert archaeoastronomers and astronomers.

One of these scholars, a recognized and highly qualified expert on Native American archaeoastronomy, calendrics and rock art, has confirmed the accuracy of my and my co-nominator's initial astronomical observations at the CA-ORA-83 site. Through measurements and sophisticated, era-specific astronomical computations, Dr. Tom Hoskinson has confirmed that the site's solstitial alignments were astronomically functional at the site from the time of its earliest dated occupation at least 9,000 calendar years ago, through the current era, supporting our position that the CA-ORA-83 site apparently constitutes North America's earliest reliably dated observatory site (see **Attachment 1** for a copy of Dr. Hoskinson's letter to the State Historic Preservation Officer regarding this confirmation, and **Attachment 2** for a brief summary of Dr. Hoskinson's many years of leading expertise and accomplishments in the field of archaeoastronomy). According to Dr. Hoskinson, as currently there are no reliably dated direct solstice alignments that are as ancient as CA-ORA-83, the CA-ORA-83 site may also very well constitute the world's earliest known direct solstice alignments.

Page 1, Paragraph 2: *"The Coastal Commission approved peer review team for archaeological work at this site has included highly respected archaeologists such as Dr. William Wallace, Dr. Claude Warren, Dr. Henry Koerper, Professor Franklin Fenenga, Dr. Lowell Bean, Dr. Roger Mason, Dr. Paul Chace, and Mr. Paul Langenwalter."*

With all due respect to the members, both living and dead, of Ms. Whitney-Desautels' peer review team, not one of these individuals is an archaeoastronomer or astronomer, and not one can be considered an expert on Native American or Native Californian astronomy,

archaeoastronomy, and calendrics. Archaeoastronomy is a highly specialized and sophisticated field, and there are numerous experts which Ms. Whitney-Desautels could have consulted – as I did – to obtain knowledgeable and informed opinions of the archaeoastronomical merits of this site, if she had chosen to do so. (Ms. Whitney-Desautels apparently has no specific knowledge herself of the field of archaeoastronomy, as the website for her company, Scientific Resource Surveys, Inc., makes no mention of it.)

While the members of Ms. Whitney-Desautels' peer review team may be knowledgeable about archaeology, to my knowledge, they have not produced any significant research whatsoever in the field of archaeoastronomy. A simple Google search of each member of the Whitney-Desautels peer review team in conjunction with the word "archaeoastronomy" produces a minuscule few, if any, "hits". The only mentions of a member of her review team in conjunction with archaeoastronomy on the Internet is a master's thesis for which Dr. Claude Warren was the advisor in 1982, and a loosely related chapter on California Indians that Dr. Lowell Bean wrote. However, Dr. Bean confirmed for me in a telephone conversation I had with him in 2001 that he has not heard from or been in contact with Ms. Whitney-Desautels or any of her archaeological or anthropological agents in "*years*" (emphasis his own) – not since the mid-1990s. (Apparently, Dr. Bean was being cc'ed on documents which he never received; I actually forwarded him a letter written by the developer's attorney, Susan K. Hori, to inform him that, unbeknownst to him, his name was being used in this manner. He then informed me that two other "peer" reviewers who were also cc'ed on the Hori letter were actually dead, and had been so for numerous years!) For all other members of Whitney-Desautels' peer review team, my Google searches yielded no link whatsoever to the field of archaeoastronomy.

With respect to the archaeoastronomers who have reviewed my nomination and written in support of the CA-ORA-83 site's preservation and archaeoastronomical mitigation, a search of the Internet yields a wealth of very significant references, many about pioneering books and papers they have authored and edited in the field of archaeoastronomy. Doctors Ray Williamson, Anthony Aveni, Edward Krupp, Von Del Chamberlain, Alan Gillespie, Tom Hoskinson, and Robert Schiffman, all highly respected and nationally recognized experts in their respective fields of archaeoastronomy, astronomy, ethnoastronomy, archaeology and geology, produced a total of 903 Google "hits" in conjunction with the word "archaeoastronomy."

What this exercise clearly demonstrates is that the gulf between the archaeoastronomical background, knowledge and expertise of Ms. Whitney-Desautels' and my own reviewers – consider 2 vs. 903 "hits," respectively – is tremendous. Furthermore, of the 2 "hits" for Ms. Whitney-Desautels' reviewers, only one actually represented a paper authored by the individual himself, and even it was only loosely related to archaeoastronomy.

Consequently, one wonders how it can be claimed that a "peer" review effectively took place regarding this, an evidentially substantiated, astronomically-based, site, when not one of Whitney-Desautels' peer reviewers was or is an archaeoastronomer or astronomer, and when not one had or has a background in the field.

Page 1, Paragraph 2: *"I have shared Ms. Jeffredo-Warden's July 14, 2004 letter to Peter Douglas with members of the peer review team, and they uniformly concluded that her statements about this site are without merit and not supported by any anthropological data."*

I am at a loss to understand why Ms. Whitney-Desautels did not share a copy of my *nomination* (which is overwhelmingly supported by anthropological, archaeological, archaeoastronomical, and ethnographic data), rather than a copy of my July 14, 2004 letter to Peter Douglas (which has no social scientific or other citations attached and included in it), with members of her peer review team. One, Dr. Henry Koerper, even called the cultural and social anthropology department at Stanford University (where I received a graduate degree in anthropology) seeking more detailed information about my work respecting the CA-ORA-83 site because it apparently had not been granted to him by Ms. Whitney-Desautels, and he was trying to contact me to speak with me and learn more. If Ms. Whitney-Desautels' goal truly was to expose her peer reviewers to my positions regarding the CA-ORA-83 site so that the factual merits of these positions and arguments could be considered, why didn't she present them with the actual evidential materials upon which they are based?

Ms. Whitney-Desautels' peer reviewers' wholesale dismissal of my statements about this site and its archaeoastronomical significance as contained in my July 14, 2004 letter to Peter Douglas is therefore invalid because, as illustrated above, not one of these reviewers can be considered an expert in the field of archaeoastronomy, and because the reviewers' dismissal is not based upon any actual examination of the evidential base of my arguments, but upon an uncited letter whose purpose is not to prove the merits of my arguments to a review team, but to address the fact that I have been stripped of due process by a lack of notification regarding this permit application.

Page 1, Paragraph 3: *"To my knowledge, Ms. Jeffredo-Warden has never been on Ora-83, and if she has, she certainly has not spent the necessary time in the field to test her hypothesis that this site once functioned as a prehistoric astronomical observatory."*

In light of the nomination I produced respecting this site, the ridiculous, unsupportable nature of this statement is astounding. I have visited and documented aspects of this site

numerous times, and as anyone reviewing my nomination can effortlessly see, a remarkable amount of my time over the past few years has gone into investigating, researching and testing my positions respecting it and its still-functioning state as a Pacific-based, solstice observation point. Not only have I witnessed and visually documented solstitial phenomena at the CA-ORA-83 site, nationally known scholars such as Dr. Alicia Gonzalez (Executive Director, Museum of the American West, Autry National Center), a recognized expert and author of a recent book on sacred geography, have joined me at the site to do the same.

Page 2, Paragraph 1: *"The Brightwater development application currently pending before the Coastal Commission will not adversely impact the archaeological site Ora-83 because the special conditions imposed by the Coastal Commission on archaeological excavation permits and the mitigation measures and conditions of approval imposed by the County of Orange to mitigate the impact of future development on this resource have already been implemented. The adequacy of the County's measures was also upheld by a court of law. These measures providing for mitigation through data recovery of the site were specifically designed to recover archaeological resources, including any artifacts associated with archaeoastronomy."*

As this archaeological resource, ORA-83, also contains enormously valuable and nationally significant archaeoastronomical resources, informational values and research potential, and because the potential destruction of these resources, informational values and research potential has not been mitigated for as required by California law, the statement that the Brightwater development application currently pending before the Coastal Commission will not adversely impact the archaeological site ORA-83 is patently false.

The judgement by a court of law concerning the adequacy of the County's mitigation measures dealt exclusively with the removal of in-ground archaeological resources. Information regarding the site's tremendously unique, rare, and historically and scientifically pivotal archaeoastronomical resources was not presented to the court. Therefore, the critical issue of the site's archaeoastronomical mitigation has not been considered by any court of law.

As I have stated and evidentially demonstrated, as these mitigation measures were specifically designed to recover in-ground archaeological resources (whether or not the artifacts are associated with astronomical observation), they fail to protect and mitigate all of the site's extremely significant archaeological resources and informational values. The Coastal Act is unambiguous about the necessity of additional mitigation in such a case. It concretely provides that in any case where "development would adversely impact archaeological or paleontological

resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required." (Public Res. Code section 30244.)

Reasonable mitigation measures specifically regarding the CA-ORA-83 site's archaeoastronomical resources, informational values and research potential have in no way been enacted. Until expert, systematic archaeoastronomical investigation, research and analysis has been undertaken at and upon CA-ORA-83, the Coastal Act precludes development at the site.

Page 2, Paragraph 1: *"The Amount of archaeological work accomplished on this site over the past 33 years is staggering, far exceeding any normal investigative sample."*

Native California is a region quite characterized by its astronomically-based knowledge and belief systems. A 1979 social scientific survey found that "at least 34 out of 49 California tribes observed either the winter solstice or both solstices. . . . Their methods, where known, vary considerably, but they commonly used a horizon calendar for direct observations of the sun" (Williamson 1981: 62). It has therefore been common, accepted archaeological practice to enlist the services of archaeoastronomers and rock art specialists at indigenous southern Californian sacred sites, especially those with attributes as remarkable as those of CA-ORA-83.

As archaeoastronomy is a recognized sub-field of archaeology, as long as the archaeoastronomical resources at this astronomically-based, sacred ceremonial site have not been systematically investigated by competent archaeoastronomers or astronomers, the archaeological work at the CA-ORA-83 site remains flagrantly incomplete. It therefore cannot credibly be claimed or supported to have "far exceeded" any normal investigative sample or approach.

Page 2, Paragraph 2: *"Ora-83 has been evaluated for astronomical features, and its physical location does not support the use proposed by Jeffredo-Warden."*

While Whitney-Desautels provides no proof or expert review and analysis whatsoever to bolster her ludicrous claim that the site's physical location is not supportive of solstitial observation, I have concretely documented the reverse, and have had my conclusions reviewed by the nation's leading experts in the fields of Native American and Native Californian archaeoastronomy and astronomy, one of whom painstakingly confirmed the accuracy of my findings at the CA-ORA-83 site.

This particular expert also informed me that anyone with even rudimentary knowledge of archaeoastronomy and horizon astronomy could, in considering the site's specific physical form and features, and by examining the topographic maps of the CA-ORA-83 site and the surrounding region, see the CA-ORA-83 site was apparently founded for the purposes of astronomical observation, time-keeping and astronomically-based religious concerns.

Given the strikingly ignorant statement I have quoted above, it would appear no such appropriately trained person was ever brought in by Ms. Whitney-Desautels to evaluate the CA-ORA-83 site for astronomical features and/or to consult respecting the site, evidently one of the most valuable in the nation and the world where the history of astronomy is concerned.

Page 2, Paragraph 3: *"The mitigation measures and special conditions imposed by the County and Coastal Commission further required that all work be monitored by Native Americans and that consultation with a number of Orange County Native American tribal representatives be undertaken. . . . As a result of those Native American consultations and of discoveries elsewhere in Orange County of solstice related archaeological features, the studies at Ora-83 included repeated attempts to investigate whether or not Ora-83 was a solstice observation site. Solstitial observations were made several consecutive years between 1998 and 2002 in order to address the possibility that this site may have functioned as an ancient observatory. Astronomical and geographical alignments were calculated using the 'Voyager' program to see if any correlations existed between projected alignments and the position of the site. No exact correlations could be documented, a fact that was verified by numerous field observations of the horizon during seasonal solstices."*

Before I begin responding to the egregiously misleading statements contained in this paragraph I want to stress that my points of view regarding this site are entirely independent and unconflicted by monetary interests. I have no economic interest whatsoever in the development of this site, and have in fact incurred bills in the several thousands defending it against such development. I am not, nor have I ever been, a paid Native American informant or consultant for this or any other developer.

While CA-ORA-83 falls within territory traditionally and ethnographically attributed to Island/Adjacent Mainland Coast Shoshones (whom have also been referred to as Island/Coastal "Gabrielinos") (please see **Attachments 3 and 4**), these maritime people are not currently functioning at and with respect to this maritime/marine-oriented site as the Native American Heritage Commission's recommended Most Likely Descendants.

Where Native American consultation is concerned, it is crucial to bear in mind that Native Americans are not an interchangeable lot, like so many chess pieces on a board to be imported in and out of each other's prehistoric, historic, modern and traditional realities. We are, of course, uniquely and distinctly positioned people with our own bases and sets of cultural and religious knowledge, beliefs, orientations and sensitivities. This is especially true where extremely esoteric knowledge such as astronomy is concerned. In indigenous southern California astronomical knowledge was not homogeneously held throughout a society, but controlled by and concentrated within elite, high-ranking families – in other words, individuals and groups situated to know some sets of astronomical knowledge and not others.

On my paternal grandfather's side I descend from a distinct line of elite, maritime specialists (Catalina/Adjacent Mainland Coast Island Shoshones, or *Pofunngawichum*) who consistently sustained and utilized, far into the 20th century, not only an intimate knowledge of the coastal stretch and environs in which this site was established, but indigenous astronomical knowledge pertaining to the effective and safe use of this zone, making it possible for me to identify and test potential astronomical resources at the CA-ORA-83 site. As the ethnoastronomer Stephen Fabian has written, "Native lifeways are often intimately tied to a specific environment, and often rich native astronomics exist that have been used to sustain a people for generations, centuries, even millennia, as part of that environment" (2001: 6) – a state of affairs that certainly was true of my paternal grandfather's family, with whom I worked for five years to record fishing folklore (a knowledge system heavily influenced by astronomical knowledge).

On my paternal grandmother's side, I descend from Luisenos (or *Payomkawichum*) and San Clemente Islanders. The knowledge I additionally gained from this side of my late father's family, as well as from prominent elders in the Luiseno community (e.g., as part of my graduate studies at Stanford, over a six-year period I did folkloristically- and linguistically-oriented work with an extremely prominent Luiseno elder, the sister to the last of the hereditary chiefs among the Luisenos) has also historically, culturally and religiously positioned me to argue for greater state-wide and national awarenesses respecting this site.

An enrolled member of a federally-recognized band of Luiseno Mission Indians, I also hold degrees from the University of Southern California and Stanford University in environmental studies and anthropology, both fields in which I have contributed professional publications. By way of example, my publications on indigenous southern Californians include an entry on the Luisenos in the *Encyclopedia of North American Indians* (Houghton Mifflin, 1996) and an essay in *Over the Edge: Remapping the American West* (University of California Press, 1999) concerning indigenous southern Californian perspectives and the sacred.

Ms. Whitney-Desautels contends that "solstitial observations were made several consecutive years" at the CA-ORA-83 site and that "no exact correlations could be documented." As you know from the materials I have included in my National Register nomination, and which have been verified by expert examination, her claims are wholly incongruent with documented evidences which were obtained and which are obtainable at the site. At both the summer and winter solstice, the sun sets behind significant, observable landmarks, phenomena which has been documented and verified by mapping of the solstice sunrise and sunset coordinates (obtained from U.S. Naval Observatory software), and careful, on-site measurements, observations and photography of the solstitial phenomena for each seasonal extreme.

Ms. Whitney-Desautels does not provide any methodology whatsoever regarding her purported, failed astronomical efforts at the site, nor does she tell us she was assisted by an expert in the fields of archaeoastronomy or astronomy during these efforts. If methodology were provided, there would be a way to track and verify her inconsistent claims and conclusions, and perhaps even to identify the problem in her apparently ill-informed use of the Voyager program. As Dr. Hoskinson has written regarding a comparison of Voyager and SkyMap, the astronomy program of his choice:

> Both of these programs are very competent computer based astronomy programs that can accurately display how the sky looked (or will look) - over time - from any spot on earth.
>
> Both programs require a basic set of local horizon measurements and observation site location data as program input. Both programs also require that the user have some fundamental general knowledge of astronomy and, specifically, a good understanding of Earth Horizon based astronomy (very few modern people qualify on this one).
>
> If these fundamental requirements are not met, you have a GIGO situation (Garbage In = Garbage Out) (see **Attachment 5** for the full text of this note from Dr. Hoskinson).

It is possible that Ms. Whitney-Desautels has erroneously focused her attention on the horizon as observed at solstice midday and has drawn her unsupportable conclusions based on these observations. Solstitial alignments are, of course, widely known to not only occur at midday, but at the times of sunrise and sunset, as well. My research clearly and aptly indicates that still-functioning sunset alignments occur at the CA-ORA-83 site, a conclusion with which prominent scholars in the archaeoastronomy community professionally and personally agree.

Page 3, Ist Paragraph: *"Ms. Jeffredo-Warden did not provide my client, the landowner of Ora-83, with a copy of her site nomination papers, nor has she communicated to my client, the peer reviewers, or me any of the concerns she has regarding cultural resources."*

My nomination was finished and delivered to the California Office of Historic Preservation in May of 2004. The responsibility to provide Ms. Whitney-Desautels' client, the landowner of Ora-83, with a copy of this nomination did and does not rest with me, but with the California Office of Historic Preservation.

As you are aware, the day I learned of the landowners' permit application by way of the press (a highly interested party, I was not notified of this permit application, as is required by law), I immediately called you, then overnighted a copy of the nomination to you. Since the hearing respecting this nomination will not be held until November and the landowner has had, via your office, access to my nomination since May, the landowner has in actuality received far more time to consider this nomination than landowners customarily receive.

The claim that I have never aired or communicated my concerns about this site's cultural resources to the landowner is ridiculous, given the landowner's attorneys were always present at the various hearings regarding this site that either I or my late father passionately testified at over the years, pleading that the actual significance of this site was in no way being dealt with or appropriately addressed. On many occasions, Ms. Whitney-Desautels was also present – sitting but a few feet away from me – when either I or my father testified. I also wrote numerous letters and position papers over the years that, concerning this site's cultural and religious resources, are readily available through the public record. In 1997 I even filed an appeal with the County of Orange seeking to prevent the grading of this site and the destruction of its cultural and religious resources. I also communicated concerns respecting this site and the archaeological work being done at it to Dr. Lowell Bean; thus, the statement that I never communicated with a peer reviewer regarding this site and its cultural resources is also false. To the contrary, over the years this developer and archaeologist has had abundant knowledge of me, my family and the grave concerns I and we have respecting the site's cultural and religious resources and the site's archaeological treatment and improper mitigation.

Now it's my turn. How dare this archaeologist complain about my indigenous and professional, anthropological knowledge not freely flowing her way when a chief complaint regarding her and her archaeological work over the years at CA-ORA-83 is that it has apparently "not been conducted in an open and professional manner" (refer to **Attachment 6**, 1995 letter from Claudia Nissley, then Director of the Western Office of Review, National Advisory Council

on Historic Preservation, to Louise Jeffredo-Warden); and when the state of Indian-White power relations at the site is reportedly such that an indigenous consultant (a Coastal Gabrielino) alleged he was thrown off the property when he disagreed with Ms. Whitney-Desautels' reported failure to follow the law where the site's cultural resources are concerned (see **Attachment 7**, letter from Sam Dunlap to Native America consultants).

Where the flow of information is concerned, do not fail to recognize that had it not been for my nomination, archaeoastronomers – the appropriate social scientists to design a mitigation plan for the astronomically-based CA-ORA-83 site – would never have received scholarly notice of the CA-ORA-83 site and the impending destruction of its archaeoastronomical resources.

Page 3, 1st paragraph: *"Ms. Jeffredo-Warden omits the fact that in 2001 she submitted a request to nominate Ora-83 to the National Register of Historic Places. The State Historical Resources Commission acted upon her request and has forwarded the nomination form, which includes her materials, to the Keeper of the National Register. This determination of eligibility was taken into consideration by the County in 2002 when it developed the mitigation measures for Ora-83 and approved the Brightwater project."*

From the perspective of a scholar with a graduate education in discourse analysis, these sentences contain some of the most abusive manipulations of wording I have ever encountered. The references actually have nothing to do with my own work.

Carefully note Ms. Whitney-Desautels contends that I submitted a "request," rather than an actual nomination form or document, to nominate the CA-ORA-83 site to the National Register of Historic Places.

I have only authored one nomination, a copy of which is in your possession. My name was placed on a nomination non-Natives created respecting this site. The only requests I made regarding this particular nomination is that it be **returned** to the Office of Historic Preservation and its authors by the Keeper of the National Register due to technical and substantive issues and inaccuracies, an event that occurred.

The State Historical Resources Commission is not responsible for forwarding nomination forms to the Keeper of the National Register. It is the California Office of Historic Preservation's responsibility to forward nomination forms to this office.

When the non-Natives' nomination was initially forwarded to the Keeper of the National Register's office, it contained a manuscript of mine concerning the CA-ORA-83 site that had been attached without my permission. At the State Historical Resources Commission hearing to consider this nomination, the Commission took it upon itself to formally deem the manuscript I had written as an attachment to the non-Natives' nomination, an act that I immediately protested at the hearing, as well as later in writing.

While a determination of eligibility for inclusion on the National Register (under state-wide significance) may have been "taken into consideration by the County in 2002 when it developed the mitigation measures for Ora-83 and approved the Brightwater project," the information contained in my nomination regarding the site's archaeoastronomical resources was never taken into consideration when mitigation measures were developed for the CA-ORA-83 site, because this information was not contained in the non-Natives' nomination or the particular text that I authored which was attached to this nomination. Hence, in no way can the developer argue that the site's nationally significant archaeoastronomical resources and informational values were or are adequately considered and addressed in the site's current mitigation plan.

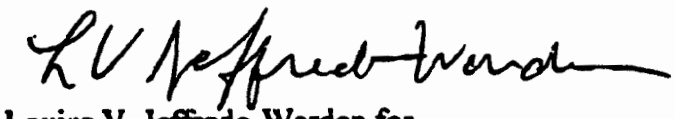
Page 3, Conclusion: *"There is no evidence to suggest that the Brightwater development will adversely impact ORA-83 or that any further mitigation measures are necessary . . . Moreover, based upon actual studies conducted on site, there is no evidence to support the hypothesis that Ora-83 functioned as an astronomical site, and therefore no additional mitigation is required beyond that which have already been imposed by the County and the Coastal Commission."*

Extraordinary, ample, verifiable evidence regarding the CA-ORA-83 site's archaeoastronomical resources, enormous informational value, and heightened, irreplaceable symbolic environment and state as a still-functioning solstice observatory and naturally occurring heirophany effortlessly show the need for further site mitigation, which is in any case required by law. Mitigation is not a choice with respect to these resources. It is a legal requirement of the Coastal Act.

In view of this letter, my extensive documentary efforts and materials concerning this site, and the letters you are now receiving from the nation's leading archaeoastronomers and astronomers, it should now be perfectly clear that despite this site's unfortunate history and handling – in other words, irrespective of whether Ms. Whitney-Desautels possesses the ability and expertise to correctly and adequately recognize, investigate and report on this site's

confirmed archaeoastronomical resources, there is still time to save this ancient observatory site – truly a national and world treasure – for the people of this state and nation. I emplore you and the staff to do what I know you and its members know is the moral and the right thing to do respecting these resources. Protect and document them, as is required by law.

Sincerely,



Louise V. Jeffredo-Warden for
Maritime Shoshone, Inc.

cc: Board, Maritime Shoshone, Inc.
Dr. Anthony Aveni, Colgate University
Dr. Lowell Bean, California State University, Hayward
Von Del Chamberlain, Pope Southwest Desert Institute
Peter Douglas, California Coastal Commission
Senator Dianne Feinstein
Dr. Alan Gillespie, University of Washington
Dr. Alicia Gonzalez, Museum of the American West, Autry National Center
Dr. Tom Hoskinson, The Aerospace Corporation
Dr. Ed Krupp, Griffith Observatory
Paul Kleven, esq.
Steve Mikesell, California Office of Historic Preservation
Christina Morrow, National Congress of American Indians
Claudia Nissley, National Preservation Institute
Chris Peters, Seventh Generation
Alberto Saldamando, esq., International Indian Treaty Council
Dr. Robert Schiffman, Bakersfield College
Dr. Deward Walker, University of Colorado
Dr. Ray Williamson, Space Policy Institute

Attachment 1

813 Old Farm Rd
Thousand Oaks CA 91360
(805) 495 - 6151
charles.t.hoskinson@aero.org

July 19, 2004

Steven D. Mikesell
Acting State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
1416 9th Street, Room 1442
Sacramento, CA 95814

Re: CA-ORA-83 (Cogged Stone) Site

Dear Mr. Mikesell,

My name is Tom Hoskinson. I am recognized as an expert on Native American Indian archaeoastronomy, calendrics and rock art. My current research emphasis is on Southern California, Southwestern Arizona and Baja California. I am writing this letter in support of Louise V. Jeffredo-Warden and the Maritime Shoshone, Inc. regarding the urgent need for Historic Preservation of the CA-ORA-83 site.

I have confirmed the accuracy of the initial astronomical observations (see Jeffredo-Warden et al. 2004) at the CA-ORA-83 site. Through measurements and sophisticated, era-specific astronomical computations, I have confirmed that the site's solstitial alignments were astronomically functional at the CA-ORA-83 site from the time of its earliest dated occupation at least 9,000 calendar years ago, through the current era.

This research supports the hypothesis that the CA-ORA-83 site may very well constitute not only North America's earliest reliably dated observatory site, but also one of the world's earliest direct solstice alignments (*ibid.*). Currently there are no reliably dated direct solstice alignments that are as ancient as CA-ORA-83.

The site has a naturally formed observation point (*ibid.*), which is at the intersection of the CA-ORA-83 winter and summer solstice alignments. These are the two times of the year when the sun "Stands Still" at the extreme southern and northern points of its yearly journey through the sky. In addition, the surrounding natural geographic features establish naturally occurring end points for these solstice alignments to make it a truly unique, naturally occurring solstice observation site - and a natural hierophany.

The Cogged Stones that were an integral part of the CA-ORA-83 site are examples of portable American Indian rock art. Cogged Stones are portable stone sculptures that represent, among other things, celestial and cosmological motifs (refer to Jeffredo-Warden et al. 2004). American Indian rock art, by definition, contains spiritual power and is a potential portal to the sacred. In

the American Indian worldview, stone may contain power that remains from the Creation Time. Special stones or stone formations are often regarded as representations of and links to the First People.

Among American Indians the sacred is an embedded attribute of all natural phenomena. The geographic features of specific sacred sites like CA-ORA-83 (including their location and their horizon features) are themselves sacred and thus are essential aspects of the site's sacredness. CA-ORA-83 is located at a geographically critical intersection of the solstitial lines. The geographic end point of the winter and summer solstice sunset lines are horizon features ethnographically identified with the Time of Creation and the First People.

Here are some pertinent excerpts from a paper published by Deward E. Walker, Jr. Anthropologist, University of Colorado

The paper's title: PROTECTING AMERICAN INDIAN SACRED GEOGRAPHY

"Accessing this sacred attribute is a major ritual goal found in all American Indian cultures, and it entails actually entering sacredness, rather than merely praying to it or propitiating it."

"These access points to the sacred in the American Indian religious beliefs and practices have received relatively little attention by scholars." "...They are not only points in space, but also points in time, best described as sacred "time/spaces." For example, especially sacred times are at dawn, at dusk, and during the equinoxes and solstices. Given this, certain geographical spaces or points may be used rarely but can still be valuable at appropriate times. It is in such "time/spaces" where entry into the sacred is most common, although not guaranteed. It is believed that the ultimate control of this process is in the hands of the ancestral spirits who must decide if the supplicant or petitioner is worthy of admission to the sacred."

California Coastal Communties' (Hearthside Homes') proposal to destroy the CA-ORA-83 site will be heard at the Coastal Commission's August 11 - 13 hearing. Under California law, the site's archaeological resources, which have previously been identified by the State Historic Preservation Officer, cannot be destroyed until reasonable mitigation has occurred (Coastal Act Section 30244). As your office is aware, under California law archaeoastronomical resources are clearly identified and recognized as archaeological resources, as archaeoastronomy is an established and well-recognized branch of archaeology.

As it is very probable that archaeoastronomers will identify additional astronomical alignments, we are requesting that your or Mr. Donaldson's identification of the CA-ORA-83 site's archaeoastronomical resources include the entirety of the nomination area (a total of 7.4 acres) as well as the site's known and potential alignments. The nomination area consists of elevated,

astronomical observation grounds which also include the naturally-formed astronomical observation point in the southern portion of the site which produced such prolific evidences of astronomical and calendric or calendric-type behavior.

Thank you, sincerely, for your attention to this historically crucial site,

Tom Hoskinson

cc: Board, Maritime Shoshone, Inc.
Louise V. Jeffredo-Warden

L. V. Jeffredo

Attachment 2

From: "Tom Hoskinson" <jwh543@earthlink.net>
To: <lvjeffredo@comcast.net>
Sent: Saturday, September 11, 2004 11:36 PM
Attach: Tom's Short CV.rtf
Subject: A "short" CV

Hi Louise,

Attached is a short CV. I have the feeling that I put in too much - yet maybe not enough.

I left out the Visiting Lecturer (Berkeley, Pomona Claremont, CLU, etc.) stuff.

I also left out the Museum and University exhibits.

And, I left out my service (2002) on the Utah Governor's Committee on Archaeoastronomy.

Tom

My first archaeoastronomy investigation was undertaken, in 1980, together with Dr. Robert Cooper, at the request of Dr. Georgia Lee. The site was an inland Chumash site (CA-SBA-526) located at the top of the Sierra Madre Ridge in the San Rafael Wilderness Area. This investigation took over 4 years and resulted in several publications. We confirmed that the site was a very complex calendric and ceremonial site that marked astronomically significant dates throughout the year. We later expanded the investigation to include all of the Sierra Madre Ridge sites and some of the Cuyama Valley sites. During these investigations, we were fortunate to have the help and guidance of several Chumash elders, plus Dr. Travis Hudson, Dr. Thomas Blackburn, Dr. Ed Krupp, Dr Robert Chambers, Dr. Robert Schiffman and Ken Hedges. Drs. Robert Mark and Evelyn Newman of the USGS mapped the sites and provided invaluable geological technical support.

In 1981 I visited Easter Island for a month with Georgia Lee and, with her, conducted a series of rock art and archeoastronomical investigations.

Also in 1981, I participated in archeoastronomical investigations at Burro Flats (CA-VEN-151 through 161). This is a Winter Solstice rock art site with both Chumash and Gabrielino associations.

In 1981-2 I designed and initiated a rock art recording and archaeoastronomy investigation at Sears Point in Southwest Arizona. Funding for this effort was provided by The Foundation For Field Research. Investigations were carried out with the permission and technical assistance of the BLM and several Indian Tribes. This site is sacred to the Colorado River People and the O'Odham. This investigation lasted for 18 years and resulted in the successful nomination of the site to the National Historical Register and several published papers. This included an invited paper delivered in Orkney, UK at the Society For Traditional Cosmologies Conference held at Stromness in 1993.

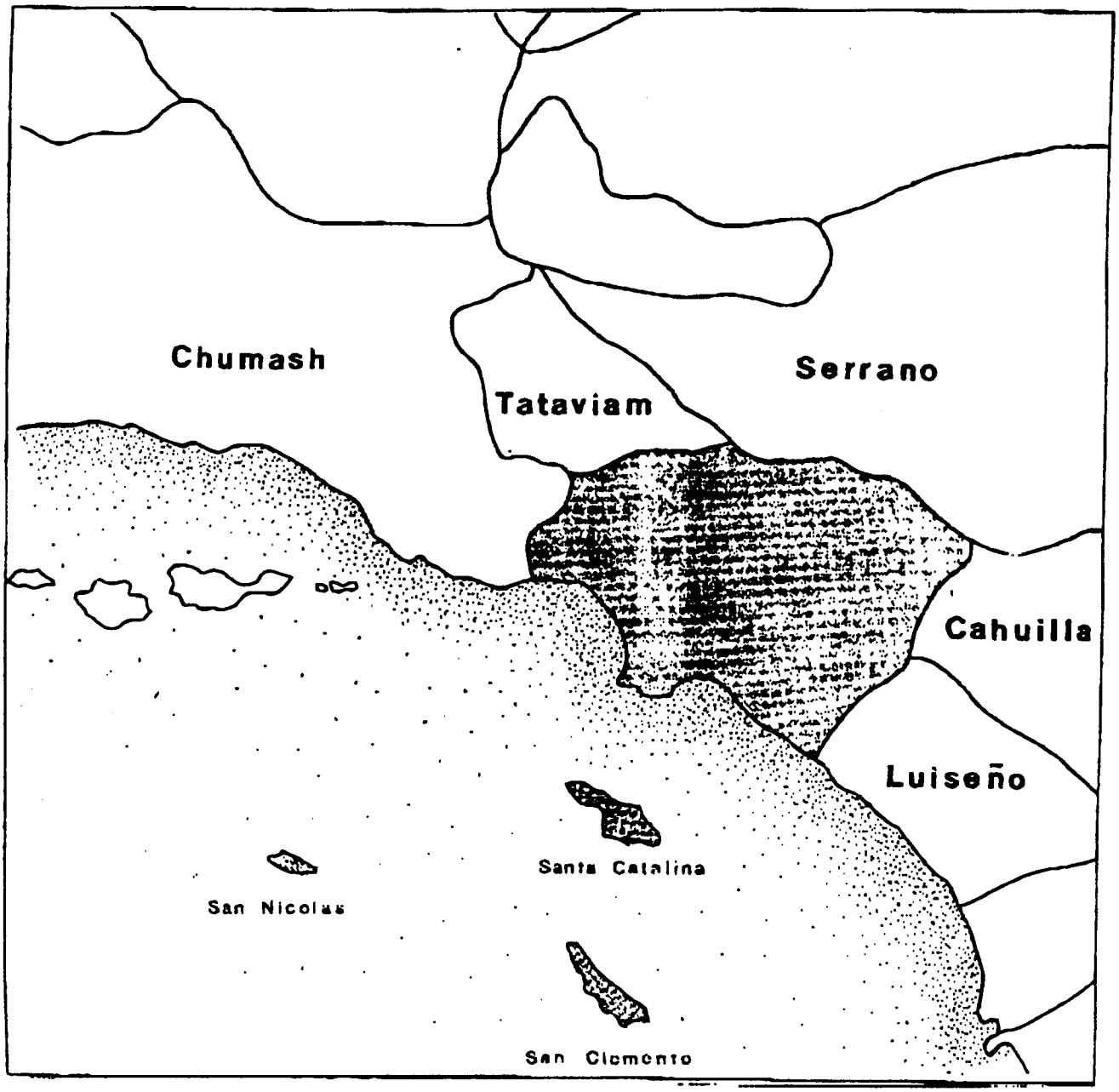
During the 1980's, as the Chair of the Ventura County Archaeology society, I initiated the archaeological investigation of the Lang Ranch in Thousand Oaks. A committee consisting of Charlie Cook (Hereditary Chief of the Southern Chumash), Lee Laxdal (Mayor of Thousand Oaks) and County Supervisor Ed Jones, The Lang Ranch Corporation and I hired an independent archaeologist (Dr Chester King) to investigate the property. As a result of this effort, the entire Valley Oak Grove, Creek, Rock Shelters, occupation sites, archaeoastronomy sites, a Millingstone Horizon site, plus the mountain slopes and ridgelines were all preserved as a Native American Park and Cultural Resource Center.

In November, 1983 Archaeologist Arlene Benson and I co-chaired a symposium on California Indian Skywatching Practices and World Views. The symposium was held at the California State University at Northridge. Symposium panel discussants included Katherine Siva Saubel (Cahuilla), Dr. Ernest Siva (Cahuilla and Serrano), Dr. Juanita Centeno (Chumash and Yaqui), Paul Apodaca (Navajo), and Dr. Beatrice Medicine (Sioux). A conference paper volume was published, titled: Earth and Sky, papers from

the Northridge Conference on Archaeoastronomy, Arlene Benson and Tom Hoskinson, Editors.

In summary, over the last 20 plus years. I have investigated numerous rock art and archaeoastronomy sites ranging from Canada, throughout the USA, Mexico and Easter Island. During the mid 1990's I served as the non-native archaeoastronomical consultant to the Tribal Chairman of the Tohono O'Odham (Southwestern Arizona).

Attachment 3



Attachment 35

Territories (shaded) attributed to Island, Coastal and Interior "Gabrielino" groups

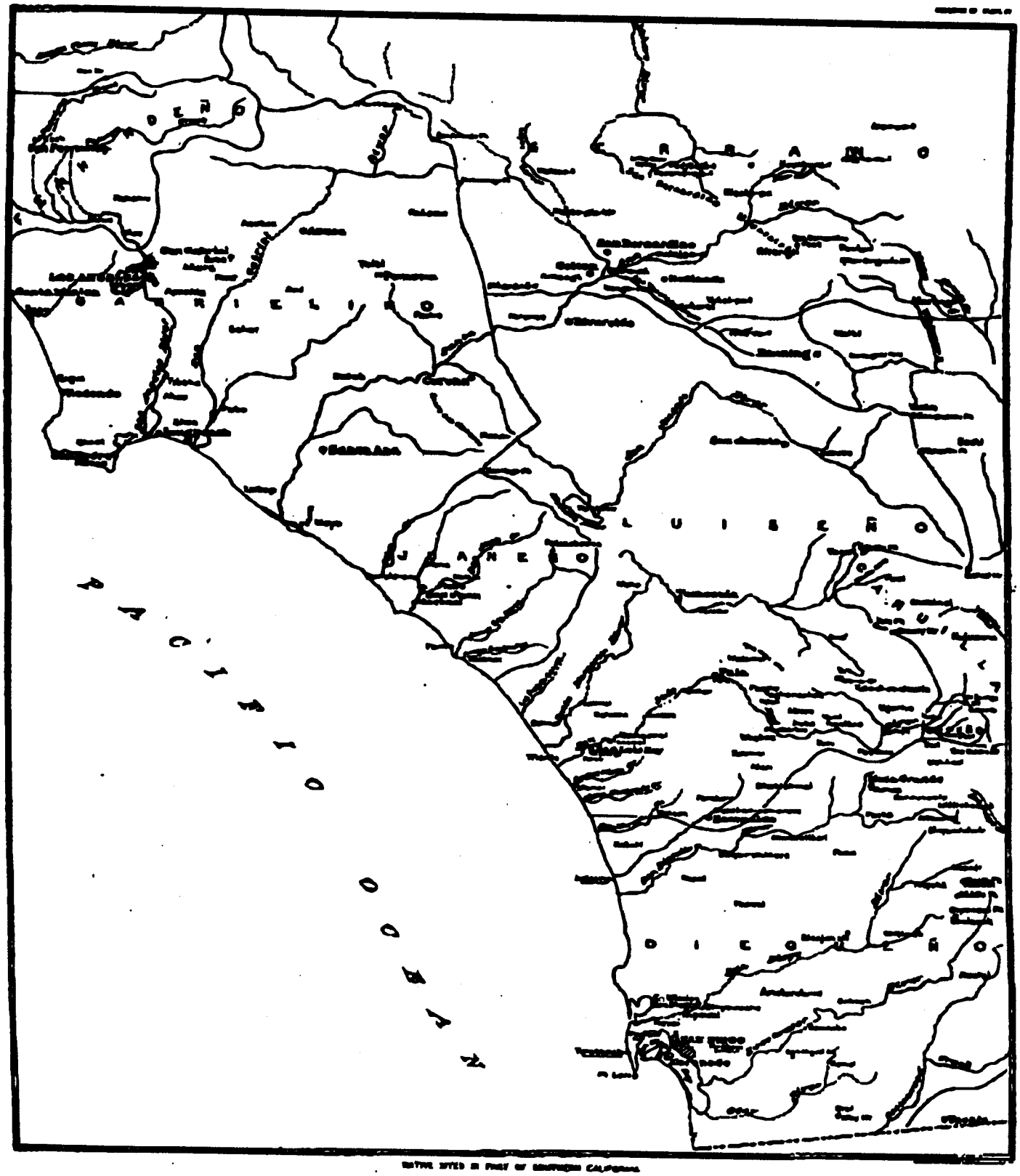
(map, McCawley 1996: 22)

Attachment 4

HANDBOOK OF THE INDIANS OF CALIFORNIA

By: A. L. Kroeber (Pet. Ex. RH-50)

78



NATIVE SITES IN FIRST OF SOUTHERN CALIFORNIA

Attachment 5

L. V. Jeffredo

From: "Tom Hoskinson" <jwh543@earthlink.net>
To: <lvjeffredo@comcast.net>
Sent: Saturday, September 11, 2004 8:03 PM
Subject: Voyager and SkyMap Pro

Louise & Tom

Both of these programs are very competent computer based astronomy programs that can accurately display how the sky looked (or will look) - over time - from any spot on earth.

Both programs require a basic set of local horizon measurements and observation site location data as program input. Both programs also require that the user have some fundamental general knowledge of astronomy and, specifically, a good understanding of Earth Horizon based astronomy (few modern people qualify on this one).

If these fundamental requirements are not met, you have a GIGO situation (Garbage In = Garbage Out).

Voyager III from Carina Software is the most current version of the Voyager program.

The Program that I use is SkyMap Pro 10, published by Chris Marriott (an astronomer).

In the SkyMap program: The positions of the planets are computed using different methods depending on the date.

Between the years 1900 and 2100 AD, highly accurate positions for all the planets are computed using the Chapront and Francou "Planetary Series (1996)" planetary theory. This is an analytical fit to the JPL DE403 numerical integration of the solar system, and has maximum (heliocentric) errors over the period 1900-2100, compared with DE403, as follows:

Mercury 0.010"
Venus 0.002"
E-M Barycentre 0.002"
Mars 0.002"
Jupiter 0.002"
Saturn 0.002"
Uranus 0.002"

Neptune 0.001"
Pluto 0.005"
Outside this date range, planetary positions for the Sun and the planets Mercury to Neptune are computed using the Bretagnon and Francou "VSOP87" (Variations SÃ©culaires des Orbites PlanÃ©taires) planetary theory. This is based on the older JPL DE200 numerical integration (which still forms the basis of the tabulated planetary positions in the "Astronomical Almanac"). VSOP87 has a stated precision of 1" for Mercury, Venus, Earth-Moon barycentre, and Mars for 4000 years before and after J2000. The same precision is ensured for Jupiter and Saturn over 2000 years, and for Uranus and Neptune over 6000 years before and after J2000.

The VSOP87 theory does not include Pluto. Positions of Pluto for dates outside the range 1900-2100 are calculated using Chapront and Francou's "PLUTO95" theory [J. Chapront, 1995, Astron. Atrophys. Sup. Ser., 109, 181]. This is based on a method of approximation using frequency analysis on the DE200 integration; a comparison of the results of the theory with the original DE200 ephemeris over the period 1700 to 2100 AD shows a maximum discrepency of 0.003".
In all cases, planetary positions are initially computed in a heliocentric reference frame, and then rigorously reduced to a geocentric frame, applying corrections for light travel time, gravitational deflection of light by the Sun, and annual aberration. Before being displayed on the map, the geocentric position is then converted to a topocentric position.

The position of the Moon is computed from the ELP 2000-82B lunar theory (M. Chapront-TouzÃ© and J. Chapront, 1988). The full theory contains some 37,000 terms; we ignore all terms smaller than 0.001", thus reducing the number of terms which have to be computed to about 10,000. The resulting position of the Moon agrees with that computed using the full theory to within 5-10 metres, which is more than adequate for our needs. Spot checks against lunar positions tabulated in the "Astronomical Almanac" give agreement to better than 0.01".

I am sure that this is a lot more data than you wanted!
Tom

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

Attachment 6

July 26, 1995

Louise V. Jeffredo-Warden
160 Los Banos
Moss Beach, CA 94038

RE: *Bolsa Chica Project.*

Dear Ms. Jeffredo-Warden:

Thank you for providing us a copy of your letter to Susan Lobo expressing concerns that you and other Gabrielino and Luiseno Indians have regarding the Bolsa Chica Project and the ethnographic study being conducted by Ms. Lobo for the Koll Company. In reviewing your concerns and those raised by other members of the public, it certainly appears that consultation on the Bolsa Chica project, and the work at ORA-83 in particular, has not been conducted in an open and professional manner. Questions abound among the interested public, concerned Indian Tribes, and even the State Historic Preservation Officer (see letter dated April 13, 1995 to California Coastal Commission) regarding the spatial extent of ORA-83, the degree to which excavations conducted at the site have sufficiently recovered all of the significant data in the areas to be impacted by development, and the numbers and locations of human burials recovered from the site. It seems rather amazing that the Coastal Commission has permitted the Koll Company to proceed with demolition of the bunkers when there are so many questions left unresolved.

We have been working with the Los Angeles District Corps of Engineers (COE) since 1993 to determine the extent of the COE's jurisdiction under Section 106 of the National Historic Preservation Act (16 U.S.C. 470f). The COE notified us on April 24, 1995, of their decision to exclude the Bolsa Chica Mesa from the area of potential effects (APE) for consideration of a permit under Section 404 of the Clean Water Act. Carol Gleichman of my

staff, spoke with Richard Perry yesterday, and he confirmed that the COE is no longer involved in any review of actions on the Mesa. After reviewing the documentation provided to us by various parties, including excerpts from the draft Bolsa Chica Land Use Plan and Development Agreement (provided us by Orange County), we have decided not to object to the Corps determination. The Koll Company and the County appear to have effectively separated the two aspects of proposed development at Bolsa Chica, so that construction on the mesa top is no longer connected to or dependent on future development that may occur in the lowlands. With the current proposal for the Department of Interior to acquire a large part of the lowlands for development of a National Wildlife Refuge, the connection between the Corps' permit and the upland develop becomes even more tenuous.

Without the involvement of the Corps or another Federal agency in the Bolsa Chica Mesa development, there is no legal requirement for compliance with Section 106 of the National Historic Preservation Act; and that effectively removes our agency from the review process regarding impacts to ORA-83. As we understand it, the Coastal Commission is still required to consult with the SHPO under applicable state law (CEQUA); and where Native American human remains are affected, the California Native American Historical, Cultural, and Sacred Sites Act requires the County Coroner to notify the Native American Heritage Commission (NAHC), who establishes and notifies the most likely descendants. Under Federal law (if it were applicable), all interested Tribes would need to be consulted regarding the excavation work (even where no human remains are discovered) conducted to mitigate the effects to archaeological properties to which they ascribe traditional and cultural value (16 U.S.C. 470a). Unfortunately for the Gabrielino Indians, it appears that there is no similar broad requirement under State Law.

Although the Advisory Council no longer has a role in the review process, we encourage you to keep the California Coastal Commission and the California State Historic Preservation Office apprised of your concerns and any violations of State law and regulations that you perceive. If there is an appeals process with the NAHC, regarding determination of most likely descendants, we encourage you to use it.

If you have any questions or if we can be of further assistance, please contact Carol Gleichman of the Western Office of Review at (303) 231-5320.

Sincerely,

Claudia Nissley
Director, Western Office
of Review

Attachment 7

SAMUEL H. DUNLAP
P. O. Box 1391
Temecula, CA 92593
(909) 699-5944

May 10, 1994

Mr. Martin Alcala
1037 1/2 Plesantview Ave
Venice, CA 90291

Ms. Cindi M. Alvitre
3462 Avocado
Riverside, CA 92507

Mr. David Belardes
31742 Via Belardes
San Juan Capistrano, CA 92675

Ms. Vera Rocha
2451 Remey Avenue
Baldwin Park, CA 91706

Mr. Jim Velasquez
1226 West Third Street
Santa Ana, CA 92703

Ms. Lillian Robles
2830 E. 56th Way
Long Beach, CA 90805

RE: ORA-83 (Bolsa Chica)

Dear Most Likely Descendants:

Enclosed you will find information concerning the Bolsa Chica project that I feel you must be made aware of. This is information which I would have readily provided to you, had I been asked to do so. Consequently, this is, of course, information that Koll Company and S.R.S., Inc. would not voluntarily provide to a Most Likely Descendent for obvious reasons.

Let me start with a brief chronology of the latest developments:

April 25, 1994: Excavation resumed at ORA-83 on the area beneath the tree stumps (this are was left unfinished from previous excavations prior to December 24, 1993). This current excavation was expected to yield additional human remains due to the proximity to earlier discoveries in December 1993.

April 26, 1994: First encounter with human remains occurred at approximately 11 A.M. Excavation continued. Mr. Domingo Belardes, Mr. Eric Shaw and Mr. Frank McDowell (Field Supervisor) were excavating.

April 27, 1994: Excavation proceeded. At 10:15 A.M. I was informed by Mr. Domingo Belardes that the project had been halted per directive of Mr. David Belardes.

You might wonder why the project was halted so abruptly, and you might ask who were the Native American monitors.

The answers are that there were no Native American monitors present prior to the halting of the project and that is why the project was halted. The fact of the matter is that neither Domingo Belardes nor myself were acting in the capacity of Native American monitor. For my part, I was not even involved in the excavation.

It was not until after it became apparent to Mr. David Belardes and the California Coastal Commission (April 27, 1994) that a discrepency in excavation methods was taking place by S.R.S., Inc., that Domingo Belardes and myself were approached with the option to become "instant" monitors.

The transition from field crew worker to monitor was an obvious ploy by S.R.S., Inc. to conceal the fact that the archaeological excavation that began two days earlier was started and would have continued without the presence of, and consultation with, a Native American monitor.

My subsequent refusal to cooperate with S.R.S., Inc. in this matter led Mr. Frank McDowell, the field supervisor, to order me off the site that same day at approximately 1:30P.M. I might add that Dr. Nancy Desautel was in constant telephone contact with Mr. McDowell and was aware of every aspect of the situation.

I have had no contact with Dr. Nancy Desautel or any representative of Koll Company since that date and time, although I did receive a "final" employee paycheck the following Sunday in the mail. So I can definitely presume that my defiance and attitude toward their ploy were not greatly appreciated by either Koll Company or S.R.S., Inc.

It is now my understanding that Domingo Belardes did return the following day (April 28, 1994) to act as a Native American monitor on behalf of the Juaneños and that the excavation did resume and continued into the following week. What terms and conditions Domingo has with Koll Company is anyone's guess.

All of the aforementioned events leads me to think the worse possible scenario, especially now that I am totally isolated from the site. It also leaves several unanswered questions and some very disturbing possibilities.

The most disturbing possibility to me is that Koll Company and S.R.S., Inc. will proceed at this time to totally disregard a recommendation made by the Native American monitors on December 13, 1993 to Darlene Shelley, consultant to Koll Company and Susan Hori, attorney for Koll Company, and relayed by letter to Dr. Desautel (see letter dated December 15, 1993), that called for further excavation of a tree line to the east and directly adjacent to the present archaeological site. My concern then, as it is now, is that a boundary of the burial site has not been determined. The problem Koll Company has with further excavation is that excavation into the tree line (outlined in red on 07/07/93 map) will undoubtedly yield additional ancestral remains and scientifically prove the existence of an Indian CEMETERY.

Let us not forget that Darlene Shelley, Susan Hori and Nancy Desautel did not offer you this information when you visited the site as a Most Likely Descendent. They would like nothing more than to proceed with reburial and wrap this project up at this time and forget about it. Koll Company could care less about finding a boundary to this burial site, nor would they give a damn about bulldozing additional remains from under the tree line when their plans call for grading the immediate vicinity of ORA-83.

I feel the callous disregard for Native American input recently displayed by Koll Company representatives is a valid indicator of their future intent. The apparent willingness of S.R.S., Inc. to comply with their substandard treatment of certain Native Americans can only reflect badly on Dr. Nancy Desautel.

I can only hope that this letter and the enclosed maps and charts will help you better understand the situation now surrounding ORA-83. If you need to confer with me, please feel free to do so. Please remember, I am now under no contractual obligations, and I may speak my mind freely, both privately and publicly.

Sincerely,

Samuel H. Dunlap

SHD/nec
Encl.
cc: Native American Heritage Commission

LAW OFFICES OF
PAUL KLEVEN

1604 SOLANO AVENUE
BERKELEY, CA 94707

TELEPHONE (510) 528-7347
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September 13, 2004

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...NIA
COASTAL COMMISSION

VIA FACSIMILE AND FIRST CLASS MAIL

Teresa Henry, District Manager
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

Re: Defamatory letter from Nancy A. Whitney-Desautels
In Support of Application No. 5-04-192 (Brightwater)

Dear Ms. Henry,

On behalf of Louis V. Jeffredo-Warden, I am writing to reiterate my client's concerns about the false and defamatory statements contained in the August 10, 2004 letter from Nancy A. Whitney-Desautels of Scientific Resource Surveys, Inc. in support of Application No. 5-04-192 (Brightwater).

Unfortunately, we had not seen or heard about the letter until the end of last week, and so have not been able to respond previously. It is now my understanding that the Commission staff will be making recommendations about the issues addressed in this letter sometime this afternoon, which causes me considerable concern given our inability to respond in detail on such short notice.

Instead of responding scientifically to Ms. Jeffredo-Warden's objections, Ms. Whitney-Desautels primarily levels an *ad hominem* attack on Ms. Jeffredo-Warden. While I would hope the Commission would ignore such attacks, I am writing to ensure that Ms. Whitney-Desuatels' attack does not mislead the Commission.

As one example of Ms. Whitney-Desautels' approach, she makes the following statement:

> *To my knowledge, Ms. Jeffredo-Warden has never been on Ora-83, and if she has, she certainly has not spent the necessary time in the field to test her hypothesis that this site once functioned as a prehistoric astronomical observatory.*

Ms. Whitney-Desautels would, of course, have no way of knowing whether Ms. Jeffredo-Warden had ever been on the site, and her statement that Ms. Jeffredo-Warden has written a 140 page nomination of the CA-ORA-83 site to the National Register of Historic Places without ever setting foot there is not only false but also defamatory. As is clear from the nomination and other documents with which Ms. Whitney-Desautels is undoubtedly familiar, Ms. Jeffredo-Warden has

visited and documented aspects of this site numerous times, and has made the requisite observations accompanied by nationally known scholars such as Dr. Alicia Gonzalez (Executive Director, Museum of the American West, Autry National Center.)

Ms. Whitney-Desautels also states that:

> *Ms. Jeffredo-Warden's theories about the archaeoastronomical characteristics of Ora-83 are unfounded and have never been demonstrated as factual by Ms. Jeffredo-Warden or any other individual.*

As you are aware, the nomination of the CA-ORA-83 site to the National Register of Historic Places contains voluminous documentation of the factual basis for its statements about the archaeoastronomical characteristics of the site, which are not simply Ms. Jeffredo-Warden's theories, but also the opinion of the nation's leading experts in the fields of Native American and Native Californian archaeoastronomy and astronomy, as well as other nationally prominent scholars in the fields of archaeology and anthropology. Dr. Anthony Aveni, Dr. Von Del Chamberlain, Dr. Alan Gillespie, Dr. Alicia Gonzalez, Dr. Robert Schiffman, Dr. Deward Walker, Dr. Ray Williamson, Dr. Tom Hoskinson, and Dr. Ed Krupp have all expressed support for mitigation and preservation of the site.

Through measurements and sophisticated. era-specific astronomical computations, Dr. Hoskinson has confirmed that the site's solstitial alignments were astronomically functional at the site from the time of its earliest dated occupation at least 9,000 calendar years ago, through the current era, supporting our position that the CA-ORA-83 site apparently constitutes North America's earliest reliably dated observatory site.

Ms. Whitney-Desautels attempts to counter the universal scientific opinion against her by referring vaguely to opinions expressed privately to her by members of the peer review team with whom she shared Ms. Jeffredo-Warden's July 14, 2004 letter to Peter Douglas. It is unclear which of the reviewers provided such an opinion, or whether any of them performed any actual work before responding. Apparently, Ms. Whitney-Desautels chose not to share the nomination itself with any of the reviewers. In the absence of any documentation of such opinions, the Commission should disregard these statements.

Ms. Whitney-Desautels states and implies that Ms. Jeffredo-Warden is misleading the Commission about the need for mitigation, because prior archaeological mitigation measures addressed all astroarchaeological concerns. This is simply false – the prior archaeological mitigation was specifically designed to recover in-ground archaeological resources (whether or not the artifacts are associated with astronomical observation), but was not intended to ensure, and did not ensure the protection of CA-ORA-83 site's archaeoastronomical resources.

Without citing a single document or any other proof, Ms. Whitney-Desautels states:

> *Ora-83 has been evaluated for astronomical features, and its physical location does not support the use proposed by Jeffredo-Warden.*

This claim that a scientific evaluation has completely undermined Ms. Jeffredo-Warden's position is false and defamatory. Ms. Whitney-Desautels simply ignores the evidence given to the Commission by recognized experts in the field, while providing no support for her statements about observations made by unnamed archaeologists.

Ms. Whitney-Desautels' attempt to bolster her vague claims by referring to Native American consultations at the site ignores the actual history of development at the site, which has excluded the most knowledgeable Native Americans. While CA-ORA-83 falls within territory traditionally and ethnographically attributed to Island/Adjacent Mainland Coast Shoshones, these maritime people are not currently functioning at the site as the Native American Heritage Commission's recommended Most Likely Descendants.

Finally, Ms. Whitney-Desautels states and implies that due to Ms. Jeffredo-Warden's deceptions she and her client have been unaware of "any of the concerns she has regarding cultural resources." Ms. Jeffredo-Warden has been quite vocal about her position on CA-ORA-83 for decades, and has personally attended meetings where Ms. Whitney-Desautels has been present. She has followed all appropriate notice requirements pertaining to her nomination.

Ms. Whitney-Desautels' claim that Ms. Jeffredo-Warden deceptively "omit[ted] the fact" that she had submitted a "request ... to nominate" CA-ORA-83 in 2001 is completely misleading, because she was simply responding to a nomination made by non-Natives which contained inaccuracies. At her request, the nomination was returned. The information contained in the current nomination regarding the site's archaeoastronomical resources was never taken into consideration when mitigation measures were developed for the CA-ORA-83 site, because this information was not contained in the non-Natives' nomination.

On behalf of Ms. Jeffredo-Warden, I urge the Commission to disregard the misstatements contained in the letter, and consider the actual evidence in formulating your deliberations r garding the Application.

If you have any questions or comments, please do not hesitate to call.

Very truly yours,

PAUL KLEVEN

PK:kky

146 La Grande
Moss Beach, CA 94038

September 10, 2004

Ms. Teresa Henry
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: Lawfully required mitigation of CA-ORA-83's archaeoastronomical resources

Dear Ms. Henry,

Thank you for your recent e-mails regarding the CA-ORA-83 observatory site.

As I have indicated to you, while I will attempt to respond to your e-mails as completely as possible, I cannot at this time provide the comprehensive mitigation plan which I believe is required under the California Coastal act. Under Public Resources Code sections 30006 and 30006.5, the Commission must interact with members of the scientific and academic communities in order to receive technical advice and recommendations before making its decisions.

While several experts in the fields of Native American and Native Californian astronomy, archaeoastronomy and calendrics have written to you regarding the need to mitigate the site, they need more time, as well as much more detailed topographic information, to prepare a comprehensive mitigation plan regarding the site's archaeoastronomical resources and informational values. Until expert, systematic archaeoastronomical investigation, research and analysis has been undertaken, the Coastal Act precludes development at the site.

As I have advised you, the map you faxed me (Exhibit 20, Brightwater [Bolsa Chica Mesa] project site plan), does not provide any topographic information, making it somewhat difficult to indicate the 7.4 acre nomination area's western boundary, which is defined by the 50' contour level. However, based on your assurance that our mark-up of this map will not be used to show the area's exact boundaries, we did the best we could to comply with your request to indicate the location of the astronomical observation grounds on the map, which I am faxing back to you as an attachment to this letter.

In response to your request that I also indicate the location of the 7.4 acre area in relation to referents such as the bluff edge, Los Patos Avenue, and Bolsa Chica Street, I referred you to attachment 2 of our nomination, which indicates the nomination area in relation to the entire Mesa, the bluff edge, and to Los Patos Avenue to the north, and Bolsa Chica Street to the east.

You have asked what types of development, if any, would be appropriate within the nomination area. Until the legally required, systematic archaeoastronomical investigation has occurred, of course, no development of any kind should occur. The staff's recommendation

that a 300 foot setback from the bluff edge be preserved, while welcome, does not constitute reasonable mitigation, and will not protect the CA-ORA-83 site's nationally significant archaeoastronomical resources and informational values from destruction.

Once historically relevant research and investigation has occurred, the site could be developed in a manner similar to that of the Honokahua Burial Site on the island of Maui. Visitors there are welcome to visit certain aspects of the site, but along designated paths leading to specific areas with interpretive information and the request that the sacred values of these specific areas (e.g., areas in which cairns were established and human remains excavated) be respected and not abused by foot traffic. Native Hawaiians also established historically consistent cultural reconstructions of particular religious resources at the site to increase public awareness and understanding respecting the cultural and religious values embodied and expressed by it.

The nomination area continues to retain the physical features and conditions – location, elevation, orientation, setting and visual attributes (the relevant horizon features outlying and surrounding it) – essential to conveying its historic associations, functions, and characteristics as an anciently enduring, Pacific-based solstice observation point.

After appropriate archaeoastronomical investigation and research has been conducted, graveled, non-permanent paths could be established to lead visitors to specific areas of the site at which significant sacred and religious resources and practices (including a burial cairn or cairns, rock features, cogged stones and other ceremonial sculptures, astronomical observation, time-keeping and astronomically-based ceremonialism) were apparently recognized, established, utilized and performed. Interpretive signage could be included at these locations to provide information concerning issues such as indigenous burial practices (including time-sensitive mourning ceremonies); the importance of solstitial and other astronomical observation to these practices and to the lifeways of indigenous Californians; the probable astro-cosmological significance of cogged stones; sacred geography; horizon calendrics and astronomy; and the significance of cogged stone sites in relation to the history of astronomy, art, religion and the colonization of Pacific coastlines of the Americas. A general kiosk coming into the site, which should probably be located in proximity to the nomination area's eastern boundary (the unimproved road currently extending south of Bolsa Chica Street), could explain the specific features of the Cogged Stone type site – one apparently found in both Americas.

Although historically accurate, non-invasive and non-permanent interpretive aids analogous to those encountered at the Honokahua site (e.g., illustrative examples of rock piles, cairns, and ceremonial rock art) could be established at the CA-ORA-83 site without affecting its historic integrity as a still functioning, naturally formed astronomical outlook and observation point which is also an integral component of a highly symbolic sacred environment, this would not be the case if permanent structures (residences or other buildings, a paved parking area, created

wetland or detention basin, etc.) were established within the 7.4-acre astronomical observation area.

Benches and public parking of any kind would not be appropriate within the 7.4-acre sacred site.

To maintain the historic integrity of one of the most culturally, religiously, historically and scientifically crucial aspects of this site and the nomination area, the site's solstice observation point, which is located in the southern portion of the nomination area, should in no way be degraded and impacted by the creation of a public hiking or biking trail through it; in fact, no trail, paved or unpaved, should run across it. To run a trail across it would be akin to placing a recreational path through a Christian church, Jewish synagogue, or Muslim mosque. Rather, the sanctity of this 9,000 - 9,500 year old sacred ceremonial site should be highly respected.

Concerning your questions regarding grading, the nomination area, relatively flat to begin with, has already been graded due to archaeological activities and programs. The grading did not affect the site's approximate elevation of 50' above sea level and so has not affected the site's historic integrity as an elevated plateau which is demonstrably fit for astronomical observation. Certainly, however, with any astronomical site, it is important to retain the existing site lines. As Dr. Tom Hoskinson, a recognized expert on Native American astronomy, archaeoastronomy, calendrics and rock art, has informed me, "With astronomical sites, particularly ones like CA-ORA-83 that will require further investigation, it is important to not obstruct/alter any of the site's local horizons."

Further grading of the area for the purposes of development could adversely impact the elevation, physical contours and form of the nomination area, and should not be permitted.

Are you also inquiring about grading in relation to potential landscaping (the removal of existing vegetation to be replaced with native vegetation)? If so, Native Americans do not support the unnecessary disturbance of habitat areas for cosmetic reasons. Any loss of environment, whether composed of Native and non-Native elements, is a significant loss. Animals, looking for concealment, food, nesting materials, and shelter, do not distinguish from non-Native and Native species. It has all become a part of their biological heritage. While including Native vegetation at interpretive points would certainly be welcome, and would probably facilitate the spread of certain species on their own, it would not be necessary to grade the 7.4 acres – or any portion thereof – for the purposes of replacing existing vegetation.

The 7.4-acre area of the CA-ORA-83 site that I, the nation's leading Native American organizations, and the nation's most prominent scholars in the fields of Native American and Native Californian astronomy and archaeoastronomy are requesting be preserved as the primary

element of the site's archaeoastronomical mitigation consists of elevated astronomical observation grounds which are demonstrably fit for both direct and indirect methods of solar observation. They include a naturally formed astronomical observation point with unobstructed, spectacular vistas of the surrounding horizon, the Pacific Ocean, certain coastal configurations (including an embayment and peninsula formation) and an offshore island, a pattern entirely consistent with the cogged stone sites of South America. They are also oriented to provide inland astronomical alignments and sight lines.

Their still functioning state and enormous research potential as one of the world's earliest observatory sites make them not only one of the Americas', but one of the world's, most significant 7.4 acres. Because their relevant outlying features are intact and functional in terms of their astronomical potential and we now know enough about the nature of astronomy in Native California to interpret, in relation to other important data obtained at the CA-ORA-83 site, observations made from these grounds as indicative of the CA-ORA-83 site's astronomical base, these 7.4 acres appear to retain the as yet untapped capacity to greatly push back the confirmed antiquity of astronomy in North America, as well as among the non-food producers of the ancient world. In light of this pivotal informational potential they are arguably among the nation's most historically and scientifically important treasures. As a recognized expert in Native Californian astronomy and calendrics, Dr. Robert Schiffman, has recently written regarding their preservation for future generations, "In this age of cultural enlightenment, I am surprised that anyone would challenge or question the need to protect the Cogged Stone Site."

Dr. Hoskinson has also written the following regarding the necessity of preserving the CA-ORA-83 site's archaeoastronomical resources, which include the entirety of the 7.4-acre nomination area and the site's known and potential alignments:

> The [CA-ORA-83] site has a naturally formed observation point (Jeffredo-Warden et al. 2004), which is at the intersection of the CA-ORA-83 winter and summer solstice alignments. These are the two times of the year when the sun "Stands Still" at the extreme southern and northern points of its yearly journey through the sky. In addition, the surrounding natural geographic features establish naturally occurring end points for these solstice alignments to make it a truly unique, naturally occurring solstice observation site – and a natural hierophany.
>
> The cogged stones that were an integral part of the CA-ORA-83 site are examples of portable American Indian rock art. Cogged stones are portable sacred sculptures that represent, among other things, celestial and cosmological motifs (refer to Jeffredo-Warden et al. 2004). American Indian rock art, by definition, contains spiritual power and is a potential portal to the sacred. In the American Indian worldview, stone may contain

power that remains from Creation Time. Special stones or stone formations are often regarded as representations of and links to the First People.

Among American Indians the sacred is an embedded attribute of all natural phenomena. The geographic features of specific sacred sites like CA-ORA-83 (including their location and horizon features) are themselves sacred and thus are essential aspects of the site's sacredness. CA-ORA-83 is located at a geographically critical intersection of the solstitial lines. The geographic end point of the winter and summer solstice sunset lines are horizon features ethnographically identified with the Time of Creation and the First People.

It is inconceivable that the Commission would, with or without mitigation, permit the destruction of a site that was and is sacred to a non-Native group. Therefore, permitting the destruction of the CA-ORA-83 site's sacred, historical, and archaeoastronomical resources and values without, to use Senator Dianne Feinstein's words, "identifying mitigation appropriate measures to protect the sacred and historical values of this site," will violate indigenous Californians' rights to due process and equal protection under Article 1 of the California Constitution. Given the grave issues that are involved here, there should be no question regarding the preservation of the 7.4 acres currently nominated, under national significance, to the National Register of Historic Places.

Thank you for your attention to these critical matters.

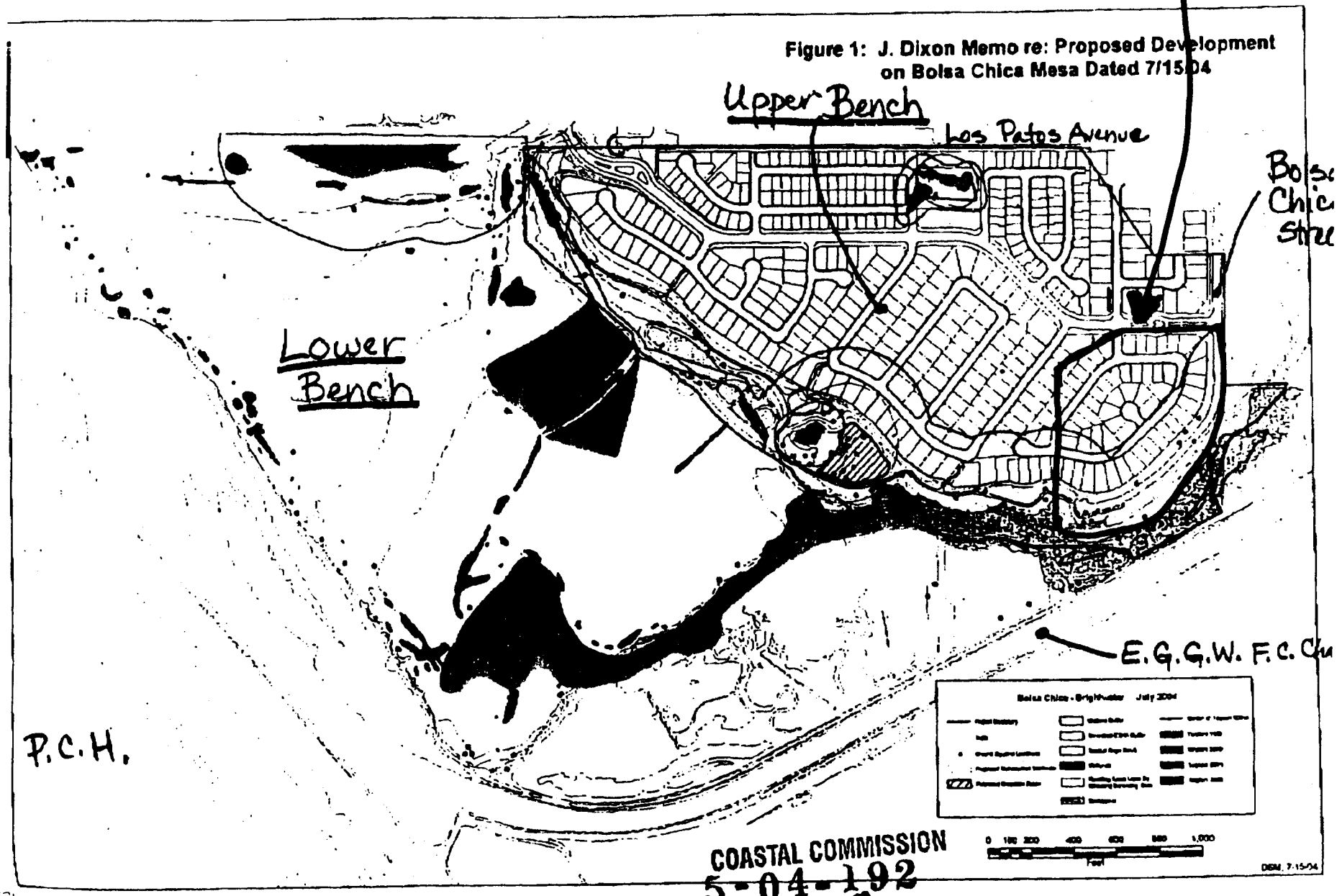
Sincerely,

Louise V. Jeffredo-Warden for
Maritime Shoshone, Inc.

cc: Board, Maritime Shoshone, Inc.
Dr. Tom Hoskinson
Dr. Robert Schiffman
Paul Kleven

Nomination Area

Figure 1: J. Dixon Memo re: Proposed Development on Bolsa Chica Mesa Dated 7/15/04



COASTAL COMMISSION
5-04-192
EXHIBIT # 20
PAGE 12 OF 12

146 La Grande
Moss Beach, CA 94038

September 12, 2004

Teresa Henry
California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

Re: Lawfully required mitigation of CA-ORA-83's archaeoastronomical resources

Dear Ms. Henry,

I have recently received a copy of Nancy A. Whitney-Desautels' August 10, 2004 letter to you. This unfortunate letter contains so many false, inaccurate and intentionally misleading statements it is difficult to know where to begin in response. For organization's sake, I have decided to address each in the order of its appearance in the letter.

Page 1, Paragraph 1: *"Ms. Jeffredo-Warden's theories about the archaeoastronomical characteristics of Ora-83 are unfounded and have never been demonstrated as factual by Ms. Jeffredo-Warden or any other individual."*

This extremely reckless, unprofessional and defamatory statement is, as you know, completely false.

I am the author of the most recent nomination of the CA-ORA-83 site to the National Register of Historic Places. This nomination was in part prepared to document the site's enormous potential for professional, expert, systematic archaeoastronomical research at the site. Not only was the nomination prepared and documented in strict accordance with National Register requirements, it far exceeds those rigorous requirements where documentation and proofs are concerned.

The nomination consists of 140 pages of single-spaced text, 33 attachments, including detailed maps, and several decisive photographic images. The result of more than three years of research, investigation, analysis and writing, it is explicitly detailed and documented, and provides a foundation of evidence based on our current state of knowledge regarding Native American and Native Californian astronomy; archaeological and archaeoastronomical data obtained at the CA-ORA-83 site, as well as at other cogged stones sites in southern California; cogged stone sites in Chile; and traditional and cultural knowledge pertinent to the astronomical resources and astronomically-based art which are present and which have been excavated at the CA-ORA-83 site. Absolutely no statement, no claim within the document is made without substantiation concerning the evidential and logical base for such statement or claim (in fact, the document contains over 160 citations covering anthropological, archaeological, archaeoastronomical, astronomical, ethnoastronomical, historical, ethnohistorical and ethnographic data which

substantiate the grounds, including archaeoastronomical, on which the site has been nominated for national significance to the National Register of Historic Places). In addition, where the site's archaeoastronomical resources are concerned, I and my co-nominators used investigative and documentary approaches that exceed the precision of standard, accepted practices of archaeoastronomical study which have been employed to locate and preliminarily document potential observatory sites (see, e.g., Jeffredo-Warden et al. 2004: 70 - 71 on methodology).

Moreover, my nomination was reviewed and is supported by the nation's leading experts in the fields of Native American and Native Californian archaeoastronomy and astronomy, as well as other nationally prominent scholars in the fields of archaeology and anthropology, including Dr. Anthony Aveni, Dr. Von Del Chamberlain, Dr. Alan Gillespie, Dr. Alicia Gonzalez, Dr. Tom Hoskinson, Dr. Ed Krupp, Dr. Robert Schiffman, Dr. Deward Walker, and Dr. Ray Williamson. As you know, as a result of my extensive investigation, research and documentation to confirm the need for further investigation and mitigation at the site, these highly respected and nationally recognized scholars have written to you and to Peter Douglas on my behalf and in support of the site's preservation, archaeoastronomical mitigation, and systematic archaeoastronomical investigation by expert archaeoastronomers and astronomers.

One of these scholars, a recognized and highly qualified expert on Native American archaeoastronomy, calendrics and rock art, has confirmed the accuracy of my and my co-nominator's initial astronomical observations at the CA-ORA-83 site. Through measurements and sophisticated, era-specific astronomical computations, Dr. Tom Hoskinson has confirmed that the site's solstitial alignments were astronomically functional at the site from the time of its earliest dated occupation at least 9,000 calendar years ago, through the current era, supporting our position that the CA-ORA-83 site apparently constitutes North America's earliest reliably dated observatory site (see **Attachment 1** for a copy of Dr. Hoskinson's letter to the State Historic Preservation Officer regarding this confirmation, and **Attachment 2** for a brief summary of Dr. Hoskinson's many years of leading expertise and accomplishments in the field of archaeoastronomy). According to Dr. Hoskinson, as currently there are no reliably dated direct solstice alignments that are as ancient as CA-ORA-83, the CA-ORA-83 site may also very well constitute the world's earliest known direct solstice alignments.

Page 1, Paragraph 2: *"The Coastal Commission approved peer review team for archaeological work at this site has included highly respected archaeologists such as Dr. William Wallace, Dr. Claude Warren, Dr. Henry Koerper, Professor Franklin Fenenga, Dr. Lowell Bean, Dr. Roger Mason, Dr. Paul Chace, and Mr. Paul Langenwalter."*

With all due respect to the members, both living and dead, of Ms. Whitney-Desautels' peer review team, not one of these individuals is an archaeoastronomer or astronomer, and not one can be considered an expert on Native American or Native Californian astronomy,

archaeoastronomy, and calendrics. Archaeoastronomy is a highly specialized and sophisticated field, and there are numerous experts which Ms. Whitney-Desautels could have consulted – as I did – to obtain knowledgeable and informed opinions of the archaeoastronomical merits of this site, if she had chosen to do so. (Ms. Whitney-Desautels apparently has no specific knowledge herself of the field of archaeoastronomy, as the website for her company, Scientific Resource Surveys, Inc., makes no mention of it.)

While the members of Ms. Whitney-Desautels' peer review team may be knowledgeable about archaeology, to my knowledge, they have not produced any significant research whatsoever in the field of archaeoastronomy. A simple Google search of each member of the Whitney-Desautels peer review team in conjunction with the word "archaeoastronomy" produces a minuscule few, if any, "hits". The only mentions of a member of her review team in conjunction with archaeoastronomy on the Internet is a master's thesis for which Dr. Claude Warren was the advisor in 1982, and a loosely related chapter on California Indians that Dr. Lowell Bean wrote. However, Dr. Bean confirmed for me in a telephone conversation I had with him in 2001 that he has not heard from or been in contact with Ms. Whitney-Desautels or any of her archaeological or anthropological agents in "*years*" (emphasis his own) – not since the mid-1990s. (Apparently, Dr. Bean was being cc'ed on documents which he never received; I actually forwarded him a letter written by the developer's attorney, Susan K. Hori, to inform him that, unbeknownst to him, his name was being used in this manner. He then informed me that two other "peer" reviewers who were also cc'ed on the Hori letter were actually dead, and had been so for numerous years!) For all other members of Whitney-Desautels' peer review team, my Google searches yielded no link whatsoever to the field of archaeoastronomy.

With respect to the archaeoastronomers who have reviewed my nomination and written in support of the CA-ORA-83 site's preservation and archaeoastronomical mitigation, a search of the Internet yields a wealth of very significant references, many about pioneering books and papers they have authored and edited in the field of archaeoastronomy. Doctors Ray Williamson, Anthony Aveni, Edward Krupp, Von Del Chamberlain, Alan Gillespie, Tom Hoskinson, and Robert Schiffman, all highly respected and nationally recognized experts in their respective fields of archaeoastronomy, astronomy, ethnoastronomy, archaeology and geology, produced a total of 903 Google "hits" in conjunction with the word "archaeoastronomy."

What this exercise clearly demonstrates is that the gulf between the archaeoastronomical background, knowledge and expertise of Ms. Whitney-Desautels' and my own reviewers – consider 2 vs. 903 "hits," respectively – is tremendous. Furthermore, of the 2 "hits" for Ms. Whitney-Desautels' reviewers, only one actually represented a paper authored by the individual himself, and even it was only loosely related to archaeoastronomy.

Consequently, one wonders how it can be claimed that a "peer" review effectively took place regarding this, an evidentially substantiated, astronomically-based, site, when not one of Whitney-Desautels' peer reviewers was or is an archaeoastronomer or astronomer, and when not one had or has a background in the field.

Page 1, Paragraph 2: *"I have shared Ms. Jeffredo-Warden's July 14, 2004 letter to Peter Douglas with members of the peer review team, and they uniformly concluded that her statements about this site are without merit and not supported by any anthropological data."*

I am at a loss to understand why Ms. Whitney-Desautels did not share a copy of my *nomination* (which is overwhelmingly supported by anthropological, archaeological, archaeoastronomical, and ethnographic data), rather than a copy of my July 14, 2004 letter to Peter Douglas (which has no social scientific or other citations attached and included in it), with members of her peer review team. One, Dr. Henry Koerper, even called the cultural and social anthropology department at Stanford University (where I received a graduate degree in anthropology) seeking more detailed information about my work respecting the CA-ORA-83 site because it apparently had not been granted to him by Ms. Whitney-Desautels, and he was trying to contact me to speak with me and learn more. If Ms. Whitney-Desautels' goal truly was to expose her peer reviewers to my positions regarding the CA-ORA-83 site so that the factual merits of these positions and arguments could be considered, why didn't she present them with the actual evidential materials upon which they are based?

Ms. Whitney-Desautels' peer reviewers' wholesale dismissal of my statements about this site and its archaeoastronomical significance as contained in my July 14, 2004 letter to Peter Douglas is therefore invalid because, as illustrated above, not one of these reviewers can be considered an expert in the field of archaeoastronomy, and because the reviewers' dismissal is not based upon any actual examination of the evidential base of my arguments, but upon an uncited letter whose purpose is not to prove the merits of my arguments to a review team, but to address the fact that I have been stripped of due process by a lack of notification regarding this permit application.

Page 1, Paragraph 3: *"To my knowledge, Ms. Jeffredo-Warden has never been on Ora-83, and if she has, she certainly has not spent the necessary time in the field to test her hypothesis that this site once functioned as a prehistoric astronomical observatory."*

In light of the nomination I produced respecting this site, the ridiculous, unsupportable nature of this statement is astounding. I have visited and documented aspects of this site

numerous times, and as anyone reviewing my nomination can effortlessly see, a remarkable amount of my time over the past few years has gone into investigating, researching and testing my positions respecting it and its still-functioning state as a Pacific-based, solstice observation point. Not only have I witnessed and visually documented solstitial phenomena at the CA-ORA-83 site, nationally known scholars such as Dr. Alicia Gonzalez (Executive Director, Museum of the American West, Autry National Center), a recognized expert and author of a recent book on sacred geography, have joined me at the site to do the same.

Page 2, Paragraph 1: *"The Brightwater development application currently pending before the Coastal Commission will not adversely impact the archaeological site Ora-83 because the special conditions imposed by the Coastal Commission on archaeological excavation permits and the mitigation measures and conditions of approval imposed by the County of Orange to mitigate the impact of future development on this resource have already been implemented. The adequacy of the County's measures was also upheld by a court of law. These measures providing for mitigation through data recovery of the site were specifically designed to recover archaeological resources, including any artifacts associated with archaeoastronomy."*

As this archaeological resource, ORA-83, also contains enormously valuable and nationally significant archaeoastronomical resources, informational values and research potential, and because the potential destruction of these resources, informational values and research potential has not been mitigated for as required by California law, the statement that the Brightwater development application currently pending before the Coastal Commission will not adversely impact the archaeological site ORA-83 is patently false.

The judgement by a court of law concerning the adequacy of the County's mitigation measures dealt exclusively with the removal of in-ground archaeological resources. Information regarding the site's tremendously unique, rare, and historically and scientifically pivotal archaeoastronomical resources was not presented to the court. Therefore, the critical issue of the site's archaeoastronomical mitigation has not been considered by any court of law.

As I have stated and evidentially demonstrated, as these mitigation measures were specifically designed to recover in-ground archaeological resources (whether or not the artifacts are associated with astronomical observation), they fail to protect and mitigate all of the site's extremely significant archaeological resources and informational values. The Coastal Act is unambiguous about the necessity of additional mitigation in such a case. It concretely provides that in any case where "development would adversely impact archaeological or paleontological

resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required." (Public Res. Code section 30244.)

Reasonable mitigation measures specifically regarding the CA-ORA-83 site's archaeoastronomical resources, informational values and research potential have in no way been enacted. Until expert, systematic archaeoastronomical investigation, research and analysis has been undertaken at and upon CA-ORA-83, the Coastal Act precludes development at the site.

Page 2, Paragraph 1: *"The Amount of archaeological work accomplished on this site over the past 33 years is staggering, far exceeding any normal investigative sample."*

Native California is a region quite characterized by its astronomically-based knowledge and belief systems. A 1979 social scientific survey found that "at least 34 out of 49 California tribes observed either the winter solstice or both solstices. . . . Their methods, where known, vary considerably, but they commonly used a horizon calendar for direct observations of the sun" (Williamson 1981: 62). It has therefore been common, accepted archaeological practice to enlist the services of archaeoastronomers and rock art specialists at indigenous southern Californian sacred sites, especially those with attributes as remarkable as those of CA-ORA-83.

As archaeoastronomy is a recognized sub-field of archaeology, as long as the archaeoastronomical resources at this astronomically-based, sacred ceremonial site have not been systematically investigated by competent archaeoastronomers or astronomers, the archaeological work at the CA-ORA-83 site remains flagrantly incomplete. It therefore cannot credibly be claimed or supported to have "far exceeded" any normal investigative sample or approach.

Page 2, Paragraph 2: *"Ora-83 has been evaluated for astronomical features, and its physical location does not support the use proposed by Jeffredo-Warden."*

While Whitney-Desautels provides no proof or expert review and analysis whatsoever to bolster her ludicrous claim that the site's physical location is not supportive of solstitial observation, I have concretely documented the reverse, and have had my conclusions reviewed by the nation's leading experts in the fields of Native American and Native Californian archaeoastronomy and astronomy, one of whom painstakingly confirmed the accuracy of my findings at the CA-ORA-83 site.

This particular expert also informed me that anyone with even rudimentary knowledge of archaeoastronomy and horizon astronomy could, in considering the site's specific physical form and features, and by examining the topographic maps of the CA-ORA-83 site and the surrounding region, see the CA-ORA-83 site was apparently founded for the purposes of astronomical observation, time-keeping and astronomically-based religious concerns.

Given the strikingly ignorant statement I have quoted above, it would appear no such appropriately trained person was ever brought in by Ms. Whitney-Desautels to evaluate the CA-ORA-83 site for astronomical features and/or to consult respecting the site, evidently one of the most valuable in the nation and the world where the history of astronomy is concerned.

Page 2, Paragraph 3: *"The mitigation measures and special conditions imposed by the County and Coastal Commission further required that all work be monitored by Native Americans and that consultation with a number of Orange County Native American tribal representatives be undertaken. . . . As a result of those Native American consultations and of discoveries elsewhere in Orange County of solstice related archaeological features, the studies at Ora-83 included repeated attempts to investigate whether or not Ora-83 was a solstice observation site. Solstitial observations were made several consecutive years between 1998 and 2002 in order to address the possibility that this site may have functioned as an ancient observatory. Astronomical and geographical alignments were calculated using the 'Voyager' program to see if any correlations existed between projected alignments and the position of the site. No exact correlations could be documented, a fact that was verified by numerous field observations of the horizon during seasonal solstices."*

Before I begin responding to the egregiously misleading statements contained in this paragraph I want to stress that my points of view regarding this site are entirely independent and unconflicted by monetary interests. I have no economic interest whatsoever in the development of this site, and have in fact incurred bills in the several thousands defending it against such development. I am not, nor have I ever been, a paid Native American informant or consultant for this or any other developer.

While CA-ORA-83 falls within territory traditionally and ethnographically attributed to Island/Adjacent Mainland Coast Shoshones (whom have also been referred to as Island/Coastal "Gabrielinos") (please see **Attachments 3** and **4**), these maritime people are not currently functioning at and with respect to this maritime/marine-oriented site as the Native American Heritage Commission's recommended Most Likely Descendants.

Where Native American consultation is concerned, it is crucial to bear in mind that Native Americans are not an interchangeable lot, like so many chess pieces on a board to be imported in and out of each other's prehistoric, historic, modern and traditional realities. We are, of course, uniquely and distinctly positioned people with our own bases and sets of cultural and religious knowledge, beliefs, orientations and sensitivities. This is especially true where extremely esoteric knowledge such as astronomy is concerned. In indigenous southern California astronomical knowledge was not homogeneously held throughout a society, but controlled by and concentrated within elite, high-ranking families – in other words, individuals and groups situated to know some sets of astronomical knowledge and not others.

On my paternal grandfather's side I descend from a distinct line of elite, maritime specialists (Catalina/Adjacent Mainland Coast Island Shoshones, or *Po$unngawichum*) who consistently sustained and utilized, far into the 20th century, not only an intimate knowledge of the coastal stretch and environs in which this site was established, but indigenous astronomical knowledge pertaining to the effective and safe use of this zone, making it possible for me to identify and test potential astronomical resources at the CA-ORA-83 site. As the ethnoastronomer Stephen Fabian has written, "Native lifeways are often intimately tied to a specific environment, and often rich native astronomies exist that have been used to sustain a people for generations, centuries, even millennia, as part of that environment" (2001: 6) – a state of affairs that certainly was true of my paternal grandfather's family, with whom I worked for five years to record fishing folklore (a knowledge system heavily influenced by astronomical knowledge).

On my paternal grandmother's side, I descend from Luiseños (or *Payomkawichum*) and San Clemente Islanders. The knowledge I additionally gained from this side of my late father's family, as well as from prominent elders in the Luiseño community (e.g., as part of my graduate studies at Stanford, over a six-year period I did folkloristically- and linguistically-oriented work with an extremely prominent Luiseño elder, the sister to the last of the hereditary chiefs among the Luiseños) has also historically, culturally and religiously positioned me to argue for greater state-wide and national awarenesses respecting this site.

An enrolled member of a federally-recognized band of Luiseño Mission Indians, I also hold degrees from the University of Southern California and Stanford University in environmental studies and anthropology, both fields in which I have contributed professional publications. By way of example, my publications on indigenous southern Californians include an entry on the Luiseños in the *Encyclopedia of North American Indians* (Houghton Mifflin, 1996) and an essay in *Over the Edge: Remapping the American West* (University of California Press, 1999) concerning indigenous southern Californian perspectives and the sacred.

Ms. Whitney-Desaultels contends that "solstitial observations were made several consecutive years" at the CA-ORA-83 site and that "no exact correlations could be documented." As you know from the materials I have included in my National Register nomination, and which have been verified by expert examination, her claims are wholly incongruent with documented evidences which were obtained and which are obtainable at the site. At both the summer and winter solstice, the sun sets behind significant, observable landmarks, phenomena which has been documented and verified by mapping of the solstice sunrise and sunset coordinates (obtained from U.S. Naval Observatory software), and careful, on-site measurements, observations and photography of the solstitial phenomena for each seasonal extreme.

Ms. Whitney-Desautels does not provide any methodology whatsoever regarding her purported, failed astronomical efforts at the site, nor does she tell us she was assisted by an expert in the fields of archaeoastronomy or astronomy during these efforts. If methodology were provided, there would be a way to track and verify her inconsistent claims and conclusions, and perhaps even to identify the problem in her apparently ill-informed use of the Voyager program. As Dr. Hoskinson has written regarding a comparison of Voyager and SkyMap, the astronomy program of his choice:

> Both of these programs are very competent computer based astronomy programs that can accurately display how the sky looked (or will look) - over time - from any spot on earth.
>
> Both programs require a basic set of local horizon measurements and observation site location data as program input. Both programs also require that the user have some fundamental general knowledge of astronomy and, specifically, a good understanding of Earth Horizon based astronomy (very few modern people qualify on this one).
>
> If these fundamental requirements are not met, you have a GIGO situation (Garbage In = Garbage Out) (see **Attachment 5** for the full text of this note from Dr. Hoskinson).

It is possible that Ms. Whitney-Desautels has erroneously focused her attention on the horizon as observed at solstice midday and has drawn her unsupportable conclusions based on these observations. Solstitial alignments are, of course, widely known to not only occur at midday, but at the times of sunrise and sunset, as well. My research clearly and aptly indicates that still-functioning sunset alignments occur at the CA-ORA-83 site, a conclusion with which prominent scholars in the archaeoastronomy community professionally and personally agree.

Page 3, 1st Paragraph: *"Ms. Jeffredo-Warden did not provide my client, the landowner of Ora-83, with a copy of her site nomination papers, nor has she communicated to my client, the peer reviewers, or me any of the concerns she has regarding cultural resources."*

My nomination was finished and delivered to the California Office of Historic Preservation in May of 2004. The responsibility to provide Ms. Whitney-Desautels' client, the landowner of Ora-83, with a copy of this nomination did and does not rest with me, but with the California Office of Historic Preservation.

As you are aware, the day I learned of the landowners' permit application by way of the press (a highly interested party, I was not notified of this permit application, as is required by law), I immediately called you, then overnighted a copy of the nomination to you. Since the hearing respecting this nomination will not be held until November and the landowner has had, via your office, access to my nomination since May, the landowner has in actuality received far more time to consider this nomination than landowners customarily receive.

The claim that I have never aired or communicated my concerns about this site's cultural resources to the landowner is ridiculous, given the landowner's attorneys were always present at the various hearings regarding this site that either I or my late father passionately testified at over the years, pleading that the actual significance of this site was in no way being dealt with or appropriately addressed. On many occasions, Ms. Whitney-Desautels was also present – sitting but a few feet away from me – when either I or my father testified. I also wrote numerous letters and position papers over the years that, concerning this site's cultural and religious resources, are readily available through the public record. In 1997 I even filed an appeal with the County of Orange seeking to prevent the grading of this site and the destruction of its cultural and religious resources. I also communicated concerns respecting this site and the archaeological work being done at it to Dr. Lowell Bean; thus, the statement that I never communicated with a peer reviewer regarding this site and its cultural resources is also false. To the contrary, over the years this developer and archaeologist has had abundant knowledge of me, my family and the grave concerns I and we have respecting the site's cultural and religious resources and the site's archaeological treatment and improper mitigation.

Now it's my turn. How dare this archaeologist complain about my indigenous and professional, anthropological knowledge not freely flowing her way when a chief complaint regarding her and her archaeological work over the years at CA-ORA-83 is that it has apparently "not been conducted in an open and professional manner" (refer to **Attachment 6**, 1995 letter from Claudia Nissley, then Director of the Western Office of Review, National Advisory Council

on Historic Preservation, to Louise Jeffredo-Warden); and when the state of Indian-White power relations at the site is reportedly such that an indigenous consultant (a Coastal Gabrielino) alleged he was thrown off the property when he disagreed with Ms. Whitney-Desautels' reported failure to follow the law where the site's cultural resources are concerned (see **Attachment 7**, letter from Sam Dunlap to Native American consultants).

Where the flow of information is concerned, do not fail to recognize that had it not been for my nomination, archaeoastronomers – the appropriate social scientists to design a mitigation plan for the astronomically-based CA-ORA-83 site – would never have received scholarly notice of the CA-ORA-83 site and the impending destruction of its archaeoastronomical resources.

Page 3, 1st paragraph: *"Ms. Jeffredo-Warden omits the fact that in 2001 she submitted a request to nominate Ora-83 to the National Register of Historic Places. The State Historical Resources Commission acted upon her request and has forwarded the nomination form, which includes her materials, to the Keeper of the National Register. This determination of eligibility was taken into consideration by the County in 2002 when it developed the mitigation measures for Ora-83 and approved the Brightwater project."*

From the perspective of a scholar with a graduate education in discourse analysis, these sentences contain some of the most abusive manipulations of wording I have ever encountered. The references actually have nothing to do with my own work.

Carefully note Ms. Whitney-Desautels contends that I submitted a "request," rather than an actual nomination form or document, to nominate the CA-ORA-83 site to the National Register of Historic Places.

I have only authored one nomination, a copy of which is in your possession. My name was placed on a nomination non-Natives created respecting this site. The only requests I made regarding this particular nomination is that it be **returned** to the Office of Historic Preservation and its authors by the Keeper of the National Register due to technical and substantive issues and inaccuracies, an event that occurred.

The State Historical Resources Commission is not responsible for forwarding nomination forms to the Keeper of the National Register. It is the California Office of Historic Preservation's responsibility to forward nomination forms to this office.

When the non-Natives' nomination was initially forwarded to the Keeper of the National Register's office, it contained a manuscript of mine concerning the CA-ORA-83 site that had been attached without my permission. At the State Historical Resources Commission hearing to consider this nomination, the Commission took it upon itself to formally deem the manuscript I had written as an attachment to the non-Natives' nomination, an act that I immediately protested at the hearing, as well as later in writing.

While a determination of eligibility for inclusion on the National Register (under state-wide significance) may have been "taken into consideration by the County in 2002 when it developed the mitigation measures for Ora-83 and approved the Brightwater project," the information contained in my nomination regarding the site's archaeoastronomical resources was never taken into consideration when mitigation measures were developed for the CA-ORA-83 site, because this information was not contained in the non-Natives' nomination or the particular text that I authored which was attached to this nomination. Hence, in no way can the developer argue that the site's nationally significant archaeoastronomical resources and informational values were or are adequately considered and addressed in the site's current mitigation plan.

Page 3, Conclusion: *"There is no evidence to suggest that the Brightwater development will adversely impact ORA-83 or that any further mitigation measures are necessary . . . Moreover, based upon actual studies conducted on site, there is no evidence to support the hypothesis that Ora-83 functioned as an astronomical site, and therefore no additional mitigation is required beyond that which have already been imposed by the County and the Coastal Commission."*

Extraordinary, ample, verifiable evidence regarding the CA-ORA-83 site's archaeoastronomical resources, enormous informational value, and heightened, irreplaceable symbolic environment and state as a still-functioning solstice observatory and naturally occurring heirophany effortlessly show the need for further site mitigation, which is in any case required by law. Mitigation is not a choice with respect to these resources. It is a legal requirement of the Coastal Act.

In view of this letter, my extensive documentary efforts and materials concerning this site, and the letters you are now receiving from the nation's leading archaeoastronomers and astronomers, it should now be perfectly clear that despite this site's unfortunate history and handling – in other words, irrespective of whether Ms. Whitney-Desautels possesses the ability and expertise to correctly and adequately recognize, investigate and report on this site's

confirmed archaeoastronomical resources, there is still time to save this ancient observatory site – truly a national and world treasure – for the people of this state and nation. I implore you and the staff to do what I know you and its members know is the moral and the right thing to do respecting these resources. Protect and document them, as is required by law.

Sincerely,

L V Jeffredo-Warden

Louise V. Jeffredo-Warden for
Maritime Shoshone, Inc.

cc: Board, Maritime Shoshone, Inc.
Dr. Anthony Aveni, Colgate University
Dr. Lowell Bean, California State University, Hayward
Von Del Chamberlain, Pope Southwest Desert Institute
Peter Douglas, California Coastal Commission
Senator Dianne Feinstein
Dr. Alan Gillespie, University of Washington
Dr. Alicia Gonzalez, Museum of the American West, Autry National Center
Dr. Tom Hoskinson, The Aerospace Corporation
Dr. Ed Krupp, Griffith Observatory
Paul Kleven, esq.
Steve Mikesell, California Office of Historic Preservation
Christina Morrow, National Congress of American Indians
Claudia Nissley, National Preservation Institute
Chris Peters, Seventh Generation
Alberto Saldamando, esq., International Indian Treaty Council
Dr. Robert Schiffman, Bakersfield College
Dr. Deward Walker, University of Colorado
Dr. Ray Williamson, Space Policy Institute

Note: Attachments 1-7 are identical to the attachments of the Sept. 13, 2004 of Louise V. Jeffredo-Warden. Ms. Jeffredo-Warden's 9/13/04 immediately precedes this letter.
T. Henry

September 20, 2004

REGARDING PURPORTED ARCHAEOASTRONOMICAL ASPECTS
OF BOLSA CHICA MESA:
REVIEWED BY THE PEER REVIEW TEAM
FOR ARCHAEOLOGICAL INVESTIGATIONS ON CA-ORA-83, THE COGGED STONE SITE

We are in receipt of correspondence submitted by Louise Jeffredo-Warden and her attorney and Ms. Jeffredo-Warden's nomination of ORA-83 currently on file with the State Office of Historic Preservation. The undersigned individuals are all members of the peer review team that have consulted with Dr. Nancy Whitney-Desautels of SRS on the archaeological studies conducted at ORA-83. We have reviewed the research designs, the excavation plans, artifacts and cultural resource features that have been uncovered and recovered from ORA-83. We have made numerous site visits to ORA-83 to review the excavations while they were in progress and have discussed with Dr. Desautels her findings and conclusions regarding the site. We are familiar with SRS's summary of previous archaeoastronomical studies of the summer and winter solstice observations gathered over the years at appropriate times at Bolsa Chica Mesa

As a result of our lengthy and extensive involvement at ORA-83, we are highly disturbed by the claims made by Louise Jeffredo-Warden regarding the archaeoastronomical aspects of ORA-83. Her claims lack any scientific basis. First, as with all science, an understanding of the physical evidence is fundamental. Unlike the peer review team, Ms. Jeffredo-Warden has not scientifically examined ORA-83 or to our knowledge even set foot on the site and seemingly has not reviewed any of the artifacts and findings of Dr. Desautels. She in fact admits the same in her clear statement on page 11 of her May 2001 application that she has not had access to the CA-ORA-83 site. Her conclusions therefore are not based upon the physical evidence of the site. Second, she has not consulted with any of the archaeologists, including ourselves, who have been most directly involved with the excavations at ORA-83. Her claims are developed and made in an information vacuum.

For a full decade, archaeoastronomical studies have been conducted by Native Americans, archaeologists, and geophysical and geoplanetary scientists on Bolsa Chica Mesa under the auspices of Dr. Desautels and SRS. Software packages for horizon projections and physical observations were used for 1994, 1995, and 1996 on several days bracketing the summer and winter solstices and then again in 1999, 2000, and 2001. No precise horizon target has been observed.

We have reviewed the data collected by SRS on this aspect of their research. As a result of that review, we the undersigned take the position that solstices have probably long been observed with ceremony and ritual by local prehistoric peoples, but supporting archaeological evidence for such is often difficult to identify and in many cases may not even exist. The only persuasive case for either a prehistoric winter or summer solstice focus depends upon evidence of an alignment of features on the site itself.

The local prehistoric occupants of the Bolsa Chica area may well have recognized solstitial events from many places along the coastline by sighting to landforms such as an island and/or a peninsula. Any such landforms will remain in place, the sun will endure, and consequently future opportunities to observe solstices from CA-ORA-83 will be available annually. We maintain that this would constitute one of the intangible informational social aspects of a group that cannot be proven or mitigated, as operationalism is not possible. We

the peer reviewers maintain that no further mitigation is justified based on purported archaeoastronomical significance.

Dr. Paul Chace

Dr. Hank Koerper

Dr. Roger Mason

70023175.1
9/21/04

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

COLLEGE OF NATURAL AND SOCIAL SCIENCES

Department of Anthropology

Teresa Henry
South Coast District Manager
California Coastal Commission
200 Ocean Gate
Suite 1000
Long Beach, CA 90802-4302

September 15, 2004

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SEP 17 2004

CALIFORNIA
COASTAL COMMISSION

August 15, 2004

Dear Teresa :

I hope I am not inundating you with too much information. I have enclosed the following:

1. Letter dated Sept 1, 2004 from the State Historic Preservation Officer (SHPO) stating the history of the current National Register of Historic Places (NRHP) nomination, asking for comments, and indicating their intention to forward the nomination to the Keeper of the Register.

2. ORA-83 Information Sheet, which I prepared in 2000. This includes the date of the State Historical Resources Commission (SHRC) Information Meeting in Long Beach in 1995.

3. The letter from the Peer Review Committee describing the semi-subterranean "house pits" and other exotic items.

4. Three letters of support for the significance of the site.

5. The minutes of the 1983 SHRC meeting when the site was determined eligible to the NRHP.

6. A photo showing a cut-bank with 200+ cm (6.6 ft) of cultural deposit.

7. Photos showing the "controlled destruction" of ORA-83. I am not certain when the controlled destruction began, except that it was after the site was determined eligible by the SHRC in November 2001. If this were not the case, I am sure that the property owners would have presented this information at the SHRC to try and stop the nomination from going forward and this was not the case.

5151 State University Drive, Los Angeles, CA 90032-8220 (323) 343-2440 FAX: (323) 343-2446 www.calstatela.edu

The California State University: Bakersfield, Channel Islands, Chico, Dominguez Hills, Fresno, Fullerton, Hayward, Humboldt, Long Beach, Los Angeles, Maritime Academy, Monterey Bay, Northridge, Pomona, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo, San Marcos, Sonoma, Stanislaus

The "controlled destruction" (e.g. the use of heavy equipment to grade away the site with archaeological monitoring) of the site was justified by saying that the controlled grading program was based on requirements established by the Coastal Commission in 1991, which were adopted at the recommendation of the peer review group to address concerns raised by the Pacific Coast Archaeological Society (PCAS) that all of the site, including the area that had been historically farmed, should be excavated. The PCAS was responding to the fact that the developer's archaeologist was saying that the area that had been farmed was too disturbed to contain important archaeological data and could be destroyed without any mitigation. There was no mention of controlled destruction. There is a big difference between additional excavations to determine whether intact cultural deposits are present and "controlled destruction", which is done when a site is being graded for a development. It should not be done before there is approval for the development. The last paragraph of GENERAL RESPONSE 1 – SIGNIFICANCE OF CULTURAL RESOURCES (April 2002 Responses to Comments to the Draft EIR for the Brightwater Development Company) says that the controlled grading program and data recovery continues to yield artifacts similar to those initially discovered on the site. This implies that even controlled destruction was a waste of time and they should have just let it be bulldozed. Apparently, they (LSA Associates, Inc.) were not privy to the rumor that something really important was discovered (See the Peer review letter Item 3).

I hope this is of help. I should mention that the 2001 nomination started out as a joint application with Louise Jeffredo-Warden, but she became very irate with me and my colleague Jeanne Munoz, a cultural anthropologist, because we asked her to provide some back up information to support her contention that her group, the Southern Channel Islanders are the true descendants of the 8,500 year old site to the exclusion of the Juaneño and Gabrielino descendants. This may be true, cultural affiliation is difficult to determine archaeologically, unless the Native Americans would allow DNA studies, but the skeletal remains were reburied without further study, and we were hoping she had some oral history to support this claim. In any case, she objected to the two previous submittals of the nomination so it was decided that she should express her own views in a separate nomination.

Your efforts in behalf of the cultural and natural environment are greatly appreciated. If you have further questions, please give me a call (949) 559-6490 home and (323) 343-2440 office. I expect to be working at home the rest of the week and will be in the office the week of Sept. 20th.

Sincerely,

Patricia Martz

Patricia Martz, Ph.D.
Chair and Professor
Enclosures (7)

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P O BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov

September 1, 2004

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CALIFORNIA
COASTAL COMMISSION

Ms. Patricia Martz, Ph.D.
California State University, Los Angeles
5151 State university Drive
Los Angeles, California 90032

Subject: **Cogged Stone Site, CA-ORA-83/144**
National Register of Historic Places

Dear Ms. Martz:

The **Cogged Stone Site** National Register of Historic Places nomination was submitted to the Keeper of the Register in Washington D.C. for determination of eligibility on November 20, 2001 after the State Historical Resources Commission found the property eligible for the National Register on November 2, 2001. The Keeper returned the nomination to the Office of Historic Preservation on January 18, 2002 for revisions. Revisions were made and the nomination was returned to the Keeper on August 29, 2003. The Keeper returned the nomination to the Office of Historic Preservation on January 8, 2004 for additional revisions. The nomination is now revised in response to the Keeper's most recent comments.

A copy of the revised nomination is enclosed. Pursuant to Federal Rules and Regulations 36 CFR Part 60.6(w), the Office of Historic Preservation is submitting the revised nomination and the Keeper's comments to you for review and comment. Your comments must be received by this office no later than October 18, 2004 and will be forwarded to the Keeper of the Register along with the revised nomination.

If you have any questions, please contact Cynthia Howse of my staff at (916) 653-9054.

Sincerely,

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Encl 1

GENERAL RESPONSE 1 - SIGNIFICANCE OF CULTURAL RESOURCES SITE ORA-83

The significance of cultural resources site ORA-83 is extensively documented in the Brightwater Subsequent EIR in Section 4-11, pages 9-12 and 19-22, as well as in FEIR 551, the program EIR prepared in connection with the General Plan Amendment zone change and local coastal program by the County of Orange in 1996 for the Bolsa Chica property. Because the site has been determined eligible for listing on the National Register, it is treated as a "historical resource" under Section 15064.5 of the CEQA Guidelines, and potential project impacts to the site are considered significant. FEIR 551 also recognized ORA-83 as a site that was eligible for listing in the National Register.

ORA-83, as a significant cultural resource site, has been the subject of numerous investigations since 1970. Recovery of artifacts from the site has included shell and bone fragments, including projectile points, shell beads, ground stone, chipped stone, bone and shell tools, ornaments, as well as over 400 cogged stones from which the site derives its common name. The recovered artifacts document human activity on the site to somewhere between 6000 B.C. and 900 B.C. The site has been determined to consist of an area of approximately 1,800 square meters, as shown on Table 4.11.B. As described in the DSEIR and in FEIR 551, human bone fragments were also found on site ORA-83.

Recovery of the documented artifacts began pursuant to a multiphased test excavation and data recovery program in 1983-84. The first phase of work focused on determining site boundaries and ascertaining the presence of intact deposits. Because ORA-83 had been subject to considerable disturbance from farming and World War II bunker construction activities, it was thought that much of the site had been disturbed, with only limited areas of the site retaining site integrity. A second phase of data recovery was conducted from 1990-95. In recognition of the ongoing data recovery, FEIR 551 applied Project Design Features (PDF) and Standard Conditions of Approval (SC) requiring the scope of work for the data recovery program to be submitted for review and approval by a peer review group of qualified archaeologists. The peer review group was established pursuant to a special condition on the coastal development permit approved for archaeological investigations by the California Coastal Commission. A key component of the data recovery program approved by this peer review group is the controlled grading program designed to retrieve all potential site artifacts. The controlled grading program was based on requirements established by the Coastal Commission in 1991, which were adopted at the recommendation of the peer review group to address concerns raised by the Pacific Coast Archaeological Society that all of the site, including the area that had been historically farmed, should be excavated.

A critical part of the data recovery program was the peer review of site data recovery methodology by qualified archeologists, as required as part of the mitigation program for ORA-83. Another important requirement includes consulting and monitoring of the data recovery by Native American representatives. Excavation and reinterment of Native American human remains discovered in the data recovery excavations are undertaken in accordance with the recommendations of the most likely descendants identified by the Native American Heritage Commission pursuant to Public Resources Code Section 5097.98.

ORA-83 INFORMATION SHEET

A. History of Archaeology Work at ORA-83

1. 1960-1961: investigations conducted by a man named Strant. Approximately 137 cogged stones (complete and frags) recovered. Photos and some groundstone artifacts, not cogged stones curated at California State University, Los Angeles (CSULA)

2. 1964: ORA-83 recorded in 1964 by Dr. Keith Dixon and Dr. Hal Eberhart.

3. 1968: CSULA excavation, under Eberhart's supervision. Collections curated at CSULA.

4. 1970: Survey and evaluation by Lester Ross and Roger Desautels.

5. 1971, 1974, 1975: Test excavations by Archaeological Research Inc. (ARI) Roger Desautels and Jeanne Munoz.

6. 1975: Site evaluated by Marie Dr. Cottrell and Dr. Glen Rice

7. 1981, 1982: Scientific Research Services (SRS) Nancy Desautels, Ph.D. (prop) conducted archival research on the site.

8. 1980: Pacific Coast Archaeological Society PCAS) prepared an application for listing on the National Register of Historic Places (Register). Application dated July 23, 1980 and prepared by Pat Ware.

9. 1981: State Historical Resources Commission (SHRC) rejected the application on the basis of lack of integrity.

10. 1982: SHRC asked to reconsider the application and again decided to drop the site from consideration.

11. 1983: Application resubmitted. Speaking in opposition: Glen Smith, Metropolitan Water District, Robert Thornton, Signal Landmark, Inc., Nancy Desautels (SRS) archaeological contractor for the then owner, Signal Landmark, Inc and Ray Belardes, representing the Juaneno Band of Mission Indians and consultant for Signal Landmark. This time the SHRC, led by Julia Costello, Ph.D. recommended that the site be nominated to the Register at the state level of significance. It was never forwarded to the Keeper.

12. 1983: SRS received Coastal Commission permit (CDP 5-83-984) to conduct final research and data recovery program, phase I. The Cogged Stone Site, Final Research and Salvage Program prepared for planned 1984 excavations and distributed to wide range of agencies and organizations: State Office of Historic

Encl 2

Preservation (SHPO), Orange County Historical Resources Commisssion, County of Orange and PCAS.

13. 1983-1986: SRS monitors geotechnical trenching excavations.

14. 1983-1984 : Testing and evaluation program by SRS consisting of auger holes, backhoe trenches, test units. Conclusions: only a small area of ORA-83, the area around the eucalyptus grove and the area immediately east and north of the grove contain relatively intact cultural materials in sufficient quantity to provide important information.

15. 1986: Archaeological Evaluation of CA-ORA-83: The Cogged Stone Site on Bolsa Chica Mesa, Orange County, California, Interim Test Report prepared by SRS.

16. 1987: Research Design prepared by Roger Mason, Ph.D. for SRS.

17. 1989: Signal Landmark/Koll received CDP 5-89-772 to conduct final data recovery program, Phase II.
    a. Special Condition to the permit required that the research design be reviewed by PCAS. The PCAS review committee: Keith Dixon, Ph.D., Patricia Martz, Ph.D., Pat Ware.

    b. PCAS reviewed the research design and prepared comments indicating the following concerns: (1) In spite of the wide variety of artifacts and ecofacts indicating a substantial settlement, the site is characterized as a typical shell midden with activities that are not unusual and do not distinguish the site as a sgnificant resource. Over 400 of the enigmatic cogged stones have been recovered from the site. These are important, however, the research is oriented toward the recovery and analysis of the cogged stones and issues regarding subsistence strategies, settlement pattern, social interaction and trade, paleoenvironmental reconstruction, etc. are largely ignored. (2) The original size of the site was more than 35 acres, at present approximately 7 acres remain. Based on the placement of a series of auger holes at 20 m intervals, the majority of the site is written off as disturbed by plowing, and data recovery excavations are concentrated within and adjacent to the eucalyptus grove. This does not constitute adequate mitigation for the total destruction of the site.

18. 1990: Susan Hori, attorney for Signal Landmark/Koll, writes a letter to the Coastal Commission that saying that they disagree with the PCAS committee's comments, and they want the debate settled by their own peer panel.

19. 1991: Coastal Commission approves an amendment authorizing removing PCAS from the permit conditions and adding the Peer Review Team selected by SRS to resolve the issues. They approve the research design.

20. 1991: SHPO to requests that the Coastal Commission add them to the list of reviewers. The 1983 Research Design, 1987 Research Design and 1986 Interim Test Report are sent to SHPO staff: Leslie Hartzell. Leslie Hartzell says that absent direction from the Corps of Engineers, SHPO cannot provide comments to the Coastal Commission. The Corps of Engineers decides that they have no jurisdiction.

21. 1991: Coastal Commission approves amendment to remove SHPO from the permit conditions. 1991-1994: SRS conducts data recovery excavations in the area of the eucalyptus grove and places the auger holes in the plowed field portion of the site.

22. 1993: Approximately 30 concentrations containing highly mineralized and poorly preserved human remains consisting mainly of long bone midshafts and cranial vaults are discovered. SRS calls them "bone concentrations" and the coroner's representative, Judy Suchey, Ph.D., is called when burial 19 is exposed. According to Suchey's report (case 10-16-93), the remains come from a uniform layer, the upper part of the Pleistocene terrace deposit and resemble the Early Horizon material from Central California. Current dating procedures indicate that they are approximately 8000 years old One cranial fragment had an enigmatic feature that resembled a trephination

23. 1994: The skeletal remains are reburied by the Native American consultants.

24. 1995: The SHRC conducted an informational meeting on the cultural resources affected by the development on the Bolsa Chica Mesa.

25. 1995: Cherilyn Widell, SHPO and Patricia Martz, SHRC Chair meet with the developer (same players, but now called Koll Real Estate Group) to discuss the deficient research design, lack of any consideration for preservation as a mitigation treatment, lack of reports, interpretation to the public, or curation plan. A memo is prepared by Martz documenting the concerns. Koll promises to provide a revised research design.

26. 1997: Letter from Widell to Koll dated June 5, 1997 indicates that the research design was never sent to SHPO.

27. 1998: Orange County Commissioners hold a hearing regarding Koll's request for a permit to conduct "controlled destruction" in areas designated by SRS as disturbed based on the auger holes. In spite of testimony by archaeologists and Native Americans that this is not appropriate treatment, the permit is granted.

28. August 4, 1999: Grading (controlled destruction?) adjacent to ORA-83 exposes human remains. Coroner's report 99-05178ME.

29. Nov. 5, 1999: Grading same general area exposes human remains. Coroner's report 99-07108-LL.

30. April 7, 2000: Grading same general area exposes human remains. Coroner's report 00-02277-RO.

31. May 1, 2000: Grading same general area exposed human remains. Coroner's report 00-02791-LY

32. Coastal Commission Permit to allow the development of the Bolsa Chica Mesa and the destruction of ORA-83, 78, 144, 84, 289, 85, and 288 with provisions for open space for habitat, but no provisions for preservation of even a portion of any of the archaeological sites has been postponed until November.

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COASTAL COMMISSION

Dr. Nancy Anastasia Desautels
Scientific Resource Surveys, Inc.
1935 Orange Avenue
Costa Mesa, CA

10 July 2003

To All Those Concerned:

This letter statement is intended to document that the Ora-83 Site Peer Review Committee has had two meetings to review, debate, and update the Research Design statement for the Ora-83 site study. With the incorporation of these latest thoughts, it is believed that revisions of Scientific Resource Surveys' research strategies for integrating the field investigations with the laboratory analyses should result in a comprehensive final report on the important heritage represented at the Ora-83 locale.

Meetings were called on June 16th and July 3rd, 2003, to update the Ora-83 Research Design. Dr. Nancy Desautels met with the Ora-83 Peer Review Committee composed of Dr. Henry Koerper, Dr. Roger Mason, and Dr. Paul Chace, and an open dialogue occurred on appropriate and needed research design topics for the Ora-83 project. The Peer Review Committee members, over the last several years, have overseen the nature of the ongoing phases of the Ora-83 site investigations and had made recommendations on strategies appropriate to address the unusual breadth of the emergent field discoveries. Now, for updating the previously established Research Design of 1997/98, the principal concerns were to insure the inclusion of the data analyses and interpretation of all the newly recognized and emergent information sets gleaned from the Ora-83 field investigations.

Overall, it was recognized that the previously produced Research Design has served well in orienting useful strategies for the fieldwork, as well as for the laboratory processing and analysis leading toward a comprehensive archaeology report. However, it was recognized that emergent topics might best be addressed by addenda to the earlier Research Design. These special new topics included (1) describing and evaluating the patterns of the multitude of semi-subterranean 'house pit' features revealed, (2) recognizing and interpreting the plethora of presumed ritual items and exotic materials recovered, and (3) distinguishing the slightly different cultural expressions represented across the Ora-83 locale in different eras; and finally, as a practical matter, (4) development of an outline for the anticipated comprehensive master report -- to orient all final analyses needed for composing the Ora-83 interpretive report. Further, it is anticipated that completion of Scientific Resource Surveys' comprehensive master report on the Ora-83 prehistoric site project should occur before the end of 2005.

Scientific Resource Surveys is addressing these revisions to the Research Design appropriately, and we all look forward to the final report on the significant heritage realized at the Ora-83 locale.

Signed,

Dr. Henry Koerper

Dr. Roger Mason

Dr. Paul Chace

ATTACHMENT 15

Encl 3

LORETTA SANCHEZ
46TH DISTRICT, CALIFORNIA

COMMITTEE ON
EDUCATION AND THE WORKFORCE

SUBCOMMITTEES
EDUCATION REFORM
WORKFORCE PROTECTIONS
SELECT EDUCATION

COMMITTEE ON ARMED SERVICES

SUBCOMMITTEES
MILITARY RESEARCH AND DEVELOPMENT
MILITARY PERSONNEL
SPECIAL OVERSIGHT PANEL ON TERRORISM

Congress of the United States
House of Representatives
Washington, DC 20515-0546

REPLY TO:
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☐ DISTRICT OFFICE
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GARDEN GROVE, 92840-4695
(714) 621-0102
(714) 621-0401 F
www.house.gov/s chez
Loretta@mail.hou gov

October 30, 2001

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CALIFORNIA
COASTAL COMMISSION

Dr. Knox Mellon
State Historic Preservation Officer
Office of Historic Preservation
Post Office Box 942896
Sacramento, CA 94296-0001

Subject: CA-ORA-83, Cogged Stone Site

Dear Dr. Mellon:

As the Representative for the 46th Congressional District, I am writing in support of listin CA-ORA-083 as a State Historic Preservation Site.

ORA 83, which lies within the Bolsa Chica in Huntington Beach, has distinct historic significance which reflects unique aspects of Orange County's Native American heritage. As indicated by the Archaeological Information Center at the University of California, Los Angeles, CA-83 is scattered with shell middens which provide information needed to trace environmental changes. It also contains evidence of "cogged stone" manufacturing, and the existence of an 8,0)-year-old village site and burial ground.

Most importantly, CA-83 is the last remaining Early Holocene-era coastal village in Ora ge County. It is imperative that this resource be preserved, not only for its environmental significa ce, but because it stands as one of the last remaining educational links between our present-day soci ty and California's early Native American civilizations.

In addition, I fully support listing CA-ORA-83 in the Federal Register as a National Hist ric Site, and urge the State Historical Resources Commission to forward all necessary data to the Keeper of the Federal Register in Washington, D.C. If you have further questions, please do no hesitate to contact Ann Norris of my staff at ann.norris@mail.house.gov or at (714) 621-0102. Thank you for your consideration.

Very truly yours,

Loretta Sanchez

Loretta Sanchez
Member of Congress

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Encl 4

Smithsonian
National Museum of Natural History

Department of Anthropology
NHB 112

October 14, 1999

Ms. Juane R.Mueller, Vice-President
and
Mr. Donald E. Mueller, Chair, Governmental Affairs
Bolsa Chica Land Trust
207 21st Street
Huntington Beach, CA 92648

Dear Ms. and Mr. Mueller:

I would like to thank you and Dr. Stanford, of our staff, for bringing to my attention the circumstances surrounding the archaeological site in Huntington Beach known as ORA 83. It is my understanding that the remaining portions of this site are slated to be destroyed as the result of an impending housing development project. I am not sure how much of the site remains, but over the last few weeks I have reviewed several key archaeological issues concerning this site. As a result I am now convinced that every effort should be made to preserve as much of the site as possible. I come to this conclusion because of the site's unique characteristics and the clear importance it had in the ancient history of California. ORA 83 is almost certainly the last remaining major coastal habitation site between Los Angeles and San Diego. It was probably such an important place in prehistory because of its location at the coastal end of a natural transportation corridor that stretched out into the Mohave Desert. As such, the people who lived at ORA 83 most likely also traversed a very large inland region. From a broader perspective there is much interest in understanding how people in the past made use of coastal resources to develop complex societies. ORA 83 is the kind of site that could significantly broaden our understanding of human cultural history with implications that extend far beyond California.

Considering the importance of this site I respectfully urge your local officials to carefully consider what its loss will mean to California and the Nation. I am familiar with the recent and regrettable loss of site ORA 64. The tragedy would only be compounded if we did not do everything in our power to preserve ORA 83. I sincerely hope there is room for remembering the past in our vision of the future.

Best regards,

J. Daniel Rogers, Ph.D.
Head, Division of Archaeology
Phone:202-786-2511
FAX:202-357-2208
cc: Dr. Dennis Stanford

Smithsonian
National Museum of the American Indian

Office of Cultural Resources
October 31, 2001

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OHP

Cynthia Howse
California Office of Historic Preservation
1416 9th Street
Room 1442
Sacramento, California 95814

Dear Ms. Howse,

I am writing this letter in support of the application for the site known as CA-ORA-83 on the National Register of Historic Places. I have read and reviewed "How Can You Go Up to the Sun Without Falling: The Prehistorical, Cultural and Religious Significance of the Site Now Known as CA-ORA-83 ". I believe that this site is critically important as a sacred site, in addition to being an unparalleled center for understanding trans-Pacific as well as circum Pacific exchange and navigation.

There is no doubt that with the recently significant archeological findings of the Isleños of the past, many questions will soon be answered if this site is recognized and preserved for posterity. There remain few direct descendants, but those who are familiar with their histories have made a point of collecting, documenting and maintaining the local knowledge and the interconnectedness of the peoples in such a way that will serve the annals of California history and culture, and the larger United States, Western Hemisphere history and culture of the Americas.

There are a few who understand the significance and critically important nature of this site. As the National Register of Historic Places, it would be a gross injustice to allow this place to continue to be neglected, or even worse, to be used for something other than what it is and has been to the original communities who maintain its sacred, ceremonial and cultural meaning.

I have worked with coastal peoples for over thirty years and I firmly believe that there is a strong tie between the people who inhabited this site and the islands and many communities to the south. I look forward to knowing that your organization and the State of California, my home state, remain committed to cultural and historical preservation and accuracy.

Sincerely,

Alicia María González

Dr. Alicia María González
Curator,
Smithsonian Institution
National Museum of the American Indian
Cultural Resources Center

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Cultural Resources Center
4220 Silver Hill Road
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STATE OF CALIFORNIA—RESOURCES AGENCY

GEORGE DEUKMEJIAN, G

STATE HISTORICAL RESOURCES COMMISSION
DEPARTMENT OF PARKS AND RECREATION
ST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811
(916) 445-8006

MINUTES OF THE STATE HISTORICAL RESOURCES COMMISSION

City Council Chambers
1825 Strand Way
Coronado, California

November 4, 1983

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CALIFORNIA
COASTAL COMMISSION

COMMISSION MEMBERS PRESENT

Mr. Bruce D. Judd, Chair
Dr. James M. Cahill, Vice-Chair
Ms. Julia G. Costello
Dr. Ernestine S. Elster
Dr. Nadine I. Hata
Dr. Ted C. Hinckley

COMMISSION MEMBERS ABSENT

Ms. Sally Woodbridge

STAFF PRESENT

Dr. Knox Mellon, Executive Secretary
Mrs. Sandra J. Elder, Assistant Executive Secretary
Mr. Aaron A. Gallup, Staff Architectural Historian
Ms. Joan M. Cunningham, Recording Secretary

ALSO PRESENT

See Attachment "A"

Notice having been duly given, the regular meeting of the State Historical Resources Commission was called to order in the City Council Chambers, 1825 Strand Way, Coronado, California at 9:05 a.m. CALL TO ORD

Chair Judd introduced the Commission members and staff to the audience.

Dr. Hata moved to approve the minutes of the special meeting of August 4 and the regular meeting of August 5, 1983, of the State Historical Resources Commission. Ms. Costello seconded the motion. Motion carried unanimously. MINUTES 8/4/83 and 8/5/83

ATTACHMENT 6

Encl 5

Dr. Cuhill made a motion that the Commission support Assembly Bill 2099, the Parks Bond Act of 1984, and send a letter to Assemblyman Farr indicating that support. Dr. Elster seconded the motion. Motion carried unanimously.

STAFF AND COMMISSION REPORTS

Mr. Judd introduced the Mayor of Coronado, Mr. Pat Callahan.

Ms. Costello made a motion to revise the Landmark Booklet, and have it printed in a small size to fit glove compartments. Dr. Hata seconded the motion and the motion carried unanimously.

Ms. Costello initiated a discussion about the new construction figures that Chair Judd presented. She indicated that she was most impressed with the figures and shared them with the audience. (Attachment "B").

NATIONAL REGISTER OF HISTORIC PLACES

The Commission considered the resubmission of the National Register application for Rancho de Santa Teresa, Santa Clara County. After some discussion Ms. Costello moved to recommend Rancho de Santa Teresa to the State Historic Preservation Officer for placement on the National Register of Historic Places at the local level of significance. Dr. Elster seconded and the motion was carried unanimously.

APPLICATIONS RESUBMITTED
Rancho de San Teresa

The Commission considered the application of CA-ORA-83, Cogstone Site, Orange County. There were people in attendance to speak both for and against the application. The first speakers were Pat Hammon, Jane Gothold and Laura Lee Mitchell of the Pacific Coast Archaeological Society speaking in favor of the application.

APPLICATIONS PENDING
CA-ORA-83

Speaking in opposition to the application was Glen Smith of the Metropolitan Water District. Also speaking in opposition was Robert Thornton and Dr. Nancy Desautels, together with Ray Belandos representing the Juanero Band of Mission Indians.

After considerable discussion Ms. Costello moved to recommend the CA-ORA-83, Cogstone Site, to the State Historic Preservation Officer for nomination to the National Register of Historic Places at the state level of significance. Dr. Elster seconded and the motion carried with 5 ayes and 1 nay.

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COASTAL COMMISSION

Figure 6.2. Cut bank showing 200+ cm of cultural deposit in Woodman Pole Company lot in central portion of CA-ORA-83/86. (Photograph by T. Van Bueren.)

ATTACHMENT 4

Exc 16

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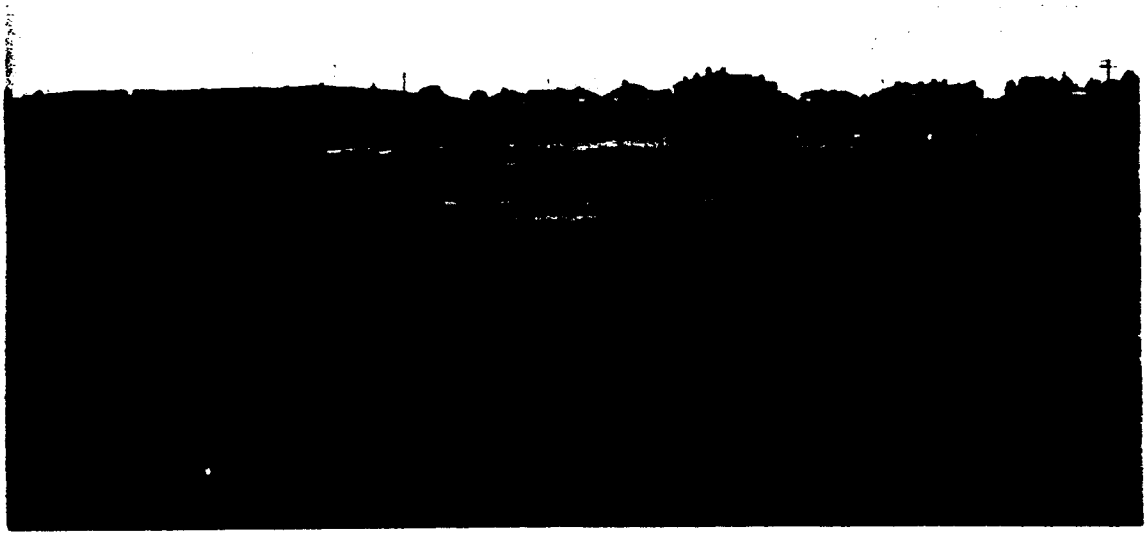
South Coast Region

SEP 17 2004

CALIFORNIA
COASTAL COMMISSION



LOOKING NORTH

Attachment 12. Cogged Stone Site After Grading

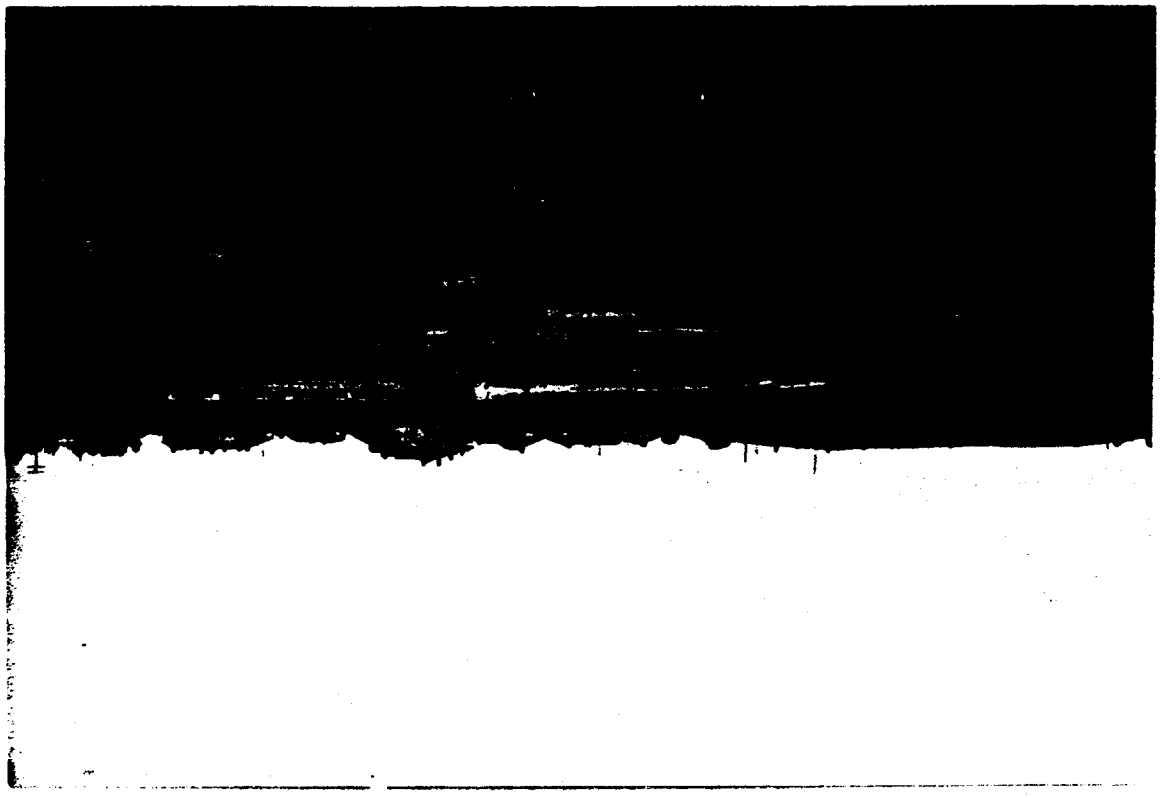
Exhibit 7

TAKEN JUNE 2002 -

LOOKING WEST

LOOKING EAST TOWARD
GODELL PROPERTY

NORTH



LOOKING NORTH EAST

Letters of Opposition

Dear District Manager Henry:
Re: Brightwater development for Bolsa Chica Mesa.
I oppose and urge you to oppose development on the upper bench unless the lower bench is protected!
Thanks. Sunshi Taylor

George Wesley Bellows (American, 1882–1925)
Steaming Streets, 1908
Oil on canvas, 97.5 x 76.8 cm
Gift of Mrs. Sterling Morton for the Preston Morton Collection
© 1987 Santa Barbara Museum of Art

2-6-04

Dear Commission:
Please restrict the Brightwater development at Bolsa Chica Mesa ONLY to the upper bench. If the lower bench is not protected, no development should be permitted. Protect the lower bench, please. Thank you.
Sincerely yours,
Cathy Rose

Cathy Rose
1642 Loma St.
Santa Barbara, CA 93103

SANTA BARBARA CA 931
6 FEB 2004

RECEIVED
South Coast Region
FEB 9 - 2004
CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
Teresa Henry, District Manager
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

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South Coast Region

MAR 23 2004

CALIFORNIA
COASTAL COMMISSION

3/14/04

California Coastal Commission
200 Oceangate - 10th Floor
Long Beach CA 90802-4416
Attn: Mr. Teresa Henry
District Mgr.

Dear Mr. Henry:

It is hoped that you and your Commission will do all in power to save the Bolsa Chica Mesa from further development. We and future generations have often spoke for peace of mind and preserving of increased crime (as studies show). Damage from cars would wash down to wildlife and sea wildlife. Please give this serious consideration. Thank you. Sincerely,

(Mrs.) R. Ronson
7072 Heron Ave. B-204
Huntington Beach CA 92647

re: Bolsa Chica [Westminster, Ca 92683]

As our parks, forests, and wild-life areas in California become increasingly depleted and destroyed, it is unthinkable to encroach upon our B. C. wetland preserve. We residents of so. Calif. are already inundated w/ unmanageable traffic, excessive building and construction everywhere, and a noise level that threatens our sanity. We do not need to be deprived of this beautiful haven of refuge let alone jeopardize the balance in nature of the many varied species of birds, fish, and wild-life that find their home in Bolsa Chica. Leave it alone! Don't sell out!

Sincerely,

Mary Greenwood
(Tel). (714) 892-6944

Dear Chairman [illegible]

San [illegible]

The [illegible] identified [illegible] The major [illegible] world. [illegible] unique ecological [illegible] to development. This area is [illegible] California has invested over $100 million to restore and acquire the wetlands. But it is in jeopardy.

Hearthside [illegible] wants to develop 378 homes on the upper portion of the Bolsa Chica mesa. Are they want to reserve the right to develop the lower portion too. This land must be treated as a whole & not on a piecemeal basis.

– The only alternative that guarantees the preservation of this environmentally sensitive habitat is to leave intact the entire lower bench of the Bolsa Chica Mesa. Thank you! Sincerely, Lynda A. Hernandez, 8232 Munster Dr. Huntington Beach, CA 92646

RECEIVED
South Coast Region
MAR 1 1 2004
CALIFORNIA
COASTAL COMMISSION

6 February 2004

Dear Ms. Henry:

I am a student writing to express my concerns about the planned Hearthside Homes Brightwater development of Bolsa Chica wetlands. As an Orange County citizen (I live in Westminster), I realize that the decision to be made on this matter will influence me, my family and friends, and everyone else that lives nearby. I have visited or driven by the wetlands many times, and am quite familiar with the area.

I think the wetlands should be left in their natural state, and action should be taken so that they are protected from all development. This "empty" land should not be seen merely as an opportunity for building more houses – it is not a blank slate waiting to be written on! Rather, it is a vital part of our ecosystem. Migrating birds stop at Bolsa Chica to rest. Many species of plants and animals live in the wetlands.

Well, so what? Who cares about a bunch of birds and pond algae? We should all care – our planet only remains habitable when the delicate balance of plants, animals and environmental conditions is maintained. Therefore, if we upset this balance by overdeveloping or by living in a way that is not sustainable (which our modern society does), we are not just forcing a couple of ducks out of their native dwelling place – we are destroying our *own* home.

Looking at the whole urban "sprawl" that stretches from L.A. all the way to San Diego, it is plain that we have little enough undeveloped land left in Southern California as it is. So why would we allow any of this remaining precious resource to be lost to "progress"? Sure, the new houses would look nice, and the developing project would provide new homes to people. But this new neighborhood would be going "downhill" as soon as it's built – the destruction of natural resources would be a loss to the whole area. It would diminish the quality of life for the potential new residents, as well as for those of us who already live here. And that's not to mention the added strain of increasing Orange County's population. Look how crowded our county already is – we don't need to provide homes for *more* people!

On the positive side, why don't we as a community work for a way to protect all of Bolsa Chica? Think of the benefits – we will not have to worry about water quality in the area being jeopardized by drainage issues. We can preserve "ORA-83", one of the few remaining Native American habitation sites, and learn from it as it is studied by archeologists. Families and young children can still enjoy visiting the wetlands and learning about the diversity of life and nature. And the surrounding residents can "breathe easier", knowing that their neighborhood is not going to get any more crowded.

I realize that this decision involves many factors besides environmental concerns – politics, bureaucracy and money, among others. Yet I think we should make ecological implications a primary consideration. We are only harming ourselves if we don't. If we fail to take care of our planet, where are we going to live?

Thank you for your consideration.

South Coast Region

FEB 9 - 2004

Sincerely,

Maria Greenwood

RECEIVED

CALIFORNIA
COASTAL COMMISSION

Phone: (714) 377-9491

DATE 2/10/04

TO: Teresa Henry, District Manager
FAX #: (562) 590-5084

FROM: Ellen Riley
4682 Warner Ave., C-202
Huntington Beach, CA 92649

SUBJECT: BRIGHTWATER DEVELOPMENT

Dear Ms. Henry:

Please help all Californians in protecting our precious and vanishing open coast and wetlands for man, animals, and plants before they are all lost to developers and concrete!

Man, flora and fauna need the Bolsa Chica wetlands and supporting mesa which protects it. The Bolsa Chica is one of the few open spaces in Huntington Beach and surrounding communities. Plants and animals need these spaces to survive and mankind needs it for the health of our spirit.

We have this opportunity to make a difference for our children and those generations who come after us. We implore the Coastal Commission to take this into consideration as you determine the future of us all, not the very wealthy few.

Hearthside Homes does not care about our collective future: it is their goal and role to reap extensive profits by building million dollar homes on our vanishing open land.

Sincerely,

Ella Riley

February 1, 2004

California Coastal Commission
Teresa Henry, District Manager
200 Oceangate, 10th Floor Long Beach, CA 90802-4416

For years we have been involved in the efforts to save the Bolsa Chica wetlands.
We were very happy when the wetlands themselves were saved, as they are a valuable environmental asset. However, as you probably know, the wetlands ecosystem could be easily destroyed if the mesa is developed. Now we are very concerned that the lower bench is not technically protected; Hearthside Homes believes that it will be able to build on the lower bench in the future. If that should happen, sensitive resources would be adversely affected by runoff, glare from streetlights and homes, domestic animals, and other human activities. Wildlife feeding and resting areas would be eliminated.
For all these reasons, no development should be allowed on the upper bench unless the lower bench is permanently protected.

Thank you.

Mr. & Mrs. James L. Denison
6931 E 11th St
Long Beach, CA 90815

RECEIVED
South Coast Region
FEB 5 - 2004
CALIFORNIA
COASTAL COMMISSION

Donna Clooten
6801 Oxford Drive
Huntington Beach, CA 92647
714-903-2479

RECEIVED
South Coast Region
JAN 3 0 2004
CALIFORNIA
COASTAL COMMISSION

January 28, 2004

Ms. Teresa Henry, District Manager
California Coastal Commission
200 Oceangate, 10th floor
Long Beach, CA 90802-4416

Dear Ms. Henry:

I am writing to express my concern over the development of Bolsa Chica by Hearthside Homes Brightwater Development. In November 2000, the Commission approved a plan that permitted development of homes on the upper bench of the mesa, with the stipulation that the lower bench remained open and undeveloped. While I would prefer that the entire mesa, both upper and lower be preserved I can live with this comprise. My concern is that the developer's plans split the Mesa into two portions, the upper and lower benches. I am concerned that the plans for the upper bench will be passed without regard to the lower bench. The plans should not be approved unless there is a stipulation that the lower bench will remain unprotected.

I appreciate your hearing my views and hope you will work to protect the lower bench of Bolsa Chica.

Sincerely,

Donna Clooten

Donna M. Clooten

RECEIVED
South Coast Region
JAN 2 7 2004
CALIFORNIA
COASTAL COMMISSION

Jan 22, 2004

Chairman Rielly and Coastal Commissioners:

I am writing to ask you to please vote against piecemealing the Bolsa Chica development. The upper and lower benches are one development and should not be allowed to develop in phases. The Bolsa Chica land Trust has submitted our views on the subject but I would like to point out a few inconsistencies which our expert Pat Martz has found in the Draft report Landscape and People of Bolsa Bay Vol.1. January 1998- revised to May 2003

1, Pg 106 of report -"subsurface excavations completed in 1994 added over 5800 artifacts to the previously recorded 2000 items". My question is where are the results of any report of these items?

2. Page 14-"CAORA 83 stands out as a complex Village Center based on the large number of material culture traits and activity categories."
My question is: How can you allow this sacred site to be built on when the admitted 26 bodies found there make it eligible to be saved as a cemetery.: Six bodies make a cemetery and many of these are over 8000 years old?

3. Page 238-"human remains"
My question is: How this analysis will be conducted when the developer has already reburied the remains

Please save this Bolsa Chica from development

Sincerely,

Eileen Murphy

Eileen Murphy
201 21st Street
H.B. CA 92648

February 2, 2004

RECEIVED
South Coast Region
FEB 5 - 2004
CALIFORNIA
COASTAL COMMISSION

Ms. Teresa Henry, District Manager
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

Dear Ms. Henry:

We are writing regarding the Hearthside Homes Brightwater Development Permit Hearing scheduled for February 18-20, on the development of homes on the Bolsa Chica Mesa in Huntington Beach.

We understand that you, the Coastal Commission, in November of 2000, unanimously approved a plan that permitted development of homes on the upper bench of the mesa with the stipulation that the lower bench remain open and undeveloped. We are now told Hearthside Homes plans are only addressing the upper bench and they believe that they will be able to build on the lower bench in the future. Our concern is that no development should be allowed on the upper bench unless the lower bench is protected. OUR WISH WOULD BE THAT NO DEVELOPMENT WOULD EVER BE ALLOWED ON THE BOLSA CHICA WETLANDS.

California has already lost 90% of its coastal wetlands. Existing open space which provides opportunities for wildlife feeding and resting will be eliminated. When you lose wildlife habitat, there's no turning back.

PLEASE DO NOT ALLOW THE UPPER BENCH TO BE DEVELOPED UNLESS THE LOWER BENCH IS PROTECTED.

Sincerely,

W. A. Sosnowski
Lucille Sosnowski
17198 Courtney Lane
Huntington Beach, CA 92649

California Costal Commission
Teresa Henry, District Manager
200 Oceangate, 10th fl.
Long Beach, Ca. 90802-4416

RECEIVED
South Coast Region
FEB 2 - 2004
CALIFORNIA
COASTAL COMMISSION

Vance Grosser
19328 Surfwave Dr.
Huntington Beach, Ca. 92648

30 January 2004

Dear Ms. Henry:

I want to express my support, in conjunction with Bolsa Chica Land Trust, for the protection and prevention of further development to the upper and lower benches, without adequate care for the lower bench.
These resources need our utmost attention and protection, and should not be compromised to accommodate the interests of Developers.
Sincerely,

Vance Grosser

Cc Bosa Chica Land Trust

To: FAX 562-590-5084

January 28, 2004

To: California Coastal Commission
Teresa Henry, District Manager
200 Oceangate, 10th Floor,
Long Beach, CA 90802-4416

I am concerned about the Hearthside Homes Brightwater Development. I believe the lower bench of the mesa should stay open and undeveloped, as the Commission approved in November, 2000. The Native American cogged stone site, runoff affecting biological resources, and less open space for wildlife are also concerns. My understanding is that the lower mesa is not technically protected from development. I hope that the lower mesa will remain open; as little land remains open around here.

Jo Ann Blair

Jo Ann Blair
15732 Dawson Lane
Huntington Beach, CA 92647
714 379-0441

RECEIVED
FEB 18
CALIFORNIA
COASTAL COMMISSION

Janeen H. Cunningham, M.A., M.F.T.

2/5/04

California Coastal Commission
Long Beach, California

Attention: Teresa Henry
Re: Hearing on the Brightwater Development,
Bolsa Chica Mesa, Feb 18-20

Dear Ms Henry,

As a Resident of Seal Beach for 20 years I am deeply concerned that the lower bench of Bolsa Chica be preserved for wildlife feeding and resting. So little open space is left for wildlife, clean air and land in this very developed beach community. I am opposed to any development on the upper bench unless the lower bench is protected. Thank you,

Janeen Cunningham

2212 DuPont Dr., Suite I Irvine, CA 92612 (949) 476-0795
1641 Ocean Ave. Seal Beach, CA 90740

Dear Commissioner Kelly,

As a child, I would visit the Bolsa Chica Wetlands. If you take away the wetlands not only are you taking away animal's homes, but also taking away the experience for younger children to experiences and learning. They will not be able to go there and watch the animals in their habit. Children will be deprived of this opportunity. I myself enjoyed going there with my binoculars in my hands not knowing what to expect or see. They will not be able to see the homes of birds, fish & creatures. The wetlands is only about 1,200 acres of land & everyone enjoys going there. Just leave it be. How would you feel if someone threaten to take your own home away from you? If you do get rid of the wetlands, you probably will just build houses which will lead to more overpopulation. I really do believe that the wetlands would be better off staying where they are. I can't bare to think what my childhood would have been like if I had not been here. It's an open door of opportunities for childs to enjoy all the different animals that live there. Childs who are also interested in animals may even go home and research about the birds they saw that day. This would broaden their knowledge of what exists in the world. If you get rid of the wetlands no child will ever get the opportunity to figure out whether or not they are interested in wild life. Leave the wetlands be.

RECEIVED
South Coast Region

MAR 1 1 2004

CALIFORNIA
COASTAL COMMISSION

Sincerely,

Jessica Sidmon

03/06/04

Dear Chairman Mike Reilly,

Please protect Bolsa Chica from development by the Hearthside Homes company.

Habitat preservation of this unique area is of prime concern to me as an active voter.

The entire lower bench needs to be left undeveloped.

People and plants need to enjoy Bolsa Chica now and forever.

Marie Connors

16851 Bayview Drive
Sunset Beach, CA 90742-0198
July 4, 2004

RECEIVED
JUL 0 8 2004
CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
45 Fremont Street
San Francisco, CA 94105-2219

Attn: Peter Douglas, Executive Director

Re: Bolsa Chica

Ladies and Gentlemen:

At the Coastal Commission Meeting at which the Brightwater development project will be decided, please require that any approval be contingent on maintaining the Lower Bench as open space.

Retaining the Lower Bench will protect wildlife and provide a needed buffer between new housing and the delicate wetlands.

Thank you,

Francis Maywhort

Francis Maywhort

Phyllis Maywhort

Phyllis Maywhort
(562) 592-1606

Ginger T. Osborne
31651 Santa Rosa Dr.
Laguna Beach, CA 92651
949.499.4809

RECEIVED
JUL 1 0 2004
CALIFORNIA
COASTAL COMMISSION

RECEIVED
South Coast Region
JUL 1 4 2004
CALIFORNIA
COASTAL COMMISSION

July 8, 2004

Peter Douglas, Executive Director
California Coastal Commission
45 Fremont Street
San Francisco, CA 94105-2219

Dear Mr. Douglas:

Soon before the Commission is the issue of whether or not to approve the plans for the Upper Bench Brightwater Development Project. Should the Coastal Commission decide to approve this project, I would urge it to make the approval contingent upon maintaining the lower bench as open space. Thank you for your careful consideration of this and other matters before the Coastal Commission.

Sincerely,

Ginger T. Osborne

Ginger T. Osborne

July 5, 2004

RECEIVED
JUL 0 8 2004
CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219

Attention: Peter Douglas, Executive Director

Dear Mr. Douglas:

If the Commission is to approve the Upper Bench Brightwater development project, then you must follow the Coastal Act and make this contingent on maintaining the Lower Bench as open space.

We have worked long and hard to accomplish this and now strongly request you do so.
Thank you.

Sincerely,

Chloe Pollock Mieczkowski
19556 Grandview Circle
\Huntington Beach, CA 92648-5571

RECEIVED
South Coast Region
JUL 9 2004
CALIFORNIA
COASTAL COMMISSION

Jeanne Sprague
17085 Edgewater Lane
Huntington Beach, CA 92649

DEAR MR. DOUGLAS—

ON AUG. 9-13 THE COMMISSION IS BEING ASKED TO APPROVE THE UPPER BENCH BRIGHTWATER DEVELOPMENT PROJECT. THAT VOTE MUST BE CONTINGENT ON MAINTAINING THE LOWER BENCH AS OPEN SPACE

THE BOLSA CHICA HAS TO BE PROTECTED FROM POLLUTION.

I AM 79 YRS YOUNG AND HAVE SEEN FISH AND BIRD STOCKS DIMINISHED - WHERE I LIVE THE WATER IS SO POLLUTED NO INTELLIGENT PERSON WOULD VENTURE IN - SO MUCH FOR COASTA HEALTH.!!

SINCERELY —

Jeanne Sprague

RECEIVED
South Coast Region
MAR 1 1 2004
CALIFORNIA
COASTAL COMMISSION

Dear Chairman Reilley &
Commissioners —

I hope you will do
everything in your power
to save all of Bolsa
Chica for generations to
come
Its been a long fight
Lets settle it now &
for all.
Save the present for
the future.

Sincerely,
Eileen Murphy
201 21st
H.B. CA. 92648

Chairman Mike Reilly and members
California Coastal Commission
South Coast District Office
200 Oceangate, 10th floor
Long Beach, CA 90802-4416

5-05-6

RECEIVED
South Coast Region
MAR 11 2004
CALIFORNIA
COASTAL COMMISSION

Dear Persons,

Bolsa Chica cannot be allowed to become smaller in size. To do so would ruin part of the ecosystem. Hearthside Homes cannot be allowed to build on the Bolsa Chica mesa and ruin the integrity of the ecosystem as a whole.

Please preserve the entire lower bench of the mesa.

Thank you,

Charles Reed
208 15th St.
Huntington Beach CA 92648

P.O. Box 198
Sunset Beach, CA 90742
March 6, 2004

RECEIVED
South Coast Region
MAR 1 1 2004
CALIFORNIA
COASTAL COMMISSION

Chairman Mike Reilly + Members of
the California Coastal Commission
South Coast District Office
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

Dear Chairman Reilly,

Please vote <u>against</u> allowing any further development of the Bolsa Chica. Both the upper + lower bench must be preserved to protect the integrity of the Bolsa Chica.

Vote "<u>no</u>" on Hearthside Homes application that is coming before the commission in April.

Thank you,

Phyllis Maynhart
(562) 592-1606

I dont know much about what is happening with the Bolsa Chica wetlands, but I do know that animals and perserving the natural habitat is more important than a few homes on the coast. You can build houses anywhere, why do you have to destroy unique ecological places? Have you ever actually been to the wetlands? Because I have and it was an experience I will always remember and cherish. And I will always care and appriciate their importance; so because you dont I am guessing you have never been. If you had you obviously didnt pay attention because you dont show any concern whatso ever. And or that I feel sorry for you; have fun being n old heartless man who nobody cares about rause you never cared. Have a heart a care r things that matter for once. thank you or your time. I hope I didnt waste mine

From

Stephanie Schultz
Fountain Valley High School.

RECEIVED
South Coast Region

MAR 1 1 2004

CALIFORNIA
COASTAL COMMISSION

March 06, 2004

Dear ~~Governor Schwarzenegger~~ Chairman Mike Reilly & members of the CA Costal Commission,

I think that it's a must to preserve the only wetland left in Southern California. If some company build a condo or parking lot over it, there wouldn't be any wetlands left. We wouldn't want to be the ~~sta~~ state that destroy the only wetland left in its state. It's very important that the wetland in Bolsa Chica be preserve b/c it provides life for the wild life of California. And by destroying it, it's destruction could effect the ballance of nature. The destruction of the Bolsa Chica wetland could have a major side affect to the wildlife.

In conclusion, please dont destroy it!

Sincerely,

Tamara Nguyen

RECEIVED
South Coast Region

MAR 1 1 2004

CALIFORNIA
COASTAL COMMISSION

Marilyn Vassos
79 Seton Road
Irvine, CA 92612-2115
949-786-7546
email: mvassos@cox.net

3-4-04

RECEIVED
South Coast Region
MAR 1 1 2004
CALIFORNIA
COASTAL COMMISSION

Dear Chairman Reilly and Members of the California Coastal Commission,

As a native California who grew up spending my summers at Huntington Beach it horrifies me to think of will happen to Bolsa Chica is Hearthside Homes is allowed to develop the 378 homes on the upper portion of Bolsa Chica. Then to think that they want to reserve the right to develop the lower portion is outrageous!!

The planning of Bolsa Chica's future must be addressed as a whole!

You are well aware of the variety of reasons this wetland habitat is so crucial. Once it is developed that's all there is AND THAT IS WRONG!!

Sincerely,
Marilyn Vassos

16851 Bayview Drive
Sunset Beach, CA 90742-0198
July 4, 2004

RECEIVED
JUL 0 8 2004
CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
45 Fremont Street
San Francisco, CA 94105-2219

Attn: Peter Douglas, Executive Director

Re: Bolsa Chica

Ladies and Gentlemen:

At the Coastal Commission Meeting at which the Brightwater development project will be decided, please require that any approval be contingent on maintaining the Lower Bench as open space.

Retaining the Lower Bench will protect wildlife and provide a needed buffer between new housing and the delicate wetlands.

Thank you,

Francis Maywhort

Francis Maywhort

Phyllis Maywhort

Phyllis Maywhort
(562) 592-1606

July 5, 2004

RECEIVED
JUL 0 8 2004
CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219

Attention: Peter Douglas, Executive Director

Dear Mr. Douglas:

If the Commission is to approve the Upper Bench Brightwater development project, then you must follow the Coastal Act and make this contingent on maintaining the Lower Bench as open space.

We have worked long and hard to accomplish this and now strongly request you do so.
Thank you.

Sincerely,

Chloe Pollock Mieczkowski
19556 Grandview Circle
\Huntington Beach, CA 92648-5571

Coastal Commission
Att, Teresa Henry
200 Oceangate #1000
Long Beach, Ca 90802

RECEIVED
South Coast Region
JUL 12 2004
CALIFORNIA
COASTAL COMMISSION

Dear Ms. Henry;

Re: The Bolsa Chica project

I am writing to urge you and your staff to be sure and have a nexus with the upper and lower bench. In case the deal falls through by the developer and the WCB without the nexus and your approval the developer could build on both benches.

Also in crafting your approval of the development on the upper bench I beg you to be sure every federal, state and local statutes intended for the protection of the resources with respect to any development of the remaining open space be protected. Special attention should be paid to buffers, tar plants, burrowing owls and any other environmentally sensitive species which might be affected by the development.

Thanks for all your hard work and diligence.

Sincerely,

Eileen Murphy

Eileen Murphy
201 21st Street
HB CA 92648

RECEIVED
South Coast Region
JUL 9 2004
CALIFORNIA
COASTAL COMMISSION

Jeanne Sprague
17085 Edgewater Lane
Huntington Beach, CA 92649

DEAR MR. DOUGLAS—

ON AUG. 9-13 THE COMMISSION IS BEING ASKED TO APPROVE THE UPPER BENCH BRIGHTWATER DEVELOPMENT PROJECT. THAT VOTE MUST BE CONTINGENT ON MAINTAINING THE LOWER BENCH AS OPEN SPACE

THE BOLSA CHICA HAS TO BE PROTECTED FROM POLLUTION.

I AM 79 YRS YOUNG AND HAVE SEEN FISH AND BIRD STOCKS DIMINISHED - WHERE I LIVE THE WATER IS SO POLLUTED NO INTELLIGENT PERSON WOULD VENTURE IN - SO MUCH FOR COASTAL HEALTH.!!

SINCERELY —

Jeanne Sprague

California Coastal Commission Aug 7, 2004

It would be wonderful if we could have areas of open space with no houses in sight and a place where the birds and other wildlife could live unapproached by urban sprawl. I am referring to the Bolsa Chica wetlands. I urge you to follow the Coastal Act. We need to keep all of the Bolsa Chica Area open but especially urgent now is the Lower Bench. It would be a magnificent picture if we would have a wetlands with no houses in the background as in this picture on the front of this note.

Sincerely
Corrine Ramos

ugust 4, 2004

alifomia Coastal Commission
5 Fremont Street
an Francisco, CA 95814

ttention: Peter Douglas, Executive Director

E; ITEM NO. Th. 23 e
E; Permit Number 5-04-192

ear Commissioners:

/e were pleased to learn that the Coastal Commission staff is recommending denial of plans to build 379 homes on the Bolsa hica wetlands mesa.
s noted, this is valuable, sensitive habitat for such endangered or threatened species such as the tarplant and the burrowing owl, s well as other species that are so important for a flourishing wetlands ecosystem.

lthough we are opposed to ANY development on this important wetlands ecosystem. if the Commission is to approve the Upper ench Brightwater development project, it *must* be contingent on maintaining the Lower Bench as open space.

hank you.
Mr. + Mrs. L. Denison
Ir. & Mr.s James L. Denison
931 E. 11th St.
ong Beach, CA 90815

Maria Greenwood
6191 Mahogany Avenue
Westminster, CA 92683

RECEIVED
South Coast Region
AUG 9 2004
CALIFORNIA
COASTAL COMMISSION

August 2004

Dear Mr. Douglas:

I am writing to beseech your support of the Bolsa Chica Mesa. As you know, Hearthside Homes has tentatively agreed to build their houses on 65 acres of the upper bench only, with the remainder of their current land holdings going back to the public, to be preserved as open-space.

I entreat you to remember the Coastal Act, which says that wetlands are to be left alone. If the Commission approves Hearthside Homes' proposal to build on that part of the upper bench, the lower bench must be preserved in its entirety.

The preservation of this natural treasure is of the utmost importance to our community. I know that you won't let us down!

Thank you for your support!

Sincerely,

Maria Greenwood
O.C. Resident
Student

FROM THE DESK OF
RAYMOND SHERRARD
RHS ENTERPRISES
PO BOX 5779
GARDEN GROVE, CA 92846-0779
(714)840-4388 FAX-5895

Sept 17 2004

SEP 2 0 2004

Coastal Commissioners
California Coastal Commission
Long Beach Ca

In Re: Proposed BRIGHTWATER Development
Bolsa Chica Mesa

We are writing to express our strong opposition to any development of the Bolsa Chica Mesa. We live alongside the upper bench of the Mesa, at 4701 Los Patos Avenue.

We have reviewed the Developers plans for hundreds of mini-mansions on the Upper Mesa, and can only feel disgust at the deleterious effects that such a development would bring on the flourishing animal and plant life on the Mesa. There would be no way to avoid the killing of hundreds of small animals, and the destruction of thousands of plants. All this to be replaced with hundreds of pollution-spewing vehicles, additional strain on our already-limited water resources , and danger to the wetlands immediately adjacent to the proposed development.

Air and water pollution, already a serious and growing problem in our community, would only increase.

This is our chance to preserve one of the few remaining open spaces in the area, and to keep it in trust for future generations. If we fail to do so, we are committing a crime.

Our fellow Los Patos street neighbors totally agree with these sentiments, to the point that we are preparing to meet to consider legal options to preserve the nature of our community.

We hope and trust that you will follow the recommendations of your fine staff and dis-approve

FROM THE DESK OF
RAYMOND SHERRARD
RHS ENTERPRISES
PO BOX 5779
GARDEN GROVE, CA 92846-0779
(714)840-4388 FAX-5895

of this seriously flawed proposal.

We also understand that you are faced with making tough decisions in your capacity as Commissioners. We only ask that you do the right thing and support your Staff's report and deny the proposal of the developer.

Thank you for your time and attention.

Raymond Sherrard Sandra Sherrard

Raymond Sherrard Sandra Sherrard

email: rhsenterprises@earthlink.net

California Coastal Commission
South Coast District
PO Box 1450
200 Oceangate, 10th Floor
Long Bch. CA 90802-4416

RECEIVED
South Coast Region
AUG 17 2004
CALIFORNIA
COASTAL COMMISSION

Re: PERMIT NUMBER; 5-04-192

Teresa Henry

All coastal wetlands are under siege by private developers. The best thing would be to deny all development on this bench property since the wetlands are important to the integrity of inland property as well as coastal.

If this application is permitted, please consider that any development on the upper Bolsa Chica Bench is contingent on selling the lower bench property to the State of California as a permanent wetland.

Sincerely,

Marcia A Marlowe

Marcia A. Marlowe
301 Vista Madera
Newport Beach, CA 92660

August 25, 2004

RECEIVED
AUG 27 2004
CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
45 Fremont Street
San Francisco, CA 94105-2219

Re: Bolsa Chica Beach

We are in full support of the proposed sale of 103 acres of the Bolsa Chica Mesa to the State of California for $65 million.

Please fallow the Coastal Act to preserve the last remaining coastal wetlands.
If the Upper Birch Brightwater development project is approved, it must be contingent on maintaining the Lowe Birch as open space.

Sincerely,

Marcia & Don Marlowe

To whom It May Concern — Aug 9, 2004

I am one among thousands urging the commission to follow the Coastal Act. If the Commission is to approve the Upper Bluff Brightwater development project, it must be contingent on maintaining the Lower Bluff as open space.

Thank you for your time and consideration of this matter.

Sincerely

C W Nelson Jr.

Emerson W. Nelson, Jr.
7236 Havenrock Dr.
Huntington Beach, CA 92648

RECEIVED
South Coast Region
AUG 1 2 2004
CALIFORNIA
COASTAL COMMISSION

RECEIVED
AUG 1 1 2004
CALIFORNIA
COASTAL COMMISSION

August 4, 2004

California Coastal Commission
45 Freemont Street
San Francisco, Calif. 94105-2219

Attention: Peter Douglas, Executive Director

Dear Mr. Douglas:

I am a native of So. California & have lived in Westminster, Calif for 33 years. I love & appreciate "The Bolsa Chica" & would be devistated if it were not saved in total. Far too many Wildlife sanctuaries have been destroyed because of greed & I cannot bear to see any more lost to this element!

I urge you to follow the "Coastal act" and stress that if the Commission is to approve the Upper Beach Brightwater development project, it must be contingent on maintaining the Lower Beach as open space.

(If greedy people are allowed to have their way, this magical

Planet will be used up and believe me there is no living on Mars, ever, & no other planet for that matter. This little magic land is all we have & it must be saved, even at the cost of human life, if it comes to that!

(People should not be allowed to kill our exotic animals)

Geraldine Jackson-Porchia

from: M. HORACK
21742 FAIRLANE CIRCLE
HUNTINGTON BEACH, CA 92646

Dear Mr. Douglas:

The Bolsa Chica Mesa is a rare and valuable resource to the people of California. Thank you to your staff for championing the Coastal Act.

Sincerely,

TO:
Mr. Peter Douglas
Executive Director
California Coastal Commiss
45 Fremont St.
San Francisco, CA
94105-2219

© Bolsa Chica Land Trust • 207 21st St. • Huntington Beach, CA 92648 • 714-960-9939

SANTA ANA CA 92711

94105

September 20, 2004

California Coastal Commission
200 Oceangate, Suite 1000
Long Beach, CA 90802

RECEIVED
South Coast Region

SEP 2 2 2004

CALIFORNIA
COASTAL COMMISSION

REGARDING: Bolsa Chica Mesa

Dear Gentlemen and Ladies,

I am a long time resident of Huntington Beach, and I walk almost everyday on the mesa above the Bolsa Chica Wetlands. It is imperative for the quality of life in Southern California that we allow the general public access to the little open space we have left in Southern California. Consequently, I urge you DENY the project as submitted for the following reasons:

1. The project eliminate more than 70 acres of open space habitat for several California Species of Special Concern, including the northern harrier, borrowing owl, white tailed kite and horned lizard.
2. The project does not allow adequate public access to the open space through the gated community. For instance, no public access is allowed to the *public* upland habitat park.
3. The project may negatively impact the adjacent marine resources. Hearthside should not be allowed to degrade our already impacted Bolsa Chica Pocket Wetland area, Outer Bolsa Bay and our local beaches.
4. Finally, the application as submitted would create a 16-acre parcel, which is not included in the plan. Consequently, the developer could apply to develop it at a later date. The Coastal Act prohibits this kind of backhanded development of a separate developable parcel.

Hearthside Homes, like all other developers, must be required to comply with the Coastal Act. I ask you to protect Bolsa Chica by denying Hearthside's Brightwater Development.

Thank you for your consideration.

Cynthia Benton

Cynthia Benton
19581 Cloverwood Circle
Huntington Beach, CA 92648
(714) 374-7174

WE RECEIVED 10 LETTERS/POST CARDS EXPRESSING SAME CONCERN

Dear Mr. Douglas - 8-11-04

Re: Bolsa Chica Mesa

If the Commission approves the Upper Bench Brightwater development project, it should be contingent on maintaining the Lower Bench as open space. We urge the Commission to follow the Coastal Act. Thank you.

Sincerely, Ming & Marion Sice

LETTERS OF SUPPORT

February 12, 2004

RECEIVED
South Coast Region

FEB 19 2004

CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

SUBJECT: BOLSA CHICA MESA PROJECT

Dear Governor Schwarzenegger,

I would like to bring to your attention a project that has been dragged out for over 30 years and has cost the taxpayers millions upon millions of dollars. The project I am referring to is the proposed development on the Bolsa Chica mesa, which is located off Pacific Coast Highway in Huntington Beach. It is time to stop wasting time and money and time to start building much-needed houses and creating jobs.

This project is a wonderful way to both improve the housing shortage, that you have addressed many times, and help the economy by creating jobs at all wage levels.

This project also will create new wetlands and relieve the residents of Huntington Beach of a headache that has been perpetuated by environmental extremists and the California Coastal Commission who has consistently made poor decisions for the people of California.

I ask you to please support this proposal and help California to heal.

Sincerely, Brian Barbett

BRIAN BARBETT

23974 ALISO CREEK RD

#224 LAGUNA NIGUEL CA 92677

cc: Senator John Burton
Rep. Herb Wesson
California Coastal Commission – Long Beach

South Coast Region

MAR 1 1 2004

CALIFORNIA
COASTAL COMMISSION

SAVE THE BOLSA CHICA!!

The Bolsa Chica wetlands and mesa exist in one of the major biological hotspots of the nation and the world. The Bolsa Chica wetlands and mesa contain unique ecological values and offer scientific and educational opportunities that are not present elsewhere in southern California. Bolsa Chica is one of the last remaining areas in coastal southern California with a reasonably intact upland-wetland gradient, which is of high ecological importance and generally lacking in representation in reserves in the region.

Recognizing the importance of this resource, the State of California has invested in land acquisition and restoration of wetlands at Bolsa Chica. However, ***the State's $100 million investment is at risk***.

Hearthside Homes wants to develop 378 homes on the upper portion of the Bolsa Chica Mesa. They also want to reserve the right to develop the lower portion of the Bolsa Chica Mesa as a separate project some time in the future.

It is essential that planning for the Bolsa Chica address the mesa as a whole, not on a piecemeal basis. It is essential that uplands at Bolsa Chica be preserved because:

- Adequate upland habitat is necessary for continued functioning of wetland habitat. This is because some wetland species also require upland habitat, because wetland species need refuges from unusual high water events and because raptors that now forage in upland areas may be driven to forage on wetland species.
- ***Any*** reduction of upland habitat at the Bolsa Chica Mesa will have some adverse impact on the Bolsa Chica wetlands.
- Any loss of habitat on the upper bench of the Bolsa Chica Mesa, including loss of forage; replanting of southern tarplant, a sensitive species; and relocation of burrowing owls must be mitigated on the lower bench, which contains sensitive resources itself.
- Habitat is more valuable if it is consolidated, minimizing the ratio of perimeter to area.
- The ***only*** alternative that leaves any chance of continued viability of existing environmentally sensitive habitat areas is preservation of the ***entire lower bench*** of the Bolsa Chica Mesa.

Development **cannot** be permitted on the upper bench of the Bolsa Chica Mesa without a guarantee that the entire lower bench will be preserved.

At its April meeting (April 14-16, 2004, exact date not yet known) in Santa Barbara, the California Coastal Commission will consider Hearthside's proposal. Please write to:

Chairman Mike Reilly and Members of the California Coastal Commission
South Coast District Office
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

Please attend the Coastal Commission hearing! The Bolsa Chica Land Trust is renting buses to go as a group.

Call us at (714) 846-1001, e-mail us at **bclt@bolsachicalandtrust.org** or visit our website at **http://www.bolsachicalandtrust.org/home-1.html**

February 12, 2004

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

SUBJECT: BOLSA CHICA MESA PROJECT

Dear Governor Schwarzenegger,

I would like to bring to your attention a project that has been dragged out for over 30 years and has cost the taxpayers millions upon millions of dollars. The project I am referring to is the Brightwater development which is located off Pacific Coast Highway in Huntington Beach. It is time to stop wasting time and money and time to start building much needed houses and creating jobs.

This project is a wonderful way to increase both the housing shortage, that I am sure you are aware of, and help the economy by creating jobs at all wage levels.

This project also will create new wetlands and relieve the residents of Huntington Beach of a headache that has been perpetuated by environmental extremists and the California Coastal Commission who allows these groups to bully them into poor decisions.

I ask you to please support this proposal and help California to heal.

Sincerely,

Leslie Webb
186 Trofello
Aliso Viejo, CA
92656

cc: Senator John Burton
Rep. Herb Wesson
California Coastal Commission – Long Beach

February 10, 2004

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

Dear Governor,

As a taxpayer, I am increasingly frustrated by the state's unending practice of buying private property for millions upon millions of taxpayer dollars, simply to prevent any development – whether it be homes, retail, hotels or highways – from occurring in selected areas.

We are experiencing a severe housing shortage all over the state, and unfortunately, this is most evident in the coastal areas. It seems that most people prefer to live as close to the ocean breezes as possible, while the Coastal Commission – most of whom enjoy coastal living – would prefer the rest of us move to remote inland areas and commute three hours or more to work each day.

The Coastal Commission must be made to recognize and approve projects that benefit the people of our state, while respecting the natural environment in which these projects are built.

One such project is called BRIGHTWATER and will be heard before the commission in April.

PLEASE LET THE COASTAL COMMISSION KNOW THAT YOU SUPPORT THE BRIGHTWATER PROJECT!

Sincerely,

Marjorie Graupensperger
1005 E. Grove Ave
Orange, CA 92865

cc: Senator John Burton
Assemblyman Herb Wesson
Teresa Henry, California Coastal Commission

March 3, 2004

RECEIVED
South Coast Region

MAY 13 2004

CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

Dear Governor Schwarzenegger,

Thank you for promising to address the housing shortage in our state.

I would like to ask you to add your voice to a project that will be heard before the California Coastal Commission very soon.

Called, **"Brightwater,"** this housing development will be located on the Bolsa Chica Mesa (where development has existed for 30 years) and incorporates state-of-the-art environmental safeguards and smart planning.

The County of Orange has approved this project and it must now go before the California Coastal Commission.

AVAILABILITY OF HOUSING CREATES AFFORDABILITY IN HOUSING!

Sincerely,

STUDENTS FOR CALIFORNIA'S FUTURE

Nguc Chu

Westminster CA 92683

cc: Senator John Burton
Assemblyman Fabian Nunez
Teresa Henry, California Coastal Commission

8.25.04

California Coastal Commission
South Coast District Office
200 Oceangate, 10th Floor
Long Beach, Ca 90802-4416

SEP 01 2004
COASTAL COMMISSION

Re: "Brightwater" Project

Dear Commissioner,

In October you will have the opportunity to put in motion the purchase of additional acreage at Bolsa Chica by casting your vote to approve the development of new homes on the upper bench of the mesa.

This brought me encouragment of the possibility of closure at Bolsa Chica, so we then could turn our full attention to the restoration of the wetlands. So imagine my disappointment when I heard the staff was recommending denial. Even though this is the same plan the commission recommended in 2000.

I agree that Bolsa Chica is an enviormental asset, to be preserved for future generations, but I am also in agreement with the land owner's position. Which is to let them

8.25.04

proceed with their small development in exchange for the sale of the remaining acres and the donation of the additional acre for the county park that has been lying in the wings for 25 years.

Please Vote to approve the "Brightwater" project, due to it being a once in a lifetime opportunity, that tax payers, property owners, and residents of orange county will gain from.

Sincerly
Shayla Cerrone

Shayla Cerrone
17437 ROCKROSE CIR
Yorba Linda, Ca. 92886

To: California Coastal Commission
200 Oceangate, 10th floor
Long Beach, CA 90602-4416

RECEIVED
South Coast Region
SEP 23 2004
CALIFORNIA
COASTAL COMMISSION

Attention: Teresa Henry, District Manager

Subject: Brightwater Project

The latest Commission hearing on the subject project is now set for October 14, 2004. The development of the Bolsa Chica property by its owner has been before you numerous times, over many years. Each time the property owner has appeared before the Commission, the staff has found new reasons for sending it back for revision.

As one result of these various rulings, the owner has now sold all of the lower wetlands area to the state, and is in negotiation for the lower bluff of the mesa. At first glance this appears to be a good thing, but when considering that the people of the state are now paying for the wetlands property and the cost of restoring it, when the property owner had previously offered to deed the property over after doing the reclamation on their own, it does not seem to be a good deal for the taxpayers. Additionally, the community has lost park land, equestrian and pedestrian trails, and many other amenities offered in the past by the developer. Thanks to past rulings, these things will now only happen through taxes or bond issues levied against the residents of the area.

Now, a project has been submitted to the Commission which far exceeds the recommendations made in November 2000. Once again, the staff has changed the rules that they established, in a further effort to prevent the land owner from exercising his just rights. For the sake of fairness, please reject the staff position, and rule in favor of the developer.

Sincerely,

George M. Cross

George M. Cross
19842 Isthmus Lane
Huntington Beach, CA 92646

February 10, 2004

RECEIVED
South Coast Region

MAR 17 2004

CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

RE: Please support the Brightwater Project!

Dear Governor Schwarzenegger,

In April, the California Coastal Commission will hear plans for a development called "Brightwater." This project is located on the Bolsa Chica Mesa in Huntington Beach and will be presented by the County of Orange and Hearthside Homes.

We need housing in this state and we need jobs! This project will bring both. We want to protect our environment. This project does so in many ways, including the creation of man made wetlands to capture and filter runoff from new residents washing their cars, watering their lawns, etc.

Please add your very respected voice to those that support this and other environmentally and economically smart projects in our state.

Sincerely,

5924 Naples Playa
Long Beach, CA 90803

cc: Senator John Burton
Rep. Herb Wesson

5 identified letters received in Support

RECEIVED
South Coast Region

MAR 17 2004

CALIFORNIA
COASTAL COMMISSION

February 10, 2004

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

RE: MORE HOUSING NEEDED!

Dear Governor Schwarzenegger,

I am a college student in Southern California who is very concerned about what kind of future I can expect to have in this state if things continue as they have for the last twenty years or so. My contemporaries and I need to know that the American Dream is still attainable – even in California. We'd like to think we can buy a home, find a job and raise our families here when that time comes.

We need to start approving more housing developments to help drive the cost of housing down and to allow Californians to remain in California. Without enough housing, employers will also move out of state to find a bigger workforce to choose from.

One of the biggest obstacles to your stated goals regarding housing and the economy is the California Coastal Commission. They keep projects on hold or in litigation for decades, overspend and overstaff, and have begun to look more like a legislative body than a permitting board. We must demand fairness and balance from the Commission, and as Governor, you should do the same.

One such project we like is called Brightwater and will be built on the Bolsa Chica mesa in Huntington Beach. It's a beautiful project of under 400 homes with areas for the public to look out over the soon-to-be-restored wetlands and ocean. The developer is also creating two more wetlands to filter urban runoff from the project.

I strongly urge you to support this project.

Regards,

Connie Shput

CONNIE SHUPUT

11391 HOMEWAY DR
GARDEN GROVE, CA 92841

cc: Senator John Burton
Rep. Herb Wesson

4 identified letters received in Support.

February 11, 2004

RECEIVED
South Coast Region

MAR 17 2004

CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

RE: MORE HOUSING NEEDED!

Dear Governor Schwarzenegger,

One of the reasons many Californians voted for you is your pledge to bring our state back to greatness and your acknowledgement that housing and jobs has to be a priority.

I am asking you to take a first, small, step in that direction by looking closely at a housing project that will be heard before Coastal Commission in April.

This new community, called "Brightwater," will be located on the upper tier of the Bolsa Chica Mesa. It's important to remember that other homes are also located on this mesa, and, until recently, it was the sight of a large, used telephone poll re-sale yard. In short, there is nothing pristine or environmentally sensitive about this area.

The project has been before the commission, in various revisions, for over THIRTY YEARS! Over two generations of Orange Countians have missed out on the needed property taxes, developer fees, and other builder-funded improvements and now it's time to say enough is enough and let this beautiful, environmentally friendly project go forward.

The Coastal Commission needs to hear from you, Governor.

PLEASE SUPPORT THE BRIGHTWATER DEVELOPMENT.

Sincerely,

Alfredo Navar
1701 S Doreen Way
Santa Ana Ca. 92704

3 identified letters received in support

cc: Senator John Burton
Rep. Herb Wesson
California Coastal Commission – Long Beach

March 31, 2004

RECEIVED
South Coast Region
MAY 13 2004
CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

RE: SUPPORT THE BRIGHTWATER HOUSING DEVELOPMENT!

Dear Governor Schwarzenegger,

I am writing to you because there is a huge problem in California that is not getting any better, and we need to do something about it NOW.

The problem I refer to is our lack of housing.

As you know, only 5% of our entire state is used for housing, shopping centers, schools, churches, and offices. (45% is zoned Agricultural and 50% is owned by the state and federal governments as open space, parks, etc.)

Government has done a good job of protecting our environment and carving out huge areas of land for a variety of species – even toads, rats, gnats and plants. We now must do something about habitats for our human residents.

Approving housing projects like Brightwater – which protects the environment, creates new wetlands areas, manages urban runoff and creates a small neighborhood of 378 homes in a desirable area of Orange County – is a small step in the right direction. While these homes will be more expensive due to location, most new homes in California are purchased by people who already live here, leaving older homes available for more affordable prices.

We need new housing and we need it NOW!

Sincerely,

HARRIET K. PRICE

Harriet K. Price

HUNTINGTON BCH, CA

cc: Coastal Commissioners
Senator John Burton
Assemblyman Fabian Nunez

74 identified letters received in Support

February 9, 2004

RECEIVED
South Coast Region

MAY 13 2004

CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

SUBJECT: BOLSA CHICA MESA PROJECT

Dear Governor Schwarzenegger,

During your State of the State address you spoke of increasing jobs, the need for more housing, and reducing government spending. Well, Governor Schwarzenegger, by supporting the Brightwater project, you will be doing all three of those things.
The Brightwater project is a development plan, on the Bolsa Chica Mesa, that will bring more much-needed homes, create many jobs, and will end a 30 year debate that has cost taxpayers millions.
Over two generations of Orange Countians have missed out on the needed property taxes, developer fees, and other builder-funded improvements and now it's time to say enough is enough and let this beautiful, environmentally friendly project go forward.

I urge you, Mr. Governor, to throw you support behind this project.

Respectfully,

Kelly Fung
Kelly J. Fung
San Francisco
California

cc: Senator John Burton
Rep. Fabian Nunez
California Coastal Commission – Long Beach

9 identified letters received in Support

RECEIVED
South Coast Region

MAR 17 2004

CALIFORNIA
COASTAL COMMISSION

February 11, 2004

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

RE: BRIGHTWATER HOUSING PROJECT AT BOLSA CHICA

Dear Governor Schwarzenegger,

I am writing to ask your support of the Brightwater development proposed by the county of Orange and slated to go before the California Coastal Commission in April 2004.

This project has been on the drawing board for over 30 years and it has cost the taxpayers millions of dollars in lawsuits, staff time, expert evaluations – simply to further the political careers and agendas of a few. It's time to make people, jobs, housing and the economy a priority again, and this project goes a long way toward that goal. At the same time, it does more to protect the surrounding environment and wildlife than any project in recent memory.

PLEASE SUPPORT THE BRIGHTWATER DEVELOPMENT. THANK YOU!

Sincerely,

Jorge Prado

1981 Wallace Apt B-104
Costa Mesa, CA 92626

cc: Senator John Burton
Rep. Herb Wesson
California Coastal Commission – Long Beach

4 identified letters received in Support

March 20, 2004

RECEIVED
South Coast Region

JUL 28 2004

CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

Dear Governor Schwarzenegger,

Very soon, the California Coastal Commission will hear plans for a development called "Brightwater." This project is located on the Bolsa Chica Mesa in Huntington Beach and will be presented by the County of Orange and Hearthside Homes.

We need housing in this state and we need jobs! This project will bring both. We want to protect our environment. This project does so in many ways, including the creation of man made wetlands to capture and filter urban runoff.

You were right – California desperately needs housing and jobs to improve our economy and, subsequently, our quality of life.

PLEASE LET THE COASTAL COMMISSION KNOW THAT YOU SUPPORT THE BRIGHTWATER PROJECT!

Sincerely,

Matt Leonard

Huntington Beach

cc: Senator John Burton
Assemblyman Fabian Nunez
Teresa Henry, California Coastal Commission

5 identified letters received in support

February 29, 2004

RECEIVED
South Coast Region

JUL 28 2004

CALIFORNIA
COASTAL COMMISSION

The Honorable Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

RE: STUDENTS SUPPORT FOR NEW BRIGHTWATER PROJECT!

Dear Governor Schwarzenegger,

Very soon, the California Coastal Commission will hear a proposal for a new housing development in Orange County called "Brightwater."

While this new neighborhood will not cure the devastating housing shortage being experienced by residents of this state, the current powers that control our state's development, economy and overall well-being – namely the California Coastal Commission – have made habitats for our PEOPLE nearly impossible to provide in the coastal regions. Unfortunately, while the Commissioners would prefer the majority of us relocate inland and perhaps out of state, most Californians – especially those raised near the coast – want to live near the coast.

Please use your voice to urge the approval of this and other needed housing developments in the areas people want to live. These areas should not be the sole domain of those who were fortunate enough to purchase their homes decades ago, or those who can afford the exorbitant prices that are the result of supply not meeting demand.

SUPPORT THE BRIGHTWATER DEVELOPMENT

Very truly yours,

cc: Senator John Burton
Rep. Fabian Nunez
California Coastal Commissioners

Huntington Beach, 92647

8 identified letters received in Support

Don't let the American Dream die in California

Affordability begins with Availability

$0.230
PLACE STAMP HERE
US POSTAGE
RECEIVED
South Coast Region
MAY 06 2004
CALIFORNIA COASTAL COMMISSION

California Coastal Commission
Attn: ALL COMMISSIONERS
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

90802+4302

Dear Commissioners,

Resource protection has been accomplished at Bolsa Chica. The wetlands are saved, eucalyptus trees are saved, the pond is saved--even a road rut has been saved as "wildlife habitat!"

Unfortunately, **we also need homes for California families**. The American dream of home ownership is becoming nearly unattainable along the coast of this state because too few homes are being built to meet the needs of so many people who would like to live here.

Affordability begins with Availability!

Please take one small step to remedy this growing problem: ***APPROVE THE BRIGHTWATER DEVELOPMENT AT BOLSA CHICA MESA.***

CARL & BARBARA SR

Name: [illegible] Sig: [illegible]

Address: 9503 Peachtree City: Cypress

e-mail address: bolandb@comcast.net

239 identified Post Cards received in Support