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November 2, 1984

RP:0045

District Engineer
U.S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858

Gentlemen:

Corps of Engineers Permit
Kualoa Regional Park
(Installation of Surgebreakers)
Kaneohe Bay, Koolaupoko, Oahu

The above cited public notice relates to an application from the Department of Parks and Recreation, City and County of Honolulu, for renewal of a previously issued (February 1981) Corps of Engineers permit to install erosion control structures i.e. surgebreakers, offshore of Kualoa Regional Park. The Environmental Center has been assisted in the review of this renewal application by Ralph Moberly, Geology and Geophysics; Matthew Spriggs, Anthropology; Frans Gerritsen, Ocean Engineering; and Jacquelin Miller, Environmental Center.

The erosion problem at Kualoa Regional park has been the subject of numerous studies, public hearings, and analysis by recognized ocean and coastal marine experts and environmental specialists. Following extensive studies in 1980 a decision was reached by the City and County of Honolulu to employ a then relatively new sand mining system to pump sand ashore from an offshore sand bar. Opposition to the use of this sand source by some of the nearby residents resulted in a judicial proceeding which in turn led to a ruling by Circuit Court Judge Arthur S.K. Fong in March 1980, that the proposed sand mining action was illegal under the then prevailing Hawaii Revised Statutes (HRS) Section 205-33.

As a result of Judge Fong's decision, the surgebreaker alternative to the sand mining operation was proposed. The City and County of Honolulu then applied to the Corps (March 1981) and was granted permission (February 18, 1981) to install surgebreakers along the eastern shoreline of Kualoa Regional Park. However, no action was taken on this construction project and the Corps permit eventually expired. The present application by the City reflects a request for a renewal of the previous permit on the basis that, "The proposed activity is essentially the same as was previously permitted."

During the interim period from March 1981 to the present, continuing studies on the use of surgebreakers and/or sand mining options have taken place. A graduate student, Gregorio Gomez-Pina of the Ocean Engineering Department of the University of Hawaii has recently completed, to the draft stage, an extensive investigation of the hydraulic properties of surgebreakers with site specific application to the Kualoa Regional park beach area. We understand that his work has led to specific recommendations with regard to optimum siting of the structures at Kualoa in order to achieve the desired results. Because the work is still in the draft stage we cannot offer specific recommendation at this time but will be pleased to provide you with a copy of his dissertation when it is finalized.

Since the draft of the work by Mr. Gomez-Pina is not presently available we are reluctant to make specific comments, from memory alone, as to his recommended location for the surgebreakers. One of our reviewers has suggested that the offshore distance that was recommended was of the order of 200 feet and that the proposed 50-100 feet offshore by the City is much too close. If 200 feet is the more effective distance then perhaps the surgebreakers would be in sufficiently deep water to preclude their appearance at low tide. We would assume, however, that 200 feet would be too great a distance to place them by crane from shore.

Many of the substantive points presented in the Environmental Center's previous review of the proposed surgebreaker construction (January 29, 1981) remain cogent today. In addition we seriously question the aesthetic intrusion the proposed surgebreaker will have to the shoreline views. For example, a rough count, based on the October 1984 Dillingham Tide Calender indicates that there are only 15 hours or 2 percent of the time during the month of October 1984 that the surgebreaker would have been covered by water. In other words, it would have been exposed to view 98 percent of the time during the month of October 1984.

Yet another concern has now been called to our attention which involves the suggested use of onshore cranes to place the surgebreakers. The archaeological site extends all along that shoreline and in fact its loss due to continuing erosion is one of the major factors used to justify beach protective action. If large cranes are used for the offshore placement of the surgebreaker structures specific care must be given to protecting the archaeological materials from major destruction. We understand that burials are actively eroding out onto the beach and that near the northern end of the beach, a stone structure is now exposed. Greater emphasis should be placed on protecting the northern beach since erosion there is apparently more vigorous than at the southwest end which is currently an area of some deposition.

We note on the site plan that the fenced archaeological site is labelled as "sacred Hawaiian ground." According to our reviewers this is incorrect. Certainly we do not question that the site is an important archaeological site. However, the site is not "sacred" in the official, traditional sense. The "sacred" term was applied by a misinformed city employee and should be deleted. It only serves to confuse the public.

The 1983 amendments to the Hawaii Revised Statutes Section 205-33 permits offshore sand mining by the City or State for public beach replenishment at certain specific beaches in the State. Kualoa Beach was not one of the so designated beaches. The sand mining equipment originally developed by the University of Hawaii and successfully tested at Keahou on the Big Island was acquired by SEACO, a local marine engineering firm. Since then the equipment has been further refined and modified to permit its use under a wide variety of environmental conditions including depths and locations such as would be encountered off Kualoa. The new configuration includes a skid-mounted system which operates much like a vacuum cleaner. It is not limited to deep sand deposits but may be used to skim only inches of sand from shallow surface deposits. Furthermore it operates from a trailered small craft (such as a Boston whaler) and requires only two people for its operations. Turbidity is said to be negligible. If adequate tests were undertaken of this latest sand mining equipment, the restriction of it's use to selected beaches might be reconsidered by the legislature. If the sand mining option is considered more acceptable given the new vacuum equipment available perhaps some mining tests could be initiated for eventual presentation to the legislature.

In either case, the installation of the surgebreakers or the use of the portable sand mining system, we strongly recommend that periodic monitoring of specific environmental parameters be made a part of any permit. Either method is somewhat experimental. Background data to document the effectiveness (or lack thereof) is essential for wise planning for future beach replenishment projects.

We hope you will find our comments useful in your decision making process.

Yours truly,

Doak C. Cox
Director

cc: Ralph Moberly
Matthew Spriggs
Frans Gerritsen
Jacquelin Miller