SP82-353 - THE ESTATE OF JAMES CAMPBELL (E)

H -- NA OPIO EXHIBITS

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1. Letter dated October 20, 1981 from Society for Hawaiian Archaeology to Kisuk Cheung.

2. Letter dated October 15, 1981 from Paul H. Rosendahl, PhD., Inc. to Chief, Engineer Division, Department of the Army, Pacific Ocean Division Corps of Engineers.

3. Letter dated October 6, 1981 from Patrick V. Kirch, PhD, Anthropologist, Bishop Museum to Kisuk Cheung.

4. Letter dated May 18, 1981 from Clarence S. Fujii, Authorized Representative of the Contracting Officer, Department of the Army, Pacific Ocean Division, Corps of Engineers to Hallett H. Hammatt, PhD, Senior Vice-President, Archaeological Research Center Hawaii, Inc.

5. Letter dated April 7, 1981 from Garland J. Gordon, Chief, Interagency Archaeological Services Division, United States Department of the Interior, Heritage Conservation and Recreation Service, Pacific Southwest Region to Kisuk Cheung.

6. Letter dated April 6, 1981 from Susumu Ono, Chairman of the Board and State Historic Preservation Officer, Department of Land and Natural Resources to Kisuk Cheung.

7. Letter dated March 23, 1981 from Clarence S. Fujii, Authorized Representative of the Contracting Officer, Department of the Army, Pacific Ocean Division, Corps of Engineers to Hallett H. Hammatt, PhD, Senior Vice-President, Archaeological Research Center Hawaii, Inc.

8. Letter dated March 20, 1981 from Louis S. Wall, Chief, Western Division of Project Review, Advisory Council on Historic Preservation to Kisuk Cheung.

9. Letter dated March 11, 1980 from Robert J. Hommon, PhD, Chairman, Ad Hoc Committee to Review the Hammatt/Folk Report on Barber's Point, Society for Hawaiian Archaeology to Kisuk Cheung.

10. Letter dated February 22, 1981 from Patrick V. Kirch, PhD, Anthropologist and Member, Graduate Affiliate Faculty University of Hawaii, Bishop Museum to Kisuk Cheung.

11. Assessment of Archaeological Resources at Kawakiu-Nui, Moloka'i Report by Paul L. Cleghorn, M.A., Patrick V. Kirch, PhD., Arthur Saxe, PhD and Rose Schilt, M.A. prepared for Legal Aid Society of Hawaii dated February, 1981.

12. Soil Map.

13. Letter dated September 15, 1981 from Patrick C. McCoy, PhD, Chairman, Ad Hoc Committee to Review the Hammatt/ Folk Report on Barber's Point, Society for Hawaiian Archaeology to Michael M. McElroy, Department of Anthropology, Bishop Museum.

14. Reference Materials for Verbal Testimony dated November 26, 1977.

15. Newspaper article dated Monday, September 14, 1981 in the Honolulu Star-Bulletin.

16. Letter dated October 19, 1981 from Bertell D. Davis, Department of Anthropology, University of Hawaii to Kisuk Cheung.

ONLY COPY
DO NOT
REMOVE

SOCIETY FOR HAWAIIAN ARCHAEOLOGY
P.O. Box 22911 • Honolulu, Hawai'i • 96822

20 October 1981

Mr. Kisuk Cheung
Chief, Engineering Division
U.S. Army Corps of Engineers, Pacific Ocean Division
Building 230
Fort Shafter, Hawaii 96858

Dear Mr. Cheung:

Thank you for your undated letter, received 23 September 1981, and the opportunity to review the revised final draft on "Archaeological and Paleontological Investigation at Kalaeloa (Barber's Point), Hono'uli'uli, 'Ewa, O'ahu, Federal Study Areas 1A and 1B and State of Hawaii Optional Area 1" prepared by Hallett H. Hammatt and William H. Folk of Archaeological Research Center Hawaii Inc.

We have formed a new ad hoc committee in order to maintain objectivity by involving more of our membership in the Peer Review Process. Each committee member has reviewed the revised final draft report, and used the same documents in comparing this draft to the earlier one given to the Society for Hawaiian Archaeology for Peer Review. Then, the committee as a whole met and discussed the revised draft at length.

In addition to the SOPA Guidelines, Revised Scope of Work, and Revised Research Design, the committee used as primary review criteria the "Summary List of Comments" contained in a letter that your office sent to Dr. Hammatt on 23 March 1981. These documents, and the original set of peer reviews*, have been referred to in the process of comparing the two draft reports. We used this comparison to determine the extent to which the final revised report has satisfactorily addressed the multitude of both general and specific comments supplied by the previous reviewers.

A critical examination of the revised report reveals that -- apart from the addition of previously omitted graphics, basaltic glass and radiocarbon dates, and the master artifact catalog -- the final product is substantially the same as the widely condemned earlier drafts. There is little or no evidence that the authors of this report have taken serious notice of the review comments provided them by the Corps of Engineers. With reference to the "Summary List of Comments", we are of the firm

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* We refer here to the peer reviews by Davis, Hommon, Kirch, and Rosendahl.

opinion that of the total 21 items listed only numbers 3, 4, 7, 8, and 9 have been satisfactorily addressed. Moreover, these five items are the least consequential from the larger perspective of report adequacy, and amount to little more than cosmetic changes.

We are frankly surprised that the criticisms made by the original reviewers appear to have been ignored by Dr. Hammatt and Mr. Folk in their revision of the report. A point-by-point critique from the current SHA Peer Review Committee would thus be redundant since virtually no substantive (and few stylistic) corrections have been made. For the sake of brevity, the members of this committee are prepared to state categorically that, in our best professional judgement, the revised final draft report fails to satisfy the Scope of Work Requirements: the substantive comments of the previous reviewers still apply. In addition, the revised report does not comply with the Federal regulations and legislation under whose aegis the work was performed. Furthermore, the revised report does not conform to the generally accepted guidelines used by the Advisory Council on Historic Preservation in evaluating reports produced in the course of work for that agency. Finally, we defer to the criticisms made in the previous set of peer reviews in answering NO to all eight of the guideline questions for report review issued by the Society of Professional Archaeolgists.

Again, thank you for the opportunity to review and comment on the revised report, and we trust that our remarks will be of use to the Army Corps of Engineers. Should you have any questions regarding this review, you may contact the Society at the above address.

Sincerely,

Patrick C McCoy

Patrick C. McCoy, PhD
Chairman, Ad Hoc Committee
to Review the Hammatt/Folk
on Barber's Point

Jane Allen-Wheeler

Jane Allen-Wheeler
Committee Member

Laura A. Carter

Laura A. Carter
Committee Member

Sara L. Collins

Sara L. Collins
Committee Member

PAUL H. ROSENDAHL, Ph.D., Inc.
Consulting Archaeologist

OCT 19 1981

October 15, 1981

Chief, Engineer Division
Department of the Army
Pacific Ocean Division
Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858

Subject: Requested peer review of third draft final report

Archaeological and Paleontological Investigation at Kalaeloa (Barber's Point), Hono'uli'uli, 'Ewa, O'ahu, Federal Study Areas 1a and 1b and State of Hawaii Optional Area I (Contract No. DACW 84-77-C-0010, Mod. No. P00001), by Archaeological Research Center, Hawaii, Inc.

Dear Sir:

Enclosed is my review of the third draft final report on the above subject investigation conducted for the Corps of Engineers. I trust the review will be of use to you in your final appraisal of the archaeological work that has been done for the Corps.

While I do appreciate the opportunity to review the report, I must state that the lack of serious attention paid to the earlier review of the initial draft of the report--the strong negative criticism of my own first review, as well as that of several other reviewers--almost caused me to decline reviewing the third draft, as I felt it would be a waste of my own time. I have, however, given considerable time and attention to this review of the third draft final report for two reasons: (a) your statement that unedited peer reviews will be appended to the end of the ARCH, Inc. report; and (b) the hope that my review will help to bring about further work at Barbers Point that might in some way still manage to address several of the significant archaeological research problems, and thus "salvage" something of value from the archaeological resources that have managed to survive the destruction of the work documented in the third draft final report.

If you have any questions or comments regarding my review--either the critical portions or the recommendations at the end, please feel free to contact me.

Sincerely yours,

Paul H. Rosendahl

Paul H. Rosendahl, Ph.D.
Principal Archaeologist

Encl.: Review 101481
(two copies)

P.O. Box 504 • Kurtistown, Hawaii 96760 • (808) 966-8038

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PAUL H. ROSENDAHL, Ph.D., Inc.
Consulting Archaeologist

October 14, 1981

TO: Chief, Engineer Division
Department of the Army
Pacific Ocean Division
Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858

SUBJECT: Requested peer review of third draft final report

Archaeological and Paleontological Investigation at Kalaeloa (Barber's Point), Hono'uli'uli, 'Ewa, O'ahu, Federal Study Areas 1a and 1b and State of Hawaii Optional Area I (Contract No. DACW 84-77-C-0010, Mod. No. P00001), by Archaeological Research Center, Hawaii, Inc.

REVIEW PREPARED BY: Paul H. Rosendahl, Ph.D.
Principal Archaeologist

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major work tasks of the research and third draft final report in terms of major issues and problems, and will conclude with a final evaluation of the work and some recommendations as to how the numerous deficiencies of the archaeological work conducted to date might be remedied to some extent. One final limitation must be made explicit. The following review comments apply only to the archaeological portions of the work and report done directly by ARCH, Inc., and not to the separate independent consultant reports that deal respectively with the paleontological salvage (Appendix I, by Olson and James) and the non-marine molluscs (Appendix II, by Kirch and Christensen). Considered independently, these two reports are both competent pieces of work, and it is regretable that the findings of these studies of the fossil and subfossil avifauna and the land snails have not been utilized or integrated into the archaeological portion of the third draft final report in any sufficient or meaningful manner.

GENERAL EVALUATION STATEMENT

Detailed critical examination and evaluation of the third draft final report, and consideration of the report in terms of the several documents provided earlier by the Corps of Engineers to aid in the review and evaluation of the report (Inclosures 2 through 8, letter of 12 February 1981), provides substantial evidence that the archaeological investigation conducted at Barbers' Point has failed to achieve the major overall study objective stated in the "Revised Scope of Work..."--that is, the archaeological investigation that is documented in the third draft final report does not in any way constitute adequate mitigation of the adverse effects of the proposed harbor development construction on the important cultural resources present within the Barbers' Point Harbor Archaeological District.

This failure to achieve the major study objective has resulted from (a) in general the lack of compliance with the various guidelines contained within the several guidance documents listed in the "Revised Scope of Work...", and (b) more specifically and directly both the inadequate performance and lack of performance of the various work tasks detailed in and contractually required by the "Revised Scope of Work...." With regard to the eight guideline questions for peer review suggested by SOPA that the Corps of Engineers requested (letter of 23 September 1981) reviewers to consider in their evaluations of the third draft report, a uniform negative response must be made to all eight questions.

RESEARCH DESIGN

The "Revised Scope of Work..." specifies the preparation of a research design that provides "...for recovery of an adequate and

Review 101481

INTRODUCTION

The purpose of this peer review is to evaluate the third draft final report on the archaeological and paleontological investigation conducted at Barbers Point by Archaeological Research Center, Hawaii, Inc. (ARCH) for the U.S. Army Corps of Engineers in conjunction with the development of the proposed deep draft harbor and support facilities at Barbers Point, Oahu. Prepared at the request of the Corps of Engineers, this peer review evaluates the investigations primarily in terms of their conformance to the specifications contained within the "Revised Scope of Work for Cultural Resources Mitigation and Data Recovery..." (3 April 1979), and particularly to the "Revised Research Design"; and secondarily in terms of conformance to established and generally accepted professional standards for archaeological research performance. In this fashion the review substantively addresses the suggested guideline questions for peer review of reports issued by the Society of Professional Archeologists (SOPA) (9 October 1978).

The present review of the third draft final report bears several similarities to the earlier review of the first draft final report submitted to the Corps of Engineers in March 1981. This is because most of the comments and evaluations made regarding the first draft are still directly applicable to the third draft.

Certain specific limitations of this review should be recognized. First, the review concentrates upon addressing major problems or issues. It is not intended to be a detailed technical review, though the third draft final report provides sufficient documentation of technical inadequacies. Nor is it intended to be a detailed listing of substantive content errors and inadequacies, though the third draft final report contains numerous specific examples that could be cited.

Second, there is the difficulty in reviewing the report that is caused by the absence of several important pieces of data. The major difficulty encountered earlier in preparing the initial review of the first draft--the absence of almost 50 % of the graphics (plan maps, sections, and photographs)--has been answered in large degree by the presence of most of these illustrations in the third draft; however, certain specific important pieces of graphical data are still missing. The most significant missing items are (a) an overall study area map indicating the locations of all known archaeological sites (approximately 148 sites) within the project area--not just those that were "salvaged" (26 sites); and (b) cross-sections for many of the excavated sites (sections provided for only 9 of 26, or c. 35 %, of the sites).

In terms of general format, this review will first make a general overall statement of evaluation, then will consider the

usable sample of data on those significant research topics that can reasonably be addressed" (Item 5.(1)(a)). Such a research design thus provides the scientific framework within which to carry out the subsequent archaeological investigation. The third draft final report has several serious problems relating to the research design--both the research design document itself, and the subsequent performance of work in accordance with the research design.

First of all, the research design overall is itself inadequate. There is no critical analysis of previous archaeological research done in the Barbers' Point area. The section entitled "Previous Research" is simply a descriptive summary--little more than an ennumeration--of the nature and intensity of prior archaeological projects. An adequate analysis of this previous research would have concentrated on the results of the previous research, and the explicit use of these results to formulate research objectives, specific research hypotheses, and practical verification strategies for testing such hypotheses.

Secondly, the so-called "testible hypotheses" presented in the third draft final report (pp.8-9) as aimed to address the five original research problems are not really testible hypotheses. At best, some are general assumptions, postulations, inferences, or self-evident observations concerning the nature of Hawaiian settlement and occupation at Barbers' Point. Others are simply general, basic archaeological assumptions concerning the nature and patterning of archaeological data. None of the nine "testible hypotheses" are hypotheses in the scientific sense--that of explanation, dealing with relationships between variables in terms of determinative relationships, and not simply descriptive accounts of static spatial and temporal distributions of archaeological data. Hypotheses are directed at answering questions of "how" and "why" specific variables within the archaeological record are related, and as such are meant to go beyond simple questions of "where", "when", "what", and "who".

A third serious problem with the research design, and thus with the subsequent field work and report, relates to inadequate consideration of the nature of the archaeological data involved, and any strategies for sampling this data. The third draft final report never seriously considers the basic question of specifically what constitutes "an adequate and usable sample of data". This unanswered question applies to all levels of study--from the universe of sites, to specific sites, to specific features within sites, to the location of specific excavation units within sites and features, to specific methods and techniques of data recovery through excavation. Such basic essential questions as how samples at different levels are related, criteria and methods utilized in the selection of "samples", the validity of samples, and potential biases and means for controlling such biases do not appear to have been seriously considered at all.

Closely related to the many problems involving sampling is the issue of the nature of available data present and how one could go about testing any hypotheses. The third draft final report fails to consider how different kinds of data could be used to test specific hypotheses, much less consider what would constitute adequate testing and subsequent verification or rejection and modification of tested hypotheses. Furthermore, the report section on "testible hypotheses" gives no indication of any understanding that the archaeological testing of hypotheses involves the elimination of alternative explanations for the patterning of the recovered archaeological data.

One of the most disturbing aspects of the third draft final report relates to the five original major research problems that were to be addressed by the archaeological investigation. As indicated in the "Revised Scope of Work...", the archaeological work was required contractually to address these major research problems. The overall conclusion reached earlier in the March 1981 review of the first draft final report was that the archaeological investigation reported in the first draft final report totally failed to address adequately any of the five major research problems contained in the "Revised Scope of Work...". The response presented in the third draft final report (p.7) seems to be an effort to evade responsibility for failing to address adequately the major research problems by making the specious claim that the "...degree to which the original research goals [problems] have been met does not provide a basis for evaluating the effectiveness of the research but is a statement on the amount and kind of data found in the sites."

If it were true that the amount and kind of data were either inadequate or inappropriate for addressing the original research problems--an argument itself not at all supported by the available evidence--then such a situation would have been obvious upon the completion of the archaeological testing phase of the work conducted prior to the salvage excavations. At that point, prior to beginning any salvage excavations, the original research design should have been modified, and an explicit, written research design reflecting changes in the major research problems to be addressed--and specific strategies for addressing them--should have been prepared, and possibly even submitted to the Corps of Engineers for approval. Apparently such a reconsideration and modification of the research design was never contemplated, or it would have been presented in the first draft final report. Quite to the contrary, the first draft final report (p.14) explicitly claimed that the original research problems had been adequately addressed by the successful achievement of the various research objectives through which the original research problems were to have been investigated. The reason offered in the third draft final report for the failure to address adequately the original major research problems is a transparent, clearly <u>post facto</u> effort to pass over that failure by providing a non-substantive response to the first draft final report criticism.

ARCHAEOLOGICAL DATA RECOVERY

The "Revised Scope of Work..." specifies that the archaeological field work--the data recovery--be carried out according to the approved research design (Item 5.(2)). Based on the documentation provided in the third draft final report, it is apparent that there are several serious problems with and deficiencies in the archaeological investigation that are related directly to the conduct of the data recovery field work. Perhaps the most serious problem involves the same question of sampling. Previous comments concerning problems with the research design have already touched upon this topic, but further comment is required in connection with the actual field work. There are no discussions of or justifications for the actual samples of data collected in the field--why certain sites and features rather than others were excavated, where or on what bases excavation units were placed in relation to structural remains, the amount of square area actually excavated, and so on. Taken together, these points suggest a lack of any consideration of, or perhaps basic understanding of, what the recovered "samples" of data mean in terms of being representative samples--either qualitative or quantitative--of the totality of data present. Furthermore, no consideration is given really to questions regarding potential biases in the recovered data that might result from specific data recovery methods and techniques utilized.

The problem of inadequate sampling is illustrated by considering the portable remains--the artifacts and midden materials--recovered through the screening of excavated fill. The approved "Revised Research Design" states that 100 % samples of midden would be collected (p.11) (no screen mesh size mentioned), but the third draft final report indicates that this recovery procedure was not precisely followed. Specific procedures actually used are somewhat uncertain. One place in the third draft final report (p.11) states that excavated fill was processed through 1/4" and 1/8" mesh screens with 100 % samples being collected from the 1/4" screens and basaltic glass and other artifactual materials being collected from both the 1/4" and 1/8" mesh screens. Elsewhere the third draft final report (p.178) states that following similtaneous screening through 1/4" and 1/8" mesh screens, 100 % midden samples were collected from the 1/4" screen and "[a]ll material retained in the 1/8-inch screen was discarded after collection of all artifacts including basaltic glass and <u>all midden materials not present in the 1/4-inch screen</u>" [emphasis added]. Based on this statement, it is obvious that the recovered midden samples are not true quantitative samples, but questionable qualitative samples recovered through procedures involving the uncontrolled biases of the specific individuals conducting the screening.

A considerable number of previous archaeological excavations in Hawaii--both at sites in the Barbers' Point area and elsewhere--

have demonstrated that the use of 1/4" mesh screens is very often an inadequate technique for the recovery of reliable, representative samples of portable remains, and that in most instances 100 % collection of all materials from the 1/8" mesh screens is essential for qualitative analyses, and particularly for any quantitative analyses. Furthermore, hand-sorting of the 1/8" screen component in the laboratory is often necessary to recover a significant portion of the small artifacts and artifact fragments. It is quite possible that the recovery techniques used in the field work at Barbers' Point are directly responsible for collection of only 55 pieces of basaltic glass in an area where similar sites have yielded substantial numbers of pieces. An on-site inspection of the screening dump piles could certainly be instructive.

The assumption stated in the third draft final report (p.178) that sampling bias introduced by the use of 1/4" mesh screen was insignificant is certainly an assumption that should have been, and could have easily been, tested during the work at Barbers' Point. The explanation that such tests done earlier by another researcher at sites in two locations on the west coast of Hawaii Island had been interpreted as indicating no significant skewing of midden samples from the use of 1/4" mesh screen alone is an inadequate reason for failing to utilize the Barbers' Point excavations as an excellent opportunity to test such assumptions--to confirm or deny the validity of such sampling procedures.

On the basis of the third draft final report, it is apparent that no provision was made for the systematic inspection of the residues that passed through the 1/8" mesh screens--no attempts at such techniques as flotation, or even simple visual inspection using low-power magnification. Such procedures could quite likely have revealed the presence of very small fish bones, marine and non-marine mollusc shells, and even artifacts which have been known to pass occasionally through 1/8" mesh screens.

The information presented in the third draft final report makes it very difficult, if not impossible, to evaluate the intensity of the effort involved in the field recovery of data. The report contains little or no useful information at all regarding such basic and standard details as dates of field work and number of field work days, size (number of people) and organization of field crews, man-hours expended in field work overall--much less man-hours of investigation directed at specific portions of the field work, or estimated volumes of deposit excavated at various sites. All of these kinds of information are needed to evaluate accurately the reliability of the recovered data.

The third draft final report also fails to provide information sufficient to evaluate how adequate or comprehensive was the recording of field data. For example, there is little or no mention of possible specific difficulties encountered in the various excavations, or in

the definition of various stratigraphic units, and many of the site excavation descriptions do not even have stratigraphic cross-sections presented with the plan maps. Overall there are numerous questions regarding the nature, quality, and reliability of the recovered field data presented in the third draft final report, but to answer most of these questions would require actual on-site field inspection of the sites and excavation areas.

An example of one specific, very important question that could be answered only by on-site field inspections relates to the cultural deposits identified at several of the sites. While the third draft final report maintains in virtually every instance that the excavated sites were single component sites, the graphical data provided for four of the sites suggests the distinct possibility that several--perhaps all four--of the sites are actually multiple component sites--ones with subsurface components that had been deposited prior to the construction of the surviving surface structural remains. Such subsurface components could quite likely not be related at all to the later surface structural manifestations.

Site	Figure No.	Comments
2712	9-13	Plan maps show large hearth situated stratigraphically beneath structure wall
2731	24	Cross-section shows major cultural layer situated stratigraphically beneath and extending laterally beyond structure walls
9682	36	Cross-section shows major cultural layer extending laterally beyond structure wall
2787	59-63	Plan maps show portion of hearth situated stratigraphically beneath structure wall

It should further be noted that the above list of problem sites includes the only two sites that were dated during the archaeological investigation of sites at Barbers' Point--Sites 2731 and 9682.

One small, but potentially very significant, set of changes in wording noted between the first and the third draft final report descriptions of field and laboratory methods utilized for the conduct of the archaeological investigation suggests a possible explanation for many of the inadequacies of and problems with the recovery and subsequent treatment of field data. While the first draft final report stated that both recovery of field data and subsequent processing and analyses of portable remains were carried out according to "standard archaeological field methods" (p.58) and "standard archaeological laboratory methods" (p.59, the third draft final report--in curious contrast--has been changed to state that such work was carried out according to "standard ARCH [Inc.] field methods" (p.67) and "standard ARCH [Inc.] laboratory methods" (p.69). On the basis of first-hand familiarity with several archaeological projects carried out by the personnel of ARCH, Inc., it both can be and has

been substantively documented that many of those same "standard ARCH" methods do not comply with the standards of research performance ascribed to by professional archaeologists.

HISTORICAL DATA RECOVERY

The "Revised Scope of Work..." called for historical research "...to the extent necessary to document the history of Hawaiian and Western occupation and land use at Barbers' Point after European contact (A.D. 1776) and the relationship of this historic occupation and land use to changes in the study area's environment" (Item 5.(3)). There are at least two serious problems reflected in the third draft final report which relate to the performance of this major work task. First of all, the report does not adequately describe or really even consider the effective environment of the study area--neither the marine nor the terrestrial aspects--in any kind of detail, much less with any emphasis upon the relationship of the environmental setting to the archaeological remains. The report should contain a sufficiently detailed description of the present physical environment--both marine and terrestrial, an analysis of all available data relating to known and/or postulated past changes in the environmental setting of the study area, and an evaluation--based on the best available data of all kinds--of the environmental setting of the study area in terms of potential for aboriginal Hawaiian settlement and occupation.

The second major problem relating to the historical data recovery involves the historical background research. The "Revised Scope of Work..." calls for the research to deal with the history of Hawaiian and Western occupation and land use for the full span of time from the point of European contact (c. A.D. 1776). In direct deviation from this instruction, the third draft final report concentrated only upon the history of military occupation and land use for the period 1940 through 1946. In addition to not conforming to the scope of the contractually required historical research, the military history presented in the third draft final report--Appendix III: A Study of the Wartime History of Camp Makakole, 1940-1946--is considerably out of proportion to the rest of the report, particularly since this historical study provides little in the way of information directly relevant to any explication of "the relationship of this historic occupation and land use to changes in the study area's environment", much less how such occupation and land use patterns could have affected--and as such be reflected in--the surviving archaeological remains of the Barbers' Point area.

The investigation of the history of Hawaiian and Western occupation and land use requires historical documentary research which covers the entire historic period from the time of European contact to the present. Such research would incorporate data from

a wide range of ethnohistoric, archival, and other documentary and informant sources, and would consider--at the very least--the early history of the area, specific land tenure history, and the variety of historic period land use and modification patterns. The third draft final report statement (p.19) that "no archaeologically expressed evidence of cultural transition is present in the excavations..." is really unacceptable and reflects at the very least, a failure to conduct research into available relevant historical documentary sources of many different kinds.

DATA ANALYSIS AND REPORT PREPARATION

The "Revised Scope of Work..." calls for analyses of recovered data to be carried out in accordance with the approved research design, and indicates further that the final report shall be "an objective final product"--one which documents that the archaeological contractor did "...properly, appropriately, and adequately include and thoroughly investigate all areas and sources of information pertinent to an objective analysis and investigation specified in the Scope of Work." The third draft final report clearly fails to accomplish these aims.

One of the most serious problems is the generally inadequate presentation of descriptive data. The professional standard for archaeological reports is the descriptive presentation of data in sufficient quantity and detail so as to (a) indicate clearly the bases for conclusions and interpretations given by the authors, (b) allow other archaeologists to evaluate in depth these conclusions and interpretations, and (c) permit other archaeologists to arrive with some assurance at other possible alternative conclusions and interpretations--if so justified--on the basis of the same data.

The level of analysis afforded the recovered data is particularly disturbing. Neither the artifacts nor the midden materials are really analyzed in any useful manner. In neither case are the data presented with sufficient clarity and detail so as to permit other archaeologists to utilize the data in making meaningful comparisons to assemblages or remains from other archaeological sites.

The report section on dating is difficult to evaluate. Comments regarding the questionable scarcity of basaltic glass pieces that might have been used for dating have already been made. The section on dating fails both to offer any plausible explanation, or to include discussions concerning the relevant problems with and limitations of the use of basaltic glass and radiocarbon dating techniques with the Barbers' Point samples. A much more serious and obvious inadequacy of the dating work done as part of the archaeological investigation is the failure to utilize, or apparently even consider, alternative dating techniques--absolute or relative--using

shell and bone materials from the various excavations. This failure is particularly incomprehensible and unexcusable in view of the nature of the various major research problems requiring the establishment of a firm chronological framework, and the purported scarcity of opportunities for basaltic glass or radiocarbon dating.

The paucity of accurate and reliable hard descriptive data in the third draft final report overall, together with the lack of analysis of the field data from the structural remains and the excavations, and the subsequent lack of analysis of the recovered portable remains--both artifacts and midden--correlates clearly with the totally inadequate concluding section of the report, the "Barber's Point Perspective". There is no real integration of data--either of the various kinds of the archaeological data, or of the archaeological data with the data and interpretations of the consultant reports on the avifauna and the land snails (Appendices I and II). Given the absence of any interpretations or conclusions that are firmly and objectively based on the recovered data, it is easily understood also why the third draft final report does not contain any critical self-evaluation of the archaeological investigation overall.

CONCLUSION

The obvious conclusion of this review, based on a critical examination and evaluation of the third draft final report, is unavoidably and overwhelmingly negative with regard specifically to the archaeological investigation. Only the appended consultant reports on the avifauna and the land snails represent positive research contributions. In summation, the third draft final report has failed to achieve the overall major objective of the Barbers Point investigation. This failure is the direct result of both inadequate performance and lack of performance in terms of the major work tasks required by the "Revised Scope of Work...." The final recommended "complete archaeological clearance for the entire project area" (p.28), and the implied lack of any need for any further archaeological research, certainly is neither justified nor supportable on the basis of the archaeological investigation documented by the third draft final report.

The most disturbing conclusion overall is that the archaeological investigation has totally failed to address adequately any of the five major research problems contained in the "Revised Scope of Work..." (p.5). The basic and guiding philosophy of the Federal historic preservation program is that archaeological resources are important wholly or in part--wholly in the case of the Barbers' Point resources--because they may contribute to the study of important research problems. And therefore archaeological research, addressing significant questions about the past, is in the public interest. This then is the justification for the spending of public monies for archaeological research. The unavoidable conclusion of this position must be that the archaeological investigation conducted

at Barbers' Point by ARCH, Inc. for the Corps of Engineers, as documented in the third draft final report, has been a waste of public funds. By failing to address the major research problems as required by the "Revised Scope of Work...", the archaeological investigation has accomplished the destruction of important sites and the loss of valuable data, without any significant research return for the expenditure of time and money.

The third draft final report submitted by ARCH, Inc. is a specific example of why archaeology and archaeological research is regarded by many people, and by several government agencies as well, as a waste of public monies. By the failure to address adequately the the significant major research problems, the report stands as an unfortunate example of the all-too-common brand of archaeological work that constitutes little more than documentation of the destruction of archaeological sites.

Furthermore, the third draft final report demonstrates a disregard for professional standards and ethics that must be considered unacceptable in anyone purporting to be a professional archaeologist. The overall response to the strong and wide-spread negative peer reviews of the first draft final report--as this response is expressed by the changes, deletions, and additions found in the third draft final report--would appear to indicate a broad-scale general attempt to avoid, ignore, mislead, and otherwise confuse, rather than clarify or adequately address directly, most of the critical issues and problems raised by the various peer reviews of the first draft final report.

RECOMMENDATIONS

The following general and specific recommendations are offered in the hope that they might help to accomplish two objectives: (1) assure that future archaeological investigations done for the Corps of Engineers will be formulated and conducted in such fashion as to achieve adequate mitigation of adverse effects of any Corps projects upon important archaeological resources, and thus represent a significant research return on the expenditure of public monies; and (2) suggest a specific course of future action that would attempt to "salvage" something of value from the salvage excavations conducted at Barbers' Point by ARCH, Inc.

GENERAL RECOMMENDATIONS FOR FUTURE ARCHAEOLOGICAL INVESTIGATIONS

The basic recommendation is to involve knowledgeable and competent professional archaeologists in all the aspects of project work, including preparation of scopes of work, review of proposals, monitoring of in-progress work, and review of resulting reports. The SOPA "Suggested Guidelines for Peer Review" are explicitly

"designed primarily to maintain quality in the whole process of archeological contract work", and could serve easily as an appropriate model for the Corps of Engineers. In contracting for archaeological work, the Corps should deal only with responsible professional archaeologists, and refuse to be satisfied with, to accept, or to pay for inadequate archaeological work. Above all, the Corps of Engineers should demand that professional standards of performance and ethics--such as those of SOPA--are adhered to by all archaeological contractors.

SPECIFIC RECOMMENDATIONS FOR BARBERS' POINT

While the archaeological investigation conducted at Barbers' Point--as documented by the third draft final report--strongly motivates the wish to re-do (so far as possible) the entire program of archaeological research from the beginning, such a desire is impractical for several reasons--both archaeological and other. The only practical alternative would be to attempt to address a careful selection of the most important specific issues and problems that could still reasonably be investigated. A suggested approach could include the following steps:

1. Corps of Engineers initiate and sponsor formation of a research committee of professional archaeologists working in Hawaii for the cooperative investigation of the archaeological resources at Barbers' Point;
2. Research committee then would initially discuss all aspects of work done to date, and tentatively form a list of priorities--as specific as possible--to be addressed through further work;
3. Research committee--most likely represented by selected members--would then conduct a detailed review and evaluation of all available field records and documents, and a subsequent on-site field inspection of sites, with the purpose of determining the nature and reliability of of available data and existing site conditions, and how these factors relate to the priorities and practicalities of specific future research tasks and problems;
4. Research committee to discuss and finalize research priorities and strategies, and prepare formal recommendations for submission to the Corps of Engineers;
5. Field investigations carried out;
6. Analyses of recovered data carried out;
7. Final report prepared and submitted.

It is suggested that Steps 1-4 might be appropriately carried out under the auspices of the Society for Hawaiian Archaeology (SHA), an incorporated organization to which virtually all archaeologists

working in the State of Hawaii belong. It is further suggested that the possibility of SHA being contracted to carry out Steps 5-7 as a cooperative investigation that would bring together archaeologists with a variety of skills and affiliations is a possibility for careful consideration. Precedents for contracting similar non-profit organizations to conduct public archaeological investigations are known to have been successfully completed on the mainland.

One final recommendation should be made. Further paleontological research on the avifauna and the land snails recommended in the appended consultant reports (Appendices I and II) in the third draft final report must be given serious consideration and support. Organization and conduct of such further research would most profitably be done in careful coordination with further archaeological investigations.

B I S H O P M U S E U M
P.O. BOX 19000-A • HONOLULU, HAWAI'I 96819 • 808 847-3511

Anthropology Department
6 October 1981

Mr. Kisuk Cheung
Chief, Engineering Division
Department of the Army
Pacific Ocean Division, Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Dear Mr. Cheung:

Re: Review of Final Report, "Archaeological and Paleontological Investigation at Kalaeloa (Barbers Point), Hono'uli'uli, 'Ewa, o'ahu" by H. H. Hammatt and W. H. Folk, Archaeological Research Center Hawaii, Inc.

Thank you for your letter of 23 September 1981 soliciting a peer review of the above document. In undertaking this review at the Corps' request, I am providing you with my comments, opinions, and judgements as a professional archaeologist with more than 14 years of experience in Hawaii and the Pacific Islands. These views do not, however, represent official policy of the Bishop Museum.

In making my review and evaluation, I have paid particular attention to the several guidance documents, especially the Revised Scope of Work (Federal), and the Revised Research Designs (Federal and State). In addition, I have taken into consideration the "Guidelines for the Preparation of Barbers Point Archaeological Research Designs" of February 1979, included as a "research guidance document" in the Revised Scope of Work (Federal, p. 2). I have also been cognizant of the suggested guidelines for peer review of reports issued by the Society of Professional Archaeologists (October 9, 1978). Although I am submitting my review to you and not to any other agency or organization, I would like to request that it be forwarded by your office to the Advisory Council on Historic Preservation, and to the State Historic Preservation Officer. These agencies have been directly involved with the Barbers Point investigations, and ought to be informed as to the findings and opinions of the peer reviewers.

To begin, I must point out that I find little substantive change between the original Draft Report and the present Final Report. Most changes made in the Final Report are of a cosmetic nature (e.g. typographical errors corrected, though not always, e.g. spatial consistently misspelled 'spacial'), while the major problems of substance in the Draft Report remain in the Final Report.

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Thus, nearly all of the problems raised in my earlier review of the Draft Report (dated 22 February 1981 and submitted to you) also pertain to the Final Report.

In a review of any archaeological investigation, the most important point is to determine whether the research objectives were adequately addressed. I therefore focus my review on the research objectives of the Barbers Point work, and on the adequacy of ARCH's attempts to achieve these objectives.

Research Objectives.

On pp. 5-6, Hammatt and Folk lay out five "research objectives" around which their archaeological investigations were oriented; these objectives are then evaluated on pp. 14-26. I will review each objective in turn:

1. The first objective was to develop a "firm stratigraphy and chronology for the sites and features of study areas", and clearly, this objective was fundamental to the success of the project as a whole. Unfortunately, the investigators have failed to meet Objective 1. What is most disturbing is that it would appear that datable materials are abundant in the Barbers Point sites, and that Hammatt and Folk simply did not avail themselves of the opportunity to have such materials chronometrically analyzed. For example, organic materials other than charcoal (e.g. shell, bone, sea urchin) could have been submitted for C14 age determination from a much broader sample of the prehistoric habitation features. Most critical is the absolute failure to ascertain the age of any of the bird bone deposits, for this problem is fundamental to the entire question of human prehistory and environment at Barbers Point. There is no excuse for not attempting C14 dating on samples of bird bone from the sinks (and, there are evidently large samples of non-extinct bird bone, such as that of the dark-rumped petrel, which could be sacrified for dating purposes). Furthermore, an effort should have been made to apply relative flourine and/or amino acid dating to the bird and rat bones from the paleontological sinks, to determine whether the rats are contemporary with the fossil birds. Certainly, the foremost research problem at Barbers Point is to determine the relationships between the extinct birds and man, a problem requiring utmost concern with chronology. It is inexcusable that so little effort was devoted to this problem.

The lack of adequate dating has implications for other aspects of the Barbers Point work as well: for example, on p. 16 we are informed that "the intensity of occupation of any particular site in the study area is difficult to assess because of the lack of datable material." It would appear that the problem was not a lack of datable material, but a lack of effort on the part of the archaeologists to avail themselves of all possible dating materials and techniques. (Similarly, on pp. 211-212, Hammatt and Folk dismiss Davis' argument concerning functionally-integrated residence groups, yet disproof of Davis' hypothesis could only be based on reliable chronometric data, which are lacking.)

The emphasis placed by ARCH on hydration-rind dating of volcanic glass flakes deserves comment. The hydration-rind method is not an independent chronometric technique, but is very much tied to C14 dating for control. Therefore, ARCH's

emphasis on hydration-rind dating for primary chronological control, "supplemented by Carbon 14" (p. 13) is, in a manner of speaking, putting the cart before the horse. Further, to be even minimally useful, hydration-rind measurements must be used only when it is possible to control for glass chemistry and for effective hydration temperature. Neither of these have been determined in the Barbers Point case. These reasons alone are sufficient to reject outright the hydration-rind chronology given in Hammatt and Folk's report. (I would further question the qualifications of the ARCH team to carry out the thin-sectioning and measurement of hydration-rinds. I know of only two scientists in Hawaii with adequate training and practice to work on Hawaiian volcanic glass, and neither of these individuals was involved in the dating of materials obtained by ARCH.)

In sum, I completely reject the statement on p. 11 that "every effort was made to develop a diachronic sequence", and submit that Research Objective 1 was not even minimally achieved.

2. Hammatt and Folk have, in my opinion, done only slightly better with regard to their second objective, which was to define "site/feature functions, particularly specific functions of the habitation features". The principal method used to address this problem appears to have been that of plotting 'density contours' of midden and artifacts in order to ascertain spatial patterning over site areas. The use of this method is appropriate, and does contribute toward a resolution of Objective 2. The problem, however, is that Hammatt and Folk did not carry their analysis far enough. They have not, for example, analyzed the spatial distribution patterns of specific artifact types or categories over occupation surfaces, nor have they done this with categories of faunal or floral remains. Although they mention "size" of habitation features as an important variable, nowhere do they provide even most elementary statistical analysis of size variation in the Barbers Point habitation structures. Other analyses which would be of great value in sorting out inter-site variability would be the use of multi-variate statistical analyses (especially discriminant and cluster analyses) with structural, artifactual, and midden data. None of these were attempted by the investigators, even though they have become relatively standard analytical techniques in American archaeology. The statement (p. 21) that statistics could not be applied "because of the many different criteria used and the simple non-quantifiable nature of the criteria" is not acceptable. Many criteria relating to site function <u>are</u> quantifiable, and even for discrete data (absence/presence) there are a variety of similarity and distance coefficients which are applicable.

3. The third objective overlaps somewhat with the second objective and is focussed upon "definition of the subsistence and manufacturing activities and the nature of specific activity areas within habitation sites." My comments on Objective 2, above, are also applicable here.

I am particularly concerned here about several major problems and omissions in the collection and analysis of faunal and floral remains ("midden"). Although some basic midden data are presented in Table 3, no corrections are made for excavated volume (i.e. no concentration indices are calculated), hampering effective intra- and inter-site comparisons. Hammatt and Folk refer to the "extreme

difficulty in calculating the volume of excavated units due to the wavy and frequently convoluted strata boundaries" (p. 178) but this problem could easily have been overcome by simple volumetric or weighing procedures in the field. The utility and representativeness of the midden data become more suspect when it is made clear that only ¼" mesh was used in screening (p. 178). The authors justify their procedure by citing tests made by Kirch at two sites on Hawaii Island. What they have failed to appreciate, is that the size distributions of midden particles can vary tremendously between sites, and tests should always be carried out on each particular site. Therefore, since Hammatt and Folk failed to conduct the appropriate tests, I cannot accept their statement that the use of ¼" mesh was "an insignificant skewing factor." Worse, since no tests were made, any archaeologist wishing to use their midden data in further analyses has no empirical basis on which to assess the degree of skewing.

While the molluscan remains have been identified to specific-level taxonomic categories (Table 3), the equally significant vertebrate remains have not been identified below the level of such general categories as "bird" or "fish". In a project of this scope, and given the stated research design, it is inexcusable that detailed specific-level identifications were not carried out on this material, and that the data were not presented in full tabular array.

I further question the scenario Hammatt and Folk present regarding the correlation between fish and shellfish with temporary and permanent sites (pp. 181-183). Their assumption that temporary sites should exhibit "low quantities of shellfish remains" is not borne out either by other studies in Hawaiian archaeology, nor by ethnoarchaeological studies of contemporary Polynesian subsistence practices. More important, Hammatt and Folk appear to be unaware of the work done by R. Cordy, R. Green, and others on the temporary/permanent habitation dichotomy in Hawaiian sites. No reference is made by Hammatt and Folk to this important and relevant literature.

4. The fourth objective concerns the nature and extent of environmental change. Largely due to the application of paleo-malacological and avifaunal studies, this objective has met with greater success than the others. Still, there are major problems. The failure to develop a reasonable chronology for Barbers Point means that we still do not know the time frame within which the environmental changes represented by the landsnail and avifaunal remains took place. Although the Revised Scope of Work (pp. 7-8) specifically refers to such techniques as sedimentology, non-dating geochemistry, pollen and opal phytolith studies, Hammatt and Folk have made no serious attempt to apply these or other analytical methods which might shed further light on the nature of environmental change in the area.

The authors repeatedly refer to "natural mixing of deposits" (e.g. p. 18) in the paleontological sinks, yet nowhere do they provide any justification for this assertion. On the contrary, Dr. Christensen and I have found that the stratigraphic distributions of both landsnails and vertebrate micro-fauna (lizards, rats) in the sink deposits indicate no significant mixing. For example, bones of the historically-introduced Mus musculus are found only in the top-most sample units, and not in the zone of birdbone concentration as Hammatt and Folk's statement would imply.

Hammatt and Folk have generalized from the unexpected finding of large quantities of the amphibious snail Assiminea hitida in one sink, to propose that mulching of sinks for agricultural purposes "might have been a general agricultural pattern throughout the area" (p. 19). This indeed is a likely possibility, but it is regrettable that no attempt was made to test this hypothesis through examination of spot samples from other sinks, a relatively simple task.

One of my greatest concerns with the present study is that the sample of excavated, avifauna-bearing sinks is woefully inadequate. Only one paleontological site with a relatively deep and well-stratified sequence (Site 2624) was studied in detail, yet it is this category of site that has yielded the internationally-significant remains of extinct birds. The paleontological sinks are also the only sites that have provided clear evidence of association between humans and the extinct birds. Hammatt and Folk provide a long list of "tested" sinks with demonstrated potential for further investigations (e.g. Sites 2798, 2799, 2731, 2713, 2714, 2716, 2719, 2622, 2762, 9655, 9656, 9659, 2623, 9669, and others). Given the demonstrated scientific and cultural significance of these sites, it would be a tragedy of unspeakable proportions if all of these resources are destroyed without further investigation. While Barbers Point is the only site in Hawaii where extinct avifauna are present, it is unquestionably the most important of all such sites. In my opinion, the Corps of Engineers, as a federal agency, has an obligation to either protect or mitigate adverse impacts upon the Barbers Point cultural resources.* The incomplete nature of the present study renders it totally inadequate as mitigation.

5. Hammatt and Folk state that "it was possible to document the history of Hawaiian occupation at Barbers Point to the degree defined in the first four general objectives of the study". Since none of these objectives has yet been adequately met, it should be obvious that neither has Objective 5 yet received adequate treatment.

Research Problems

In addition to the five "objectives" reviewed above, Hammatt and Folk list (pp. 7-8) five "research problems", these being explicitly listed in the Revised Scope of Work (p. 5). Problems 1, 2, and 4 are essentially covered by Objectives 4 and 5, and hence my earlier comments apply to these points as well. Research problems 3 and 5, however, need to be considered separately.

Problem 3: Barbers Point Settlement Pattern. This problem was originally identified in the "Guidelines" of the Ad Hoc Committee (1979, p. 5), in which six specific questions were raised. Hammatt and Folk address settlement pattern on pp. 210-212 of their report; their cursory discussion is, in my opinion, totally inadequate and fails to address the problem. This is due to a failure to analyze (as opposed to merely collect) data in such a manner that settlement pattern relationships might be elucidated. There is no attempt to apply standard techniques of locational or distributional analysis to the data on

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*Because the extinct avifauna are directly associated with man, and critically important to an understanding of cultural development in Hawaii, the sinkholes are as much cultural resources as they are paleontological sites.

site distribution, nor any analysis of variability in site architecture. Even an elementary settlement pattern analysis of the Barbers Point data has yet to be accomplished.

Problem 5: The Barbers Point Cultural Pattern as a Unique Adaptation to a Unique Environment. This problem has been only minimally addressed by Hammatt and Folk. The kinds of specific analyses needed to address Problem 5--such as detailed faunal analysis--are entirely lacking.

Other Concerns

Under this heading, I will discuss two problem areas: sampling strategy and curation.

1. Sampling. The Revised Scope of Work (p. 5) calls for a specific, justified sampling strategy which will indicate "the relationships between various types of sampling strategies and field and laboratory analytical techniques, such as midden analysis, settlement analysis, and analysis of avifauna and land snails, etc." Nowhere in Hammatt and Folk's report do I find an adequate treatment of sampling strategy, nor any awareness of recent theoretical and methodological developments in the application of sampling designs in American archaeology. This report should, but does not, include a detailed and explicit discussion of sampling design at all levels of excavation and analysis.

2. Curation of Materials. The work at Barbers Point has resulted in a large and valuable collection of artifacts, zoological specimens, soil, and landsnail samples, as well as associated photographs and notes. As indicated in the SOPA Guidelines (p. 3), provision must be made for permanent curation of these materials, and furthermore, they must be "reasonably available for use by the archaeological community". Hammatt and Folk should include in their report a statement addressing these matters.

General Evaluation

I trust that the above comments are sufficiently detailed to document my overall evaluation of this report as inadequate and not fulfilling either the general or specific tasks set forth in the Revised Scope of Work and in the Revised Research Design. Furthermore, the report does not, in my opinion, meet the standards and reporting requirements set forth in 36 CFR Part 66 (42 Federal Register 5374, January 28, 1977). It is my professional opinion that the Corps of Engineers should under no circumstance accept the present Final Report as fulfilling the Scope of Work for cultural resources mitigation at Barbers Point.

In closing, one final point must be stressed above all others. It is standard procedure for archaeologists working on sites in the United States to evaluate the significance of prehistoric cultural resources in terms of 'local', 'State', or 'National' significance. In the case of Barbers Point, I have no hesitation in stating that the cultural resources are of international scientific significance. The demonstrated association of a large extinct avifauna with human activities, and the implication that man was directly or indirectly responsible for the

extinction process, is a phenomenon of singular importance to the fields of archaeology, anthropology, ornithology, ecology, and biogeography. The Barbers Point materials rank in their international significance with the famous extinct moa birds of New Zealand, and with the Pleistocene megafauna of Australia. Given the incomplete and inadequate nature of the archaeological investigations carried out to date under the auspices of the Corps of Engineers, it will be an international scientific tragedy if the cultural-paleontological resources at Barbers Point are permitted to be destroyed without further research.

In writing this review I have endeavored to follow your request to be "frank, honest, scrutinizing", and to reflect my "best professional judgement." It is with regret that I have had to be so negative in my assessment. I can only hope that the Corps of Engineers will recognize its duty and responsibility to protect the unique and internationally-significant cultural and scientific information available at Barbers Point, so that future generations will not be deprived of its benefits.

Yours sincerely,

Patrick V. Kirch, Ph.D.
Anthropologist

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96858

PODED-PV

18 May 1981

Hallett H. Hammatt, PhD.
Senior Vice-President
Archaeological Research Center Hawaii Inc.
P.O. Box 285
Lawai, Kauai, Hawaii 96765

Dear Dr. Hammatt:

We have completed our review of your revised draft Barber's Point Harbor Archaeological and Paleontological report (Contract No. DACW84-79-C-0010, Mod. No. P00001). Although you had not received all of the review comments on the initial draft which were provided to you on 30 March and 14 April 1981 when you submitted the revised draft, the new draft appears to satisfy many of the reviewers' concerns, including our own.

The revised draft still, however, requires some changes before it can be recirculated for review by the appropriate State and Federal agencies and by Bishop Museum. These further changes are summarized on the attached inclosure (Incl 1). These comments were verbally transmitted to you by Mr. David Sox of my staff on 12 May 1981. The most outstanding issue that still needs further discussion is the pedological, sedimentary and botanical analysis of sinkholes that the Research Design and page 12 of the revised draft stated would provide a basis of investigating the existence and extent of past agricultural activity. Several statements were made in the revised report on pages 23, 25, and 26 which presume a detailed analysis of these elements. That analysis, however, is not evident in the text of the report.

We also suggest that you incorporate two additional maps into the report to show the spatial patterning of the features around your proposed kauhale, (Sites 2712 and 2787). One further map of World War Two-related or constructed sites should be incorporated into Appendix III.

We are inclosing several archaeological studies conducted for the West Beach development project north of the proposed harbor (Incl 2) and for the Ewa-Marina Community east of the harbor site (Incl 3), both which describe archaeological sites similar in environment to those found in our study area. Your "Barber's Point Perspective" section of the report should make reference to these studies.

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Finally, we urge you to review the revised draft in light of the earlier review comments to determine whether any of these comments should be further incorporated into the second revised draft. The Contracting Officer will consider processing an extension to the contract for 108 calendar days, approximately 65 calendar days from the present per Mr. Sox's discussion with you on 12 May 1981, sufficient time for a 30-day review period and 30 days to make any final revisions to the draft and submit it to the Contracting Officer.

Sincerely,

3 Incl
As stated

CLARENCE S. FUJII
Authorized Representative of the
Contracting Officer

Review Comments on the March 1981 Revised Draft of
Archaeological and Paleontological Investigations at Kalaeloa
(Barber's Point), Hono'uli'uli, 'Ewa, O'ahu
Federal Study Areas 1a and 1b, and State of Hawaii Optional Area 1

Item	Page	Paragraph	Comment
1.			Report needs to be repaginated.
2.			Numerous typographical errors as verbally noted to Dr. Hammatt by Mr. Sox.
3.	1	Introduction	Needs definition of "site."
4.	1	Introduction	Provide an explanation of the site renumbering.
5.	1	2nd	Here and elsewhere (pages 9 and 36), reword your statements on a site's "potential" to state "whether a site would yield stratigraphic evidence of human occupation."
6.	4	Figure 3	Please designate the kauhale on the map.
7.	14	4th	Define "modern."
8.	18	#4	This discussion should be augmented by greater discussion of possible prehistoric plant assemblages, drawing on preliminary findings of Appendices I and II and your sedimentary, pedological and botanical analyses, and by mentioning the 30 species of fossil land birds found in the sinkholes including 24 extinct species.
9.	48ff	Table 1	Check notations of sites significant for their "map location." These sites are not mapped, therefore what is their significance? Suggest inserting Davis's 1978 maps into the revised report.
10.	47 & 52	Table 1	Comments on Sites 2780, 2781, and 2604 should change reference to "State Parks archaeologist" to "State archaeologist."
11.	53	Table 1	Site 2609--Discussion under "Work Done and Justification" is non-sensical.
12.	54 & 55	Table 1	Sites 2713, 2714, 2715, 2716, and 2719 refer to "good sampling potential" for fauna and land snails. Were in fact these sites selected for sampling?

Review Comments on the March 1981 Revised Draft of
Archaeological and Paleontological Investigations at Kalaeloa
(Barber's Point), Hono'uli'uli, 'Ewa, O'ahu
Federal Study Areas 1a and 1b, and State of Hawaii Optional Area 1
(Cont)

Item	Page	Paragraph	Comment
13.	67ff	SUMMARY OF EXCAVATED SITES	Either in text or in a table, you should note the area excavated and the total area of the site for each site. Statistics on volume excavated would also be helpful.
14.	118	2nd	Correct your reference to old Site Number 2709-6.
15.	164	2nd	Suggest word "shorelines" is wrong in this context. Maybe "flood-lines" would be better.
16.	177-179		Your discussion of the "cultural transforms" hypothesis is still unclear and not totally logical. See Comment No. 13 by the Department of the Interior Heritage Conservation and Recreation Service and Comment No. 4 by the State Historic Preservation Officer.
17.	176	Table 3	Shouldn't you have a breakdown of fish by species (the results of which are implied in para 3, page 180)? This could shed light on the normal habitats of the fish caught (nearshore, pelagic) and thus the fishing techniques of the traditional inhabitants.
18.	179	4th	Last sentence is not a sentence.
19.	180	3rd	Correct use of old site numbering system.
20.	184	Table 5	Correct use of old site numbering system.
21.	191	2nd	If you include the sample of fishhooks collected by Sinoto in 1976 and 1978, can you establish a reliable relative chronology based on fishhook head types?
22.	197	2nd	Bert Davis has found large numbers of both opaque and transparent volcanic glass in his sites further inland at Barbers Point, which seems to contradict your statement of scarcity. This is not to say that your sites contained glass flakes which you might have overlooked.

Review Comments on the March 1981 Revised Draft of
Archaeological and Paleontological Investigations at Kalaeloa
(Barber's Point), Hono'uli'uli, 'Ewa, O'ahu
Federal Study Areas 1a and 1b, and State of Hawaii Optional Area 1
(Cont)

Item	Page	Paragraph	Comment
23.	203	2nd	Report status of marine shell material and bone that was submitted to Beta Analytic for radiocarbon dating. If results expected later, state that they will be provided upon completion to the Corps at a later date.
24.	206	3rd	First sentence needs clarification in light of Comment No. 9 from the US Heritage Conservation and Recreation Service. Without a map or a quantitative spatial analysis of sites and their inter-relationships, you have no basis to make this statement.
25.	383	Glossary	Check alphabetic order of words.

United States Department of the Interior
4 Golden Gate Avenue, Box 36062
HERITAGE CONSERVATION AND RECREATION SERVICE
PACIFIC SOUTHWEST REGION
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:
PSW200

April 7, 1981

Kisuk Cheung
Chief, Engineering Division
Corps of Engineers
Pacific Ocean Division
Building 230
Fort Shafter, Hawaii 96858

Dear Mr. Cheung:

We have received and reviewed the draft report, "Archeological and Paleontological Investigation at Kalaeloa (Barbers Point), Hono'uli'uli, 'Ewa, O'ahu, Federal Study Areas 1a and 1b and State of Hawaii Optional Area 1," prepared by Hallett H. Hammatt and William H. Folk of the Archeological Research Center, Hawaii, Incorporated. The following comments and recommendations were prepared to assist you in determining the adequacy and the appropriate means of finalizing the above document.

Based upon substantive review of the Scopes of Work and the Research Designs prepared and accepted by your office, this draft report does not provide sufficient data or analysis to comply with contract expectations. The report, in its present form, is also unacceptable as a data recovery document under current Federal standards. The report needs major revisions, additional research as specified by the Research Design and Scope of Work, and it is suggested that the Corps of Engineers require a second review draft before authorizing production of the report.

Specific review comments include the following:

1) The report contains innumerable typographic errors, sentence fragments and grammatical problems. It is suggested that a thorough editing be accomplished prior to finalization.

2) It is inappropriate to prepare a draft report which does not include all the expected information of a final. Graphics including site maps, comparative locational maps for site clusters, frequency and "midden weight" figures, and plan views are absent and should be included during the draft stage of report preparation. Other more crucial forms of information are missing - these will be discussed below.

3) Certain terms have been used which are not clearly defined. These should be clarified in the final report. Included are:

-"prehistoric (?)" - The purpose of contracting with a professional archeologist was apparently to resolve this question, not to continue it. Specifically, why is this used?

-" upward reworking of cultural remains" (p.64) - Does this pertain to disturbance created after deposition? If so, has this been done by

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natural or cultural agents? Or are you referring to the [illegible] midden constituents?

-"midden weight" (p.65) - What does this term mean? And what is its analytical significance?

4) The testing program proposed to evaluate the data recovery needs of various sites is unjustified. It seems that stratified sites are considered superior in some way to shallow, potentially single component sites. This is inaccurate and counter-productive if the focus of the research design is to explicate settlement pattern and variable activity areas. Single component sites may be indicative of periods of population expansion, economically specific activities or similar phenomena which, if left unanalyzed, would result in either a failure to accomplish the goals of the research design or specious conclusions. It should further be realized that this applies equally to sites with no midden accumulation. By ignoring their existence, character, and location, little will be learned of the total settlement system.

5) Testing the vertical and horizontal distribution of cultural material at a habitation site by using a one meter square unit is inadequate to accurately delineate the potential for a site to yeild significant information worthy of recovery. To further reduce such testing to 25 centimeter square "trenches" is reprehensible. Such testing would indicate nothing about the formal variation present within a site.

6) A formal report of the results of the testing program should be prepared in order to develop a justifiable presentation of the proposed data recovery scheme. This has not been done, leaving the chosen recovery sample in a status of "take my word for it".

7) Of those sites subjected to data recovery, what is the volumetric displacement on each as a result of excavation? Presently, only surface area is given.

8) Chronological control, the paramount goal of recovery and analysis, has not been accomplished. Twenty two obsidian hydration samples were taken from two sites, (p. 192) and 4 carbon samples were taken for radiometric analysis. The carbon dates are referred to as "modern" or "submodern" (p.192), although accurate presentation of the results is lacking. The hydration studies are insufficient to inform the research design of the contemporaneity of sites and their spans of occupation. Numerous forms of relative and absolute dating proposed in the research design have not been accomplished. These include amino acid racimization, flourine analysis, C^{14} analysis of additional organic samples (including shell and bone), and related pedological and stratagraphic studies. It is recommended that these analyses be completed prior to the preparation of an analytical report.

9) It is inadequate to conclude that settlement patterning exhibited in the project area is a "general lack of clustering or loose clustering (p. 193)". How can even a vague statement like this be made without chronological control of when sites being compared were occupied? The analysis of settlement pattern, like chronological controls, was an important foci of the research design, but was never undertaken.

10) Faunal analysis is incomplete. A complete identification of faunal remains has not been accomplished. A brief presentation of conglomerate weights of bird bone does not indicate the purpose of such analysis. Attempts to conclude anything about the subsistence orientation of the inhabitants of

Barber's Point through t[illegible]l be unsubstantiated as lo[illegible] such analysis is left unfinished. Was there butchering? Is there evide[illegible]ce of seasonality? These questions are vital to an understanding of the occupation of the area, and to discerning the relationship between human agents and certain faunal extinctions which have taken place there.

11) The authors assume that the habitation sites present are representative of common status people (p.20). If this is so, then a clear explanation of the nature of the common person's habitation site should be forthcoming. It is not. Further, if these sites are so redundant throughout the Hawaiian Islands then it is presumed that the hypotheses generated within the research design should be that much more practical and testable. Unfortunately, this has not been the case - no goal of the research design has been attained.

12) In numerous places the authors assert that the sites were recently occupied and that the intensity of human activity was extremely low (p. 19,38, 193). There is no immediate evidence to support this or any other conclusion. Such conclusions should be formed on the basis of analysis of recovered data, not by opinion and preliminary studies accomplished outside of the project area.

13) The hypothesis on page 172 relating the amount of shellfish or fishbones on a site with the degree of occupation (sporadic to continuous) is rife with unstated and potentially confounding variables. The proposed test of this hypothesis (p. 174) by determining the correlation coefficient of fishbone to shellfish remains by site is inappropriate to test this ill-defined and unsubstantiated hypothesis.

14) Historic research on post contact occupation of the Barber's Point area has not been accomplished. The post 1940 research on "Camp Melancholy" is good but totally unfocused in relation to specific goals relating to the project area. What of the purported habitation by Hawaiian cowboys? What is the nature of this occupation? Similarly, what of the Campbell Estate, sugar plantations and logging operations?

15) A master catalog of artifacts and faunal remains should be prepared.

16) Both the malacological and paleontological avifauna studies are relatively good reports when compared with the archeological. Unfortunately the avifauna study is incomplete, and both reports fall short of potentially significant conclusions concerning the degradation of the area's environment because they lack chronological control. Such studies were possible and should have been a primary focus of analysis, along with midden, stratigraphic, settlement and related analyses.

If you need further information please contact me or Mr. Leo Barker at (415) 556-7741.

Sincerely yours,

Garland J. Gordon

Garland J. Gordon, Chief
Interagency Archeological Services Division

cc: HI. SHPO
ACHP, Denver attn: Jane King

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONSERVATION AND ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

APR -6 1981

Mr. Kisuk Cheung
Chief, Engineering Division
Corps of Engineers
Building 230 (PODED-PV)
Fort Shafter, Hawaii 96858

Dear Mr. Cheung:

SUBJECT: Proposed deep draft harbor, Barbers Point
Hono'uli'uli, Oahu.

Review of the draft report:
Archaeological and Paleontological Investigation at Kalaeloa (Barbers Point), Hono'uli'uli, 'Ewa, O'ahu, Federal Study Areas 1a and 1b and State of Hawaii Optional Area 1.

Let me begin by apologizing for our delay in providing you with this review. The archaeological sites in the Barbers Point area are important to Hawaiian archaeology, and this review has had a high priority with my staff. Unfortunately, our office recently lost the staff archaeologist familiar with the Barbers Point projects, causing some delay in our review of the report. In addition, the poor quality of the draft made it necessary to do a thorough review and not just read the report and make a few brief recommendations.

Thank you for the numerous documents provided along with the draft report. They made our review a lot easier.

After reviewing the draft report, we have a number of comments and recommendations to make.

1. The report does not mitigate the adverse effects of the proposed construction projects on cultural resources in Barbers Point. This is because the major research problems outlined in your scope of work have not been sufficiently addressed in the report.

N-6

With regard to problem "i", the relationship between Hawaiian occupation and the Barbers Point ecosystem, the report has documented "consistent patterns of faunal succession that are doubtless a reflection of wider environmental changes in vegetation and other biota." (p. 266) However, the report also states that "if a complete picture of paleo-environmental change in the region--including the problem of man's role--is to be achieved, we feel that further paleo-malacological analysis is imperative." We agree with this recommendation.

With regard to problem "ii", the history of Hawaiian occupation at Barbers Point, the report states that "these sites remain undatable by reliable and readily available methods, and a schematic chronological ordering of sites can be based only on nonquantitative criteria." (p. 192)

However, no chronological ordering of sites (based on non-quantitative criteria) is presented anywhere in the report. Furthermore, the summary of human and environmental succession given at the end of the report (pp. 197-8) is general enough to have been written before this research was done. In addition, it does not appear that quantitative dating techniques have been applied to an adequate sample, as only four charcoal samples were tested and only two sites were dated by basaltic glass hydration rind measurements.

With regard to problem "iii", the Barbers Point settlement patterns, an attempt to determine the existence of seasonal and permanent habitation in the area met with negative results, and the authors conclude that "further testing ... could show that the Barbers Point middens comprise an inadequate sample or that other variables must be taken into account." (p. 174)

We agree that more midden analysis needs to be done. We also recommend that the final report contain an overall plan view of the project area illustrating the relationships of the various features discussed in the report including sinks, stone walls, midden areas, and sites excavated.

With regard to problem "iv", the relationship between previously unknown and extinct endemic avifauna and the indigenous human population, the report says: "additional research is required to establish the absolute age of the fossils, the length of deposition in each significant sink, and the relative ages of deposits from different sinks." (p. 216). We agree with these recommendations. We hardly need to point out that the fossil sinks of the Ewa plain are one of the outstanding paleontological resources of the Hawaiian Islands.

6. With regard to problem "v", the Barbers Point cultural pattern as a unique adaptation to a unique environment, the report does not directly discuss this issue. What is missing is a comprehensive analysis that compares and contrasts the archaeology of the Barbers Point sites with what is known for other areas of Oahu and Hawaii.

In summary, this report has made a limited attempt to study the research problems outlined in your scope of work. The results seem to indicate the study area has the potential for answering the research questions proposed, and additional study is recommended.

Sincerely yours,

Susumu Ono
Chairman of the Board and
State Historic Preservation
Officer

FT. SHAFTER, HAWAII 96858

PODED-PV

23 March 1981

Dr. Hallet H. Hammatt
Principal Investigator
Archaeological Research Center
Hawaii, Inc.
P. O. Box 285
Lawai, Kauai, HI 96765

Dear Dr. Hammatt:

Your draft Barbers Point Harbor archaeological report (Contract DACW84-79-C-0010, Mod. No. P00001) was sent for review and comments on 12 February 1981 to the following individuals or agencies:

Reviewer	Replies
a. State Historic Preservation Officer	
b. Heritage Conservation Recreation Service, Interagency Archeological Services	
c. Advisory Council on Historic Preservation	
d. State Department of Transportation, Harbors Division	
e. Dr. Storrs Olsen, Smithsonian Institution	Incl 1
f. Dr. Patrick Kirch, Bishop Museum	Incl 2
g. Dr. Paul Rosendahl	Incl 3
h. Mr. Bertell Davis	Incl 4
i. Pacific Association of Professional Anthropologist, c/o Dr. William Kikuchi	
j. Society of Hawaiian Archaeologists, c/o Dr. Robert Hommon	Incl 5

Formal written comments have been received from all reviewers as noted except the first four agencies and Dr. Kikuchi. All written reviews were very negative and the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP) have indicated by telephone that their reviews are also negative. Most of the reviews and feedback from SHPO and ACHP conclude that the draft report, as currently written, does not comply with the proposed guidelines for "Recovery of Scientific, Prehistoric, Historic, and Archaeological Data: Methods, Standards, and Reporting Requirement" (36 CFR Part 66) which are incorporated into the Contract Scope of Work, Item 3b. None of the archaeologists reviewing the draft report believe that the report complies with your Research Design (12 October 1979 and 10 March 1980). As the draft report is currently written, we agree with these two general conclusions. More than cosmetic changes will be needed for revision into a new draft report.

N-7

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PODED-PV 23 March 1981
Dr. Hallet H. Hammatt

Per Scope of Work, we are including copies of all written reviews for your information. Also per Scope of Work, you will be required to consider only those comments which have been approved by the Contracting Officer. In reading through the letters, you will find much repetition in the critical comments as well as each reviewer tending to draw on different specific examples to demonstrate his particular concerns. To aid you in your preparation of the next draft of the report, we will indicate by asterisks (*) those comments in the review letters which we believe are constructive or legitimate in light of the requirements in the contract Scope of Work and the Research Design. You may consider all other comments in the review letters at your option. We are also inclosing a summary list of our own concerns, suggestions and recommendations (Incl 6). Please concentrate on completing any recommended analyses and revising the report at this time since it is already behind schedule. You may wish to respond to specific comments of the reviewers, but please wait until a satisfactory report and your contractual obligations to the Corps are completed.

Your final report is currently scheduled for submission by 3 April 1981. We believe this may not allow for sufficient time for you to complete further analyses and finalize the report. Because of the complexity and severity of the review comments, request that you prepare a pre-final draft which will be provided to all reviewers for a shortened review period of three weeks. Within four weeks after the submission of the pre-final report to the Contracting Officer, additional comments will be provided if needed for preparation of the final report in the required 50 copies. I suggest the following revised timetable:

Submission of pre-final draft by 17 April.
Review period - 20 April to 8 May.
Comments returned to Contractor - 12 May.
Submission of final report - no later than 1 June.

Please contact us as soon as possible so that we may discuss and process a further extension to the contract.

In summary, we believe that it is in both of our interests that the final report on archaeological and paleontological data recovery at Barbers Point be satisfactorily completed and accepted within the professional scientific community.

Sincerely,

6 Incl
as

CLARENCE S. FUJII
Authorized Representative of the
Contracting Officer

SUMMARY LIST OF COMMENTS

General Review Comments on Draft Barbers Point Harbor Archaeological Report (Contract DACW84-79-C-0010)

Item	Page	Comment
1	General	Draft Report needs careful editing to correct typographical errors, misspellings (particularly scientific names) and poor grammar. Please note Dr. Kirch's comments in this regard.
2	General	Draft report needs missing figures, tables and sections Input. Recommend placing sections dealing with "Summary of Results" and "RECOMMENDATIONS" at the end of the main report. You may wish to integrate the "Summary of Results" into your "Barbers Point Perspective."
3	Title Page	After "US ARMY CORPS OF ENGINEERS" place in parenthesis "(U.S. Army Engineer District, Honolulu)" and also "State of Hawaii Department of Transportation, Harbors Division." Below that: "Contract No. DACW84-79-C-0010, Mod. No. P00001."
4	Abstract	Revise the Abstract as needed in light of your response to these and accompanying comments and your further research.
5	Introduction	Much of this material could be profitably placed in later sections, particularly when results are summarized. Suggest discussing here why some changes in outside analyses were changed from the Research Design.
6	Overview Maps	Maps must contain a legend differentiating between archaeological and paleontological sites. Also recommend that for visual analysis of inter-site relationship, you include two or more maps similar to those in your 1978 report for the State showing more detail of larger areas including sinks, stone walls, midden areas and sites excavated.
7	Scope of Work	Change the tense of verbs as appropriate to indicate that various actions have already taken place.
8	8	Bottom line is nonsensical. Based on work to date, please feel free to clarify your hypotheses or redefine them. No deletions.
9	21	Last paragraph: Suggest that after "appropriate federal" you insert, "or state agency."

C 6

tem	Page	Comment
10	26-29	This section is adequate only in describing what previous researchers did but not in describing their findings, observations, hypotheses and generalizations. Since this data recovery work is in part the culmination of the previous research, we believe that it is appropriate for you to expand your discussion of the previous work to serve as a background for the derivation of your research objectives and research hypotheses discussed now on pp. 7-9. Therefore, the "PREVIOUS RESEARCH" section must precede the "Research Design" section and they need not be separate sections.
11	30-31	Recommend expanding your discussion to provide greater clarification of the criteria upon which your sampling was based. Extract some of these criteria from Table 1 and discuss.
12	Table 1	Provide a list of previous Bishop Museum sites numbers for appropriate sites.
13	58-59	Clarify screening procedures (use of 1/4-inch and 1/8-inch mesh screens). There are inconsistencies within the report (p. 11 and p. 168) and between the report and the Research Design. Address the possible biasing of samples of midden and basaltic glass flakes that your techniques may have generated considering comments by Davis, Rosendahl and Kirch.
14	168-175	Please complete the midden analysis with a detailed site-by-site analysis of per Research Design (pp. 13-14). We strongly concur with the other comments on the need for greater statistical analyses of the midden data which may shed light on site and feature functions.
15	168-177	This or a later section should provide statistical spatial distributional analyses of the artifacts to test hypotheses dealing with intensity of occupation and feature function, including manufacturing and food preparation. What is the relationship between artifacts used for marine resources exploitation and the inter- and intra-site distribution and density of shell-fish and fish bone?
16	188	Provide the data on basaltic glass and other forms of dating. Per Research Design, include a discussion of sourcing of the basaltic glass. We strongly concur with other comments on the need to beef up

Item	Page	Comment
		the report with a thorough chronological analysis. If you did not attempt to date organic materials other than charcoal, please provide an explanation, particularly the nonextinct petrel. Based on the comments received to date and your subcontractors comments, we recommend that some of the bird, rat, or lizard bone be dated by flourine or amino acid techniques as noted in the Research Design (p. 14). If the results are not available for the final report, they may still be made available to the scientific community.
17	192-193	The draft report does not include any systématic analysis of site or feature size, function, or pattern distribution as required to test the second, third, fourth, fifth hypotheses. We concur strongly with Dr. Kirch's observation on this matter. If you feel that such analyses are inappropriate, be prepared to thoroughly justify your opinion in a specific section analyzing settlement patterns. A qualitative narrative is not sufficient.
18	193...	There is also no systematic summary analysis of agricultural potential, vegetation reconstruction and a thorough discussion of environmental change. It is not at all clear whether you have performed the work outline in the third paragraph of Page 12 of the Research Design relating to sedimentary and pedological analysis, and exploratory pollen analysis for the basis of making an estimation of the extent and nature of Hawaiian planting in the study areas. We believe further inferences may be drawn from Appendices I and II together with the above data to help determine the nature and extent of the prehistoric Barbers Point environment and how it changed over time. Any dating that you performed should be worked into this discussion.
19	191	The discussion of the "Barber's Point Perspective," as noted in Item 2, should incorporate a discussion of the research hypotheses and the results of the testing of them. This section must also relate your findings to previous observations, generalizations, and hypotheses developed by previous researchers at Barbers Point. These findings must also be related to pertinent archaeological research elsewhere in Hawaii and in Polynesia if appropriate. Data Recovery studies to comply with the Federal guidelines must be research oriented.

Advisory Council On Historic Preservation

1522 K Street, NW
Washington, DC 20005

Reply to:

Lake Plaza South, Suite 616
44 Union Boulevard
Lakewood, CO 80228

MAR 3 1 1981

March 20, 1981

Mr. Kisuk Cheung
Chief
Engineering Division
Department of the Army
Pacific Ocean Division, Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Dear Mr. Cheung:

As requested in your letter of February 12, 1981, Jane King of my staff has reviewed the draft report, "Archaeological and Paleontological Investigation at Kalaeloa (Barbers Point), Hono'uli'uli, 'Ewa, O'ahu, Federal Study Areas 1a and 1b and State of Hawaii Optional Area I." Her evaluation of the report follows.

We realize that this report is a draft and assume that many of its shortcomings will be eliminated in the final report. However, we do find serious problems which require substantial reworking.

Requirements of 36 CFR Part 66

The Scope of Work required evidence of compliance with 36 CFR Part 66; it appears that has not been fully accomplished. The report does not clearly demonstrate:

1. an acquaintance with relevant research;

2. adequacy of data sample to meet research objectives;

3. sufficient description of method and technique to exhibit competence;

4. whether or not it is feasible to preserve sites in place;

5. fulfillment of the requirements of Sec. 66.2(a)(7) with regard to report standards.

N-8

can be taken at this time to correct this situation, we must object to the Corps proceeding with its undertaking because to do so would cause an adverse effect.

The Revised Scope of Work allowed for revision of the Research Design. We believe the Principal Investigator should have revised the Research Design when it became apparent that some of the goals were unrealistic or that information was lacking to provide sufficient data to meet research objectives.

General Comments

A general use of insufficient, inadequate, or totally lacking definitions exists throughout the report. Examples are statements such as:

". . .contractor has recovered and preserved an adequate sample of paleontological. . ." (page 5). How is "adequate" defined? What standards are used, and what is the percent of sample?

". . .sites that contained fair amounts of birdbone. . ." (page 58). How much is a "fair" amount?

". . .excavation stopped when the potential of each site was found." (page 30) What does "potential" mean? Bedrock? Sterile soil? It should be defined.

A basic definition for "site" should either be included in the glossary or stated in the opening pages of the report. Table I, for example, repeatedly uses the phrases "no midden or artifacts found during testing" and "no cultural deposit or material present." Lacking middens, artifacts, or cultural evidence, what makes a site a site? Further, the comments concerning sites frequently state "significance is in map location" (page 39 and others). What does this mean?

There is consistent use of a question mark following the word "prehistoric" which leads the reader to wonder if the authors are able to identify a prehistoric site or component. Perhaps a footnote at the first appearance of this usage would clarify the need for it.

The report exhibits lack of editing or proofreading. Misspelled words appear on almost every page; sentence fragments, omitted sentences, and redundancies abound (see page 199). There is no consistency in the use of numbers; they appear as both figures and fully spelled-out in the same sentence; a good style handbook or reference to the style followed by American Antiquity would be useful. Admittedly, this is a draft, but the apparent lack of professionalism decreases the credibility of the data presented.

Research Design

The Research Design defined five research objectives and five research problems which are overlapping. We find that these goals have not been met. Specifically:

1. a firm stratigraphy and chronology for sites and features is not provided;

2. definition of site and feature function, while partially developed, is not as fully developed as it might be with additional statistical analysis;

3. "definition of subsistence and manufacturing activities and the nature of specific activity areas within habitation area" remains incomplete because of insufficient data concerning prehistoric subsistence patterns and lack of analysis of midden material;

4. chronology is lacking to define the nature and extent of environmental changes, and techniques mentioned in the Revised Scope of Work (sedimentology, non-dating geochemistry, pollen and opal phytolith analysis) were apparently not employed;

5. documentation of the history of Hawaiian occupation is patently not possible, because the first four objectives were not met;

6. there is no analysis of settlement pattern data, therefore no statement of settlement pattern relationships can be made;

7. "Barbers Point cultural pattern as a unique adaptation to a unique environment" is minimally addressed and requires elucidation.

The report states (page 7) that the Advisory Council reviewed and approved the Research Design; this is incorrect. The Corps furnished a copy of the Research Design, along with the Scope of Work and other documents, in August, 1979, and requested review. We responded with what at that time was Council policy, that we did not review and comment on such documentation until an agency has formally requested the Council's comment. In November, 1979, when the Corps requested Council's concurrence with its determination of no adverse effect, Council staff reviewed the documents, found them adequate, and concurred with the Corps' determination of effect. Our concurrence was based on the Corps' assurance that a data recovery program would be undertaken in accordance with the Research Design. It now appears that this has not been done. Our review of the draft report indicates that the goals of the Research Design have not been met. Unless steps

Evaluation of Report

In summary, we find this draft report inadequate. The Revised Scope of Work requests a final report based on facts with objective, dispassionate analysis and evaluation in presentation of findings (page 14). Our evaluation of the draft has identified for too many ill-defined conclusions, suppositions, and generalizations to meet these criteria. The report relies heavily on previous work (Sinoto 1976, 1978, 1979) (Davis 1978), and contributes almost nothing to our knowledge of the area's prehistory or to topics of greater anthropological interest. The Scope of Work indicates that the Corps requested more than verification of earlier work; if a substantial body of new information was gathered, it is not explicated here. Extensive editing and the inclusion of references are mandatory before this report appears in final form. For your reference, we are enclosing a copy of report standards recently published in the American Society for Conservation Archeology Newsletter (December 1980-81, Vol. 7), which you may find useful in evaluating the report.

Thank you for the opportunity to review this document. Please advise of the steps that will be taken to assure compliance with the conditions upon which the Corps' determination of no adverse effect was based. Should you have questions or comments, Mrs. King may be reached at (303) 234-4946, an FTS number.

Sincerely,

Louis S. Wall
Chief, Western Division
of Project Review

Enclosure

SOCIE FOR HAWAIIAN ARCH OLOGY

President:
Patrick V. Kirch
Department of Anthropology
Bernice P. Bishop Museum
P.O. Box 19000-A
Honolulu, Hawai'i 96819

March 11, 1980

Mr. Kisuk Cheung, Chief
Engineering Division
U. S. Army Corps of Engineers Division
Pacific Ocean
Building 230
Fort Shafter, Hawaii 96858

Dear Sir:

Thank you for the opportunity to review the report on the "Archaeological and Paleontological Investigation at Kalaeloa (Barber's Point) Hono'uli'uli, Ewa, O'ahu, Federal Study Areas 1a and 1b and State of Hawaii Optional Area 1" by Hallett H. Hammett and William H. Folk. The Society for Hawaiian Archaeology does not have a standing committee for peer reviews and as a result an ad hoc committee, of which I am the chairman, was formed for the specific purpose of reviewing this report. Each of the committee members has reviewed the report and we have all discussed it at length. In addition, we have considered a letter we received from Dr. Carl C. Christensen, a co-author with Dr. P. V. Kirch of Appendix II of the subject report.

The deficiencies of the subject report fall into two major categories: (1) mechanical problems and (2) general problems. Mechanical problems plague the entire document and make the reviewers task an onerous one. Typographical errors abound; grammatical mistakes are unacceptably frequent; non-standard, ill defined and infelicitous terminology obscures the content and the intent of many of the author's propositions and contentions; and the absence of nearly half the figures and illustrations, the discussion of the chronometric data, table 7 and the entire artifact appendix make the entire document so incomplete as to render any review extremely difficult. We do not have the inclination or the time to undertake the task of editing the report. We presume that subsequent editing and proof reading, as well as inclusion of the absent figures and other data, will enhance the readability and quality of the report. Correction of all the mechanical problems however cannot remedy the fundamental general difficulties apparent in the report.

Virtually no attempt has been made to relate the data from the study area to the results of the previous and on-going research at Barber's Point or anywhere else in Hawaii. The consideration of observations, generalizations and hypotheses generated elsewhere in the vicinity and throughout Hawaii is a very obvious and fundamental omission of this report

N-9

The chronological framework of the study area is not thoroughly discussed anywhere in the document. In spite of the problems with available chronometric samples, (both basaltic glass and carbon), a more complete picture of the chronology of the study area could have been constructed with the use of comparative data from other portions of Barber's Point as well as inferences from the study area samples themselves and the stratification within the subject area sites.

The problem of the relationships between man and the extinct avifauna is not adequately addressed. In dealing with such an important problem in an area that is uniquely suited for its solution, every possible effortshould be expended to that end. Flourine and amino acid racemization analyses have yet to be applied to avifauna bones in the deposits. Such analyses should provide valuable additional data. Pollen analyses, as well as sediment analyses aimed at gathering paleoenvironmental and depositional data are also necessary.

The midden data collected during the excavations are not tabulated or analyzed in sufficient detail. it is standard practice to present the midden contents of each excavated site in a table arranged by excavation unit (usually 1 x 1 meter squares), by level or layer and by faunal and floral species. While the midden contour maps in the subject report are useful in terms of understanding general distribution of midden throughout the sites, tables such as those described above are necessary for distributional and comparative purposes.

Analyses of the artifacts recovered and their intra and intersite distribution are very limited. For example, little attempt is made to determine correlations between quantity and types of artifacts on one hand and site type, size, location or midden contents on the other. No attempt is made to explain or even mention that 48 of the total area's 55 samples of basaltic glass came from one site (page 104). In one of the few cases where artifact assemblages are mentioned, contradictory statements are made. On page 143 it is stated that site 2710-2 and 2710-5 were elements in a kauhale (household) because they had "similar assemblages"; but on page 178 they are said to "have significantly different artifact assemblages". No mention is made of the apparent lack of correlation between the amount of fish bone in a site and the number of fishooks found.

There are a number of problems with the treatment of the cultural strata in the excavated sites. It is assumed, for example, that in all sites, stratum I is a mixed layer and that its contents were churned up from stratum II. In sites such as 2701-1 (page 70, figures 15 and 16) however, the distinctly different midden distribution patterns seem to suggest that stratum I is, at least in part, evidence of a later occupation. The absence of cross section drawings in many sites increases the reader's problems in interpreting the data as presented.

The distribution and inferred function of the stone structures is inadequately addressed. For example, the stone structure in site 9682 (pages 99-104) is scarcely more than a square meter in floor area, yet it is associated with the heaviest midden concentration in any of the sites. No mention is made of this combination of factors nor is any attempt made to explain it. It is stated in several site descriptions that the stone structures were constructed at the beginning of a site's use. In the few cross sections that are available, the foundation stones rest at a level well above the base of cultural stratum II (e.g., page 100, figure 36; page 104) indicating that at least portions of the structures were constructed at some time after the sites were settled. A related phenomenon may be the concentrations of midden material and artifacts that occur in squares with structural walls. It could not be determined whether these concentrations were found within the walls or beneath them.

Given the importance of the work conducted at Barber's Point, it would have behooved the authors to spend all available time and manpower pursuing the major thrust of the study: the recovery and analysis and interpretation of data relating to the prehistoric human habitation of the area. If the length of the various report segments are any indication of the relative efforts put into each, Appendix III seems to have been overemphasized. Though the historic period in the study area certainly has inherent interest in its own right, it appears that an inordinate and largely spurious amount of work was undertaken on the wartime history of the area. In relation to the archaeological work, Appendix III is, for the most part, irrelevant.

In general, the organization of the document is less than conducive to review. The lengthy scope of work and summary of results could more comfortably be placed elsewhere in the document. Certainly a summary is out of place in the first 20 pages of a report such as this. The scope of work more appropriately belongs in an appendix while the explication of the research design should build on preceeding discussions of previous and on-going research as well as the chapter on physical geography.

The intent of the various legislative madates for mitigation of impacts on sites eligible for inclusion on or listed on the National Register of Historic Places was to ensure that archaeological sites valuable for the information they contain were not destroyed as a result of Federally sponsored or licensed undertakings. Because mere collection and description of artifacts and midden and other raw data did not effectively mitigate impacts to archaeological sites, implementing regulations require interpretation and analyses of the data and material collected. The overiding, fundamental deficiency of the subject report is the appalling lack of synthesis, of integration of data collected during this project into a cohesive description of prehistoric human habitation in the Barber's Point area, and of scholarly, professional interpretation of the data collected. In our opinion, the report fails to fulfill the intent of the various Federal regu-

lations and legislation under whose aegis the work was performed. The report does not fulfill the requirements of 36 CFR 66 (proposed) nor does it conform to generally accepted guidelines that the Advisory Council on Historic Preservation uses to evaluate reports produced under memoranda of agreement with that agency. For such a work, dealing with so significant an area, to reach its professional reviewers in so sloppy a state, reflects poorly both on the authors of the report and its sponsors.

So major are the revisions that must be undertaken to remedy the various deficiencies noted above, that we suggest that the Corps of Engineers reject the subject report as inadequate and require a completely rewritten draft report. The new draft should then be forwarded to the same reviewers for re-evaluation when it is completed. Should the Corps adopt this suggestion, the Society would appreciate receiving at least three copies of the document for review as well as a period of 30 days in which to review it.

Again we appreciate the opportunity to review and comment on this document. Should you have any questions regarding this review, you may contact the Society at the above address.

Sincerely,

Robert J. Hommon, Ph.D.
Chairman, Ad Hoc Committee to Review the
Hammatt/Folk Report on Barber's Point

B I S H O P M U S E U M
P.O. BOX 19000-A • HONOLULU, HAWAII 96819 • 808 847-3511

Anthropology Department
22 February 1981

Mr. Kisuk Cheung
Chief, Engineering Division
Department of the Army
Pacific Ocean Division, Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Dear Mr. Cheung:

Re: Review of Draft, "Archaeological and Paleontological Investigation at Kalaeloa (Barbers Point), Honouliuli, 'Ewa, O'ahu" by H. H. Hammatt and W. H. Folk, Archaeological Research Center Hawaii, Inc.

Thank you for your letter of 12 February 1981, soliciting a review and evaluation of the above report. Given the significance of the Barbers Point archaeological and paleontological resources, I am pleased to see that the Corps of Engineers has availed itself of the opportunity to elicit professional reviews from several archaeologists in the State of Hawaii.

In making my review and evaluation, I have paid particular attention to the several guidance documents enclosed with your letter, especially the Revised Scope of Work (Federal), and the Revised Research Designs (Federal and State). In addition, I have taken into consideration the "Guidelines for the Preparation of Barbers Point Archaeological Research Designs" of 26 February 1979, developed by an Ad Hoc Committee of which I was a member; these Guidelines were included as a "research guidance document" in the Revised Scope of Work (Federal, p. 2). For the sake of clarity, I have divided my review into six sections, even though in many cases the problems raised in one section obviously bear on other sections as well.

Research Objectives

On pp. 5-6, Hammatt and Folk lay out five "research objectives" around which their archaeological investigations were presumably oriented; these objectives are then evaluated on pp. 14-19. I will review each objective in turn:

1. The first objective was to develop a "firm stratigraphy and chronology for the sites and features of study areas", and clearly, this objective was fundamental to the success of the project as a whole. Unfortunately, the investigators have failed to meet Objective 1. What is

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most disturbing is that it would appear that datable materials are abundant in the Barbers Point sites, and that Hammatt and Folk simply did not avail themselves of the opportunity to have such materials chronometrically analyzed. For example, organic materials other than charcoal (e.g. shell, bone, sea urchin) could have been submitted for C14 age determination from a much broader sample of the prehistoric habitation features. Most critical, however, is the absolute failure to ascertain the age of any of the bird bone deposits, for this problem is fundamental to the entire question of human prehistory and environment at Barbers Point. There is no excuse for not attempting C14 dating on samples of bird bone from the sinks (and, there are evidently large samples of non-extinct bird bone, such as that of the dark-rumped petrel). Furthermore, an effort should have made to apply relative flourine and/or amino acid dating to the bird and rat bones from the paleontological sinks, to determine whether the rats are contemporary with the fossil birds. Certainly, the foremost research problem at Barbers Point is to ascertain whether the extinct avifauna existed within the span of human occupation on O'ahu; in my opinion, it is inexcusable that so little effort was devoted to this problem.

2. Hammatt and Folk have, in my opinion, done only slightly better with regard to their second objective, which was to define "site/feature functions, particularly specific functions of the habitation features". The principal method used to address this problem appears to have been that of plotting "density contours" of midden and artifacts in order to ascertain spatial patterning over site areas. The use of this method is commendable, and does contribute toward a resolution of Objective 2. The problem, however, is that Hammatt and Folk did not carry their analysis any further. They have not, for example, analyzed the spatial distribution patterns of specific artifact types or categories over occupation surfaces, nor have they done this with categories of faunal or floral remains. Although they mention "size" of habitation features as an important variable, nowhere do they provide even the most elementary statistical analysis of size variation in the Barbers Point habitation structures. Since no analysis has been done, I cannot accept Hammatt and Folk's conclusion that "no relationship between function and size of the habitation features is expressed archaeologically" (p. 16). Other analyses which could be of great value in sorting out inter-site variability would be the use of multivariate statistical analysis (especially discriminant and cluster analyses) with structural, artifactual, and midden data. None of these were attempted by the investigators, even though they have become relatively standard analytical techniques in American archaeology.

3. The third objective overlaps somewhat with the second objective and is focussed upon "definition of the subsistence and manufacturing activities and the nature of specific activity areas within habitation sites". My comments on Objective 2, above, also apply here. I am particularly concerned, however, with the failure of Hammatt and Folk to provide even minimally adequate data regarding prehistoric subsistence patterns at Barbers Point. The section of their report titled "Midden Analysis" (pp. 168-175) does not even begin to approach minimal standards of data reporting for faunal remains. While Table 4 is useful as a summary, I also would expect the investigators to provide tabular breakdowns of the midden components of all

tested and excavated sites, with all taxonomic categories listed, weighed, and with weights corrected for excavated volume (i.e. concentration indices). This task, in fact, is explicitly set forth in the Revised Research Design and in the report itself (p. 13). The graphical presentations of midden density given for each site can in no way be considered as substitutes for this task. Furthermore, Hammatt and Folk have made no attempt to identify or analyze further such important midden components as crustacean parts, fishbone, or mammal bone, yet such analysis is obviously critical to the research problems at hand. They refer to dorsal spines of Stephanolepis (incidently, no authority or reference collection is cited for this identification, and one wonders if they have mistakenly identified the spines of Pervagor?) but nowhere do they present the basic quantitative data on taxa of fish represented in each site. Such an omission is, in my opinion, inexcusable.

I further question the scenario Hammatt and Folk present regarding the correlation between fish and shellfish with temporary and permanent sites (pp. 172-173). Their assumption that temporary sites should exhibit "low quantities of shellfish remains" is not borne out either by other studies in Hawaiian archaeology, nor by ethnoarchaeological studies of contemporary Polynesian subsistence practices. More important, Hammatt and Folk appear to be ignorant of the work that has been done by R. Cordy, R. Green and others on the temporary/permanent habitation dichotomy in Hawaiian sites. No reference is made by Hammatt and Folk to this important and relevant literature.

4. The fourth objective concerns the nature and extent of environmental change. Largely due to the application of paleo-malacological and avifaunal studies, this objective has met with greater success than the others. Still, there are major problems. The failure to develop a reasonable chronology for Barbers Point means that we still do not know the time frame within which the environmental changes represented by the landsnail and avifaunal remains took place. Further, although the Revised Scope of Work (pp. 7-8) refers to such techniques as sedimentology, non-dating geochemistry, pollen and opal phytolith analysis, Hammatt and Folk have made no serious attempt to apply these or other analytical methods which might shed further light on the nature of environmental change in the area. In the Revised Research Design (p. 12) it is stated that samples will be submitted to Washington State University Quaternary Studies Palynology Laboratory, yet the draft report makes no reference to any results of exploratory pollen analysis.

Hammatt and Folk have generalized from the unexpected finding of large quantities of the amphibious snail Assiminea nitida in one sink, to propose that mulching of sinks for agricultural purposes "might have been a general agricultural pattern throughout the area" (p. 18). This indeed is a likely possibility, but I am shocked that no attempt was made to test this hypothesis through examination of spot samples from other sinks, a relatively simple task.

5. Hammatt and Folk state that "it was possible to document the history of Hawaiian occupation at Barbers Point to the degree defined in the first four general objectives of the study" (p. 19). Since I have shown that none of these objectives has been adequately met, it should be obvious that neither has Objective 5 yet received adequate treatment.

Research Problems

In addition to the five "objectives" reviewed above, Hammatt and Folk list (pp. 7-8) five "research problems", these being explicitly listed as well in the Revised Scope of Work (p. 5). Problems 1, 2, and 4 are essentially covered by Objectives 4 and 5, and hence my earlier comments apply to these points as well. Research Problems 3 and 5, however, are not explicitly covered by the Objectives, and need to be considered separately.

Problem 3: Barbers Point Settlement Patterns. This problem was originally identified in the "Guidelines" of the Ad Hoc Committee (1979, p. 5), in which six specific questions were raised. Hammatt and Folk address settlement patterns on pp. 192-193 of their report; their cursory discussion is, in my opinion, totally inadequate and fails to address the problem. This failure is not surprising, since Hammatt and Folk have made no attempt to analyze (as opposed to merely collecting) their data in such a manner that settlement pattern relationships might be elucidated. There is no attempt to apply standard techniques of locational or distributional analysis to the data on site distribution, nor any analysis of variability in site architecture. Clearly, even the most elementary settlement pattern analysis of the Barbers Point data has yet to be done.

Problem 5: The Barbers Point Cultural Pattern as a Unique Adaptation to a Unique Environment. This problem has been only minimally addressed by Hammatt and Folk. The kinds of specific analyses needed to address Problem 5--such as detailed faunal analysis--have not been conducted.

Field and Laboratory Methods

Under this heading, I wish to discuss two problem areas: sampling strategy and screen size.

1. Sampling. The Revised Scope of Work (p. 5) calls for a specific, justified sampling strategy which will indicate "the relationships between various types of sampling strategies and field and laboratory analytical techniques, such as midden analysis, settlement analysis, and analysis of avifauna and land snails, etc." Nowhere in Hammatt and Folk's report do I find an adequate treatment of sampling strategy, and no indication that they are aware of recent theoretical and methodological developments in the application of sampling designs in American archaeology. Their report should, but does not, include a detailed and explicit discussion of sampling design at all levels of excavation and analysis.

2. Screen Size. Hammatt and Folk used 1/4-inch mesh to screen the cultural deposits in all excavated sites (pp. 10-11). Although they note on p. 168 that a 1/8-inch mesh was also used "simultaneously", they do not present any quantitative data on what kinds of materials regularly passed through the 1/4-inch mesh. Mr. Bert Davis of the University of Hawaii (pers. comm.) has discovered in his excavations at Barbers Point that, among other items, the majority of the volcanic glass flakes in these sites are not retained in the 1/4-inch mesh. Since Mr. Davis evidently informed

Dr. Hammatt of his finding prior to the ARCH fieldwork, I have to question how it is that Hammatt and Folk continued to use 1/4-inch mesh. If their experience contradicts that of Davis, then this should be explained in the report, and quantitative substantiation should be given.

Basic Documentation

Since the Corps of Engineers has determined that the emphasis at Barbers Point should be upon data recovery by means of "salvage" excavations and analysis, rather than upon preservation in place, it is imperative that the recovered data be documented thoroughly, so that it will be available to future archaeologists as a part of the resource base for studies in Hawaiian and Polynesian prehistory. Even in this basic matter I find that Hammatt and Folk's report is lacking in certain areas. I have already referred to the lack of adequate quantitative midden data. Detailed quantitative data on midden remains from each site must be presented if other scholars are ever to be able to utilize the results of this work in future research. The Artifact Analysis (pp. 176-188) is also wanting. For example, where typological data are presented for the fishhooks (Table 6), the important volcanic glass flakes and cores are passed off in three sentances (p. 186)! This is totally unsatisfactory. At a minimum, the lithic materials should be discussed from basic technological, typological, and metrical perspectives. The Revised Scope of Work (p. 7) also refers to sourcing of volcanic glass; this has not been addressed by Hammatt and Folk.

Other Problems

I am shocked that two professional archaeologists have released a report for review which contains so many typographical errors; there is scarcely a page in the entire report without at least one misspelling or typo. Page 172 contains 9 errors alone, and on p. 208 the typo which converted "eight" species into "eighty" species could surely lead to embarrassment for Dr. Olson. On pp. 195-199, the scientific names of landsnails are misspelled no less than 11 times!

I am even more concerned with certain editorial changes introduced into Dr. Christensen's and my report on the landsnails (Appendix II). A number of these changes, particularly in the "General Discussion" (pp. 262-265) have altered our original meaning or connotation. Most disconcerting is the fact that these changes were made without ever consulting Dr. Christensen or me; I have to regard such behavior as unbecoming a professional scientist.

A general lack of scholarship is also evidenced by the almost complete disregard in Hammatt and Folk's report for the body of contemporary literature on Hawaiian and Polynesian archaeology. It is as though the Barbers Point investigation was conducted in a scientific and scholarly vacuum. The report's Bibliography lists only two citations of archaeological publications other than those directly related to Barbers Point (Emory et al. 1968 and Hammatt and Folk 1979). This is more than a matter of poor scholarship,

however, for in failing to relate their findings at Barbers Point to other relevant research in Hawaii and Polynesia, Hammatt and Folk have failed to meet the Federal standards for data recovery operations, which state that the principal investigator will aquaint himself with previous relevant research, including research on topics germane to the data recovery program regardless of where such research has been carried out (36 CFR Part 66.2). In my opinion, it is impossible to adequately address the research problems and objectives laid out in the Scope of Work and Revised Research Design without giving due consideration to other relevant studies that have been conducted in the Hawaiian Islands, and in some cases, elsewhere in Polynesia and North America as well.

General Evaluation

I trust that the above comments are sufficiently detailed to document my overall evaluation of this report as inadequate and not fulfilling either the general or specific tasks set forth in the Revised Scope of Work and in the Revised Research Design. Furthermore, in my opinion, Hammatt and Folk's report does not meet the standards and reporting requirements set forth in 36 CFR Part 66 (42 Federal Register 5374, January 28, 1977).

As a professional archaeologist who has been active in Hawaiian and Polynesian research for some years, I am deeply concerned with what I perceive to be a serious lack of professional quality in Hammatt and Folk's investigation. I wish to make it perfectly clear that I am not questioning the qualifications or capabilities of either of these gentlemen, but rather the specific results they have produced under the terms of a Federal contract with an explicit scope of work and research design. In my professional opinion, the Corps of Engineers should under no circumstance accept the present draft report as fulfilling the Scope of Work for cultural resources mitigation at Barbers Point.

I trust that this review and evaluation has been of use to you, and again commend the Corps for its efforts to involve the professional scientific community in your review process.

Yours sincerely,

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ASSESSMENT OF ARCHAEOLOGICAL RESOURCES AT KAWAKIU-NUI, MOLOKA'I

by

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Prepared For:

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Honolulu, Hawaii

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INTRODUCTION

Kawakiu-Nui Bay and adjacent areas are situated within the district of Kaluako'i on West Moloka'i, a region in which very little systematic archaeological investigation has been conducted. In her general, island-wide survey, Summers (1971:47-48) reported four sites at Kawakiu-Nui, including Site 38, a reported heiau. In 1978, an archaeological surface survey of the area was conducted by Archaeological Research Center Hawaii, Inc. (ARCH), for the Kalua Koi Coporation (Hammatt 1978). This survey revealed the existence of 15 sites. The ARCH report recommended that excavations be conducted at 10 of these sites, "in accordance with a systematic sampling design" (1978:4), and that Site 38 be stabilized and preserved.

Early in 1979, ARCH carried out two weeks of archaeological testing and excavation at Sites 38, 38-A, 1606, and 1607, and a detailed report of this work was issued (Hammatt 1979). As a result of these excavations, "archaeological clearance for the whole of Survey Area II" was recommended, "no further archaeological investigation" being deemed necessary (Hammatt 1979:7). Furthermore, the original recommendation to preserve Site 38 was considered "no longer justified", and although preservation of the site by landscaping was stated to be "beneficial archaeologically", such action was not considered "a critical point" (1979:7-8).

The Kawakiu-Nui area is currently under review by Maui County, an SMA permit application for a condominium apartment project having been filed by CAM Molokai Associates. The Environmental Assessment submitted to Maui County by CAM Molokai Associates cites the "archaeological clearance" recommended by the ARCH team. This Environmental Assessment also states that Site 38 will be preserved "in the recommended manner", i.e. by means of incorporation into condominium landscaping. This statement, however, is clearly not supported by the architect's plans, which indicate that a condominium unit will be constructed directly on top of Site 38.

On 2 December 1980, Mr. Alan T. Murakami, Attorney-at-Law for the Legal Aid Society of Hawaii requested the Society for Hawaiian Archaeology (SHA) to make an independent assessment of the archaeological resources at

Kawakiu-Nui. An ad hoc committee of members of the Board of Directors of SHA was formed to make this assessment. All members of the ad hoc committee read the two archaeological reports on this area (Hammatt 1978, 1979), and Mr. Cleghorn was guided on a one-day field inspection of the area by Mr. Glen Nanod, a Moloka'i resident with training in archaeology, on 3 January 1981.

Based upon this on-site visit, Mr. Cleghorn prepared a draft report which was summarized at the January meeting of the SHA. Based upon discussions at that meeting, it was decided that a second on-site inspection should be made. On February 4, 1981, Kawakiu-Nui was again visited by Mr. Cleghorn, accompanied by Drs. Kirch and Saxe, and by Mr. Nanod. The present report presents the results of our findings during both field inspections.

We wish to point out that our assessment is based upon the viewpoint of scientific archaeology, and that the scientific significance of archaeological sites is not necessarily their only significance. We leave the question of the contemporary cultural significance of these sites to others more qualified to assess it.

SITE 38

This site is a roughly rectangular enclosure (6 by 9 meters), with walls incorporating large upright slabs*, and with an interior coral paving on the NW side. Abutting the wall on the seaward side of the enclosure are three alignments of stone and an area of undisturbed cultural deposit which Hammatt (1979) estimated to extend 3 to 4 meters. On-site inspection, however, revealed this area of cultural deposit to extend 8 meters makai and incorporate about 80 square meters. This site had been described as a heiau by Summers (1971:47), a function which Hammatt tentatively agreed upon based upon surface indications. J. F. G. Stokes (quoted in Summers 1971) was told in 1909 that the site was the residence of a priest.

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*The unique nature of the structure's walls, particularly the makai wall with its facade of large upright slabs, is not fully highlighted by the ARCH report.

About 9.5 square meters of the interior of this enclosure were excavated, reported as representing a 70% sample of the interior (Hammatt 1979:7). These excavations produced over 500 artifacts including 61 finished fishhooks (74% of the artifacts were associated with fishhook manufacture), as well as over 28 kilograms (61.6 pounds) of unmodified basalt flakes (calculated from Hammatt's average weights, 1979:39). In addition, three features were uncovered--two fire hearths, and a coral pebble filled burial pit containing the remains of two individuals. The human skeletal material was not removed (Hammatt 1979:32).

Field inspection of Site 38 by the SHA representatives revealed several inconsistencies and seeming errors in the ARCH report, as well as indications of sub-standard performance of technical operations by the ARCH team*. Specifically:

1. There is no question that significant numbers of prehistoric Hawaiian artifacts relating to stone tool ("lithic") production were either missed (possibly through lack of recognition ?) or purposefully discarded by the ARCH team. The "backdirt" piles left by the ARCH team include many hammerstones (at least 4 hammerstones in one pile alone), large basalt cores, and innummerable flakes. It was clear to the SHA inspection team that lithic production was a major activity of the prehistoric occupants of Site 38, and as such deserved as much detailed analytical treatment as the fishhook assemblage. The ARCH report, however, mentions lithic materials only in passing (Hammatt 1979:39), and given the materials discarded in the backdirt piles, an adequate analysis is now impossible, since the materials are out of context

2. The site and grid plans of Site 38 given in the final report contain major inaccuracies, thus throwing the entire analysis into question. This is particularly curious, since the plan of Site 38 given in the original

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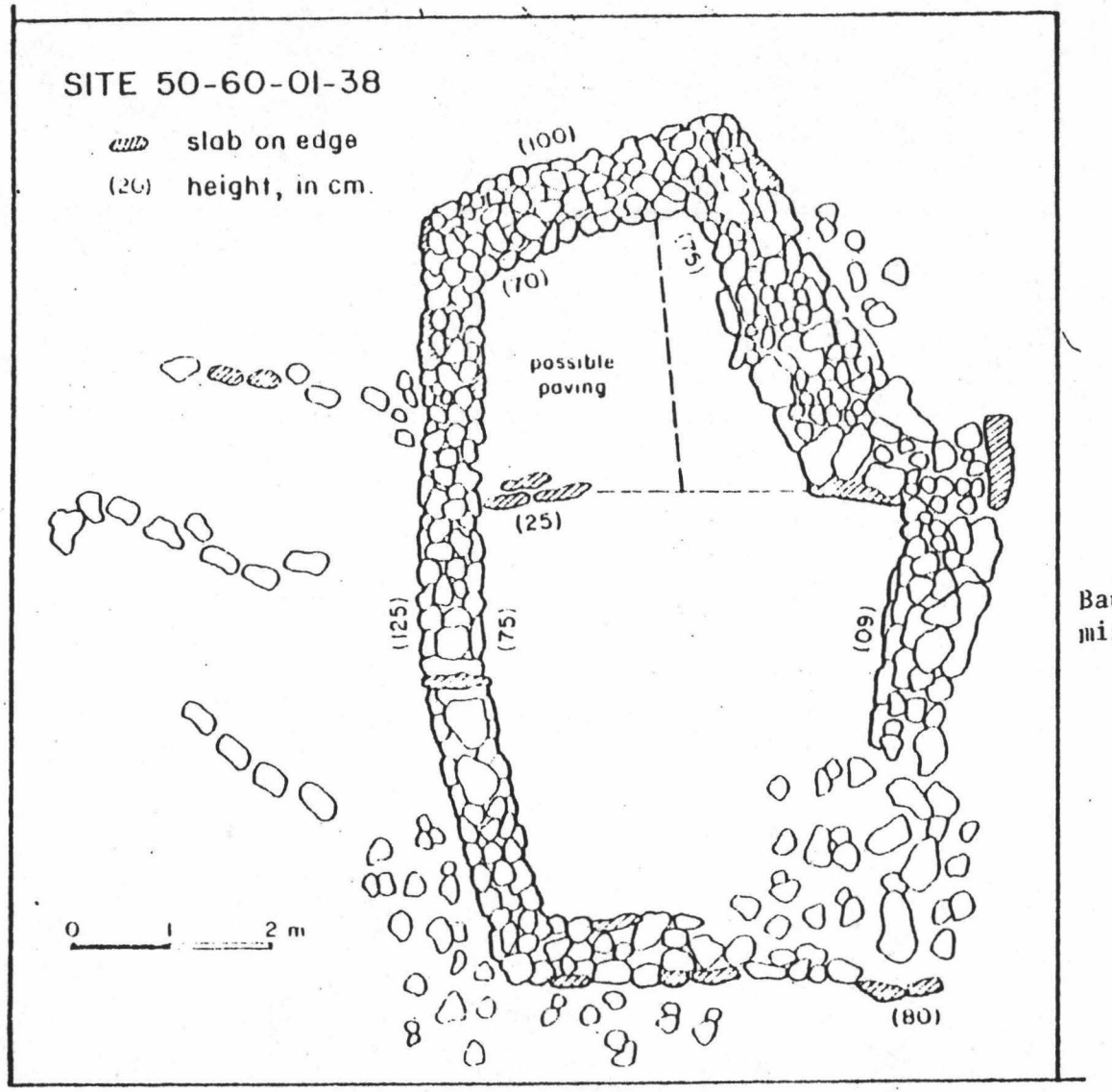
*Due to a lack of Statewide standards or rules for performance of archaeological work, determination of whether a given piece of work is sub-standard can be difficult, and may depend upon establishing a professional concensus. In this review, however, we have taken into considerations those standards which exist at the Federal level (36 CFR Parts 64, 66), and the standards promulgated by the Society of Professional Archaeologists. SOPA is the national certifying organization recognized as such by the Society for American Archaeology and the American Anthropological Association.

survey report (Hammatt 1978, Fig. 4) is quite accurate. The plan in the final report, however, leaves out several significant architectural details, as well as being inaccurate in both configuration and dimensions (Hammatt 1979, Figs. 3 and 4). Furthermore, the excavated area shown in Fig. 3 of the final report is erroneous, since it mislocates the baulk (Sq. N1W1). Both Figs. 3 and 4 are also in error in showing Test Trench A lying along the N face of the N2 grid line, when it is in fact separated from that line by a least 1 meter. A similar problem exists with the profile of Test Trench A (1979, Fig. 8), which indicates excavation to a depth of ca. 50-60 cm. We encountered bedrock at a depth of 25-30 cm.

3. Perhaps due to the mapping errors cited above, Hammatt's statement that 70% "of the total surface area of the interior of the enclosure" was excavated is also questionable. We found that the interior area of the enclosure not excavated by the ARCH team incorporated at least 9.5 square meters, so that the sample of the site interior thus far excavated is actually 50%, and not 70%. Given the extremely high density of cultural materials contained within the interior deposit, we question the adequacy of a 50% sample from a site likely to be destroyed.

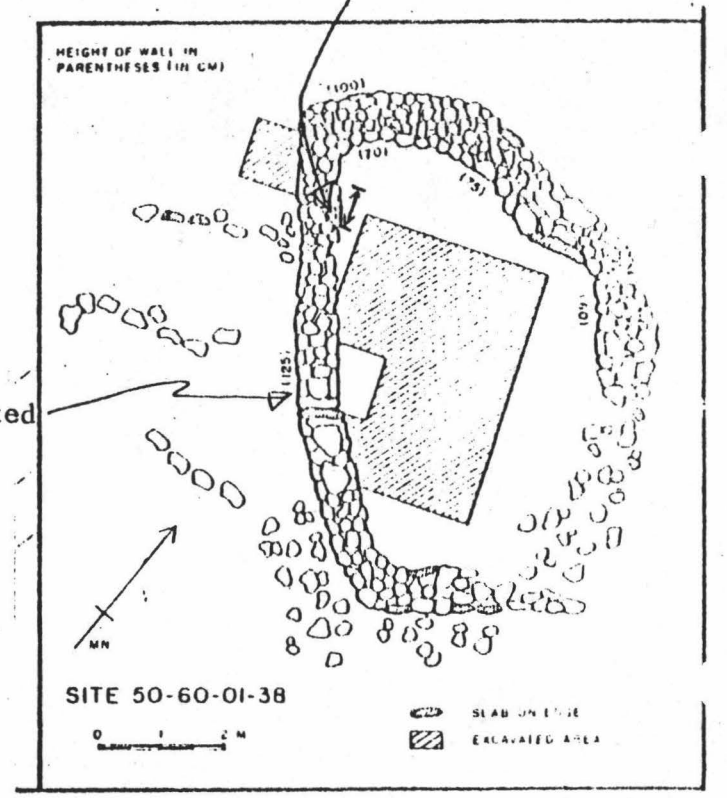
4. Hammatt (1979:22) asserts that undisturbed cultural deposits outside of the enclosure are limited to "a small semicircular area extending 3 to 4 meters on the seaward side." His only excavation in this area was Test Trench A, a 1 by 1 meter pit which revealed a 20-30 cm thick deposit with highly concentrated fishbone and shell midden. We estimate that this deposit actually covers an area of at least some 80 square meters, so that the ARCH excavation represents a mere 1.25% sample of the exterior cultural deposit. When we consider that the Layer II deposit underlies the structure walls, the entire area of Site 38 must encompass ca. 120 square meters. Of this entire site area, the ARCH excavations represent a ca. 9% sample. We regard such a sample as much too small, considering that the fishhook-related artifact collection from the ARCH excavation "is the largest in the State excavated from a single habitation structure" (Hammatt 1979:4).



Site Plan from Survey Report (1978)

A 1-meter gap should be shown here.

Baulk mislocated



Site Plan from Final Report (1979).

COMPARISON OF SITE 38 ENCLOSURE PLANS

numerous large pieces of fishbone in good preservation, as well as dense shell midden. Were the deposit deflated, as Hammatt contends, all cultural material would be lying on a single surface, and not distributed throughout a cultural layer, as we observed. Furthermore, the fact that the cultural deposit is capped by a "thin mantle of wind blown silt loam" (Hammatt 1979:15) would argue against significant deflation of the deposit.

While it is possible that wind erosion has deflated a part of this site, we feel that the excavated sample of this area is not sufficient to warrant the conclusion that the entire site is deflated and thus not of significant archaeological value. Important questions concerning Site 38-A which remain unanswered include: (1) what is the nature of the cultural deposit at this site; (2) what activities oecurred here; (3) what is the relationship of the stone alignments visible on the surface to the cultural deposit; (4) what is the age of the cultural deposit; and (5) in what way was Site 38-A related to the rest of the Site 38 complex? In our opinion, adequate mitigation for Site 38-A must involve a serious attempt to address these questions.

We believe that the cultural deposits at Site 38-A must be considered an integral part of the entire Site 38 complex. It is possible that this complex originally comprised a kauhale, or associated cluster of functionally-distinct houses and activity areas, including a men's house (in this case Site 38), cooking area(s), women's eating house, etc. This hypothesis cannot be adequately tested with the limited information obtained by the ARCH team. We feel that the sampling design employed by Hammatt was inadequate to determine the range of prehistoric activities represented at Site 38 (sensu lato). Although Hammatt does not describe his sampling strategy (1979:13-14) in any detail, it would appear that the decision to concentrate upon the Site 38 enclosure, to the virtual exclusion of other areas at Kawakiu-Nui, was made solely on the basis of the "rich" concentration of fishhooks and other portable artifacts within the enclosure. We believe that most professional archaeologists would agree that this is inadequate as the sole criterion upon which to base a contemporary excavation strategy.

Although this is a matter of interpretation, we also disagree with Hammatt's conclusion that Site 38 was not a heiau (1979:8). Hammatt has interpreted the enclosure as a "habitation structure", and possibly a hale mua or men's sleeping house. Given the density of artifacts at Site 38 associated with traditional men's activities (e.g. fishhook manufacture and lithic production), this interpretation of the site as a mua appears valid. The point missed by Hammatt, however, is that hale mua and heiau are not mutually exclusive categories. Heiau is a generic term referring to any of several classes of traditional Hawaiian religious sites. It is quite clear in the early historical writings of the Hawaiian scholar David Malo that the hale mua was itself a type of heiau, specifically the place where family dieties were kept, and where ceremonies were held for their benefit. The fact that Site 38 is very likely a heiau as well as a hale mua must be given full consideration when assessing its significance.

Site 38-A

This is a cultural deposit atop a low bluff directly upslope of Site 38, which covers an area of about 280 square meters (calculated from Hammatt 1978:15, Fig. 4). This site contains a number of stone alignments (Hammatt 1978:16), one of which appeared as a boulder wall remnant. Two one-meter squares were excavated NE of this site, representing less than a 1% sample of the cultural deposit. Some artifactual material (7 artifacts from one test pit) was excavated. Although midden (shellfish and fishbone) was recovered, no data on this midden material is provided in the final report (Hammatt 1979). It was decided after these two test pits were excavated to discontinue excavations at Site 38-A, because it was felt that there was little chance of locating intact cultural material. This situation was interpreted to be the result of recent use of the area, and of long-term wind erosion which deflated the cultural deposit (Hammatt 1979:15-16).

After inspecting the stratigraphic sections of the two test pits (neither was backfilled), we have to question whether the deposit has been significantly deflated. The cultural deposit in Test Trench 1 contains

4. As demonstrated by the ARCH excavations, Site 38 has potential for research into specialized activity patterns. As Hammatt himself noted:

> ". . . it can now be demonstrated that small and well defined specialized activity areas exist within habitation structures and these can be clearly deliniated [sic] archaeologically. The decumentation [sic] of these activity areas can be a primary focus of research and they can form the basis for interpretations of ancient Hawaiian community spacial [sic] and social organization" (1979:78).

Given this potential, it is all the more surprising that only 50% of the enclosure was excavated, only 1.25% of the total deposit, and less than 1% of Site 38-A. A thorough understanding of the specialized activity areas noted by Hammatt would clearly demand more complete sampling.

5. The site contains at least two human burials. Curiously, no recommendation is made by Hammatt (1979) regarding the final disposition of these burials, even though the right of human sepulture is sacred, and some mitigative action is clearly called for.

6. The stone structure (site 38 sensu stricto) is probably a men's house or hale mua, which means that it is also a form of heiau or religious site. It was reported to us (G. Nanod, pers. comm.) that votive offerings are at times still left on the enclosure walls (e.g. full cans of beer), suggesting that the site may indeed have continuing religious significance. If so, it is possible that the site may be subject to the provisions of the Native American Religious Freedom Act.

In sum, we believe that the Site 38 complex is of unquestioned significance. Given that the site has demonstrated potential to yield "information significant in prehistory or history" (36 CFR 60.6), we believe it to be eligible for inclusion in the National Register of Historic Places.* It is the Society for Hawaiian Archaeology's position that "clearance" of Sites 38 and 38-A at this time is totally unwarranted.

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* In accordance with this view, the SHA is preparing National Register Nomination forms for Site 38, which will be submitted to the SHPO for transmittal to the Keeper of the National Register, with a request for a "determination of eligibility".

Significance of the Site 38 Complex

It is our professional opinion that Sites 38 and 38-A are very significant archaeological resources, probably deserving of National Register of Historic Places status. This conclusion is based upon several lines of evidence:

1. The site has demonstrated first-order potential to yield new and highly significant information on ancient Hawaiian fishing technology, and fishing practices, and thereby to contribute to our knowledge of ancient Hawaiian culture. Hammatt (1979:4-5) has himself stated that "the collection of fishhooks, fishhook blanks (rectangular cut bone) and fishhook preforms in all stages of manufacture, along with tools used to shape fishhooks, is the largest in the State excavated from a single habitation structure. This collection in its archaeological context can give an unparalleled view of fishhook manufacturing technology and the stages and processes involved in this technology" (emphasis added; 1979:8). Yet, it must be kept clearly in mind that only 50% of the site's interior has been excavated, and only about 1-2% of the entire Site 38 complex. Unquestionably, the unexcavated portion of the site has great potential to add new knowledge.

2. In addition to fishhooks and related artifacts, the cultural deposits at Site 38 are extremely rich in the skeletal remains of the fish caught with these hooks. The richness of this faunal material is not brought out in the ARCH report, and although some species of fish present in the midden are reported (Hammatt 1979:Table 7), no quantitative study was done. Site 38 has tremendous research potential for investigating ancient Hawaiian fishing practices, as well as local ecology and diet, precisely because the site contains both fishing gear and fishbone (representing the species caught) in such high density, and in a primary stratigraphic context.

3. The site was clearly a locus of considerable stone tool production, evidenced by numerous hammerstones and by large quantities of basalt flakes and cores (at least two separate basalt sources are represented in this material). Additional research potential therefore exists for the analysis of Hawaiian lithic technology, as well as patterns of resource exploitation. This aspect of the site's archaeology was not treated in the ARCH investigation.

OTHER SITES OF CONCERN

Sites 1605-A and 1605-C. These are two stone platforms on a rocky bluff immediately south of Kawakiu-Nui Bay. Given their form (Hammatt 1978:13-14) there is a good possibility that they are burial facilities, especially 1605-A which has a depressed center. This possibility should be tested by archaeological excavations prior to any construction in the area.

Site 1605-E. This feature was described by ARCH as "probably the remnant of a crude shelter" (Hammatt 1978:14). In fact, it is a rather substantial wall, some 10 meters long. Furthermore, the area in the lee of this wall appears not to be deflated, and there could well be cultural deposit here. This site is certainly deserving of test excavation to assess its significance.

Site 1605-F. As with feature E, the area in the lee of this site's wall is not deflated, and there appears to be ca. 15-20 square meters of deposit. The site should be test excavated to assess its significance.

Site 1609-B. This is an intact cultural deposit (25 by 35 meters) on a low alluvial terrace on the north side of the present Kawakiu-Nui stream channel (Hammatt 1978:18). This site will be indirectly impacted by the proposed construction activities, although it was outside of Hammatt's high priority Area II (1978:1, fig. 3). This is a fragile site, given that it is a cultural deposit in a sand and alluvium matrix extending from the surface to a depth of 15 cm, and the impact of many people tromping on it, digging holes, building fires, and pursuing other beach-going activities will destroy this site. Therefore, archaeological excavations (part of an intensive data recovery program) should be undertaken here prior to any development because of the indirect impact such development will have on the site. Hammatt stated (1978:18) that this site had excellent excavation potential; we think that this potential should be realized before it is lost.

Site 1610-A. This site consists of another cultural deposit on the north side of Kawakiu-Nui Bay, and is currently subjected to erosion by high waves and runoff. Like Site 1609-B, this midden deposit (30-40 cm thick, containing dense shellfish midden, basalt flakes, and charcoal) should be

SITE 1606

This is a stone walled enclosure (4 by 4 meters) that is situated atop a cultural deposit that covers an area of about 300 square meters (calculated from Hammatt 1978:15, fig. 4). This cultural deposit has been cut by the beach access road, and we concur with Hammatt that it was probably originally continuous with that found at Site 38-A, but is no longer so because of bulldozer activity (Hammatt 1978:17).

One 1-meter square was excavated in the center of the enclosure, representing less than a 1% sample of the cultural deposit. This excavation revealed the existence of a 12-25 cm thick cultural deposit, which produced 60 historic artifacts, 11 traditional artifacts, and 22 pieces of volcanic glass. In addition, two features were recorded, a probably modern fireplace and a semi-circular concentration of stones, whose function is unknown (Hammatt 1979:16-18; Table 18).

We do not think that this site has been sufficiently sampled. Site 1606 is important as it offers an opportunity to study the effects of foreign goods entering into a traditional society. Covering an area of about 300 square meters, the cultural deposit of Site 1606 is likely to contain different activity areas; what these activity areas might represent and what the spatial distribution of such putative areas is, remain undetermined. Finally, the relationship between the stone enclosure and the cultural deposit has not been demonstrated.

SITE 1607

This is a semi-circular stone walled enclosure with a center wall separating two enclosed areas, and some intact cultural material was noted here in the survey report (Hammatt 1978:17). A 1 by 0.5 meter test pit was excavated in the eastern enclosed area which revealed no cultural deposit, and excavations were terminated. We think that the western enclosed area should also have been tested, as well as any areas that were suspected to contain "in place cultural material" as noted in the 1978 survey.

meters to the leeward. A pocket knife stuck into the deposit in several places revealed that the deposit is at least seven centimeters thick. The surface of this deposit is thickly covered with midden and basalt flakes, and one coral abrader, one basalt flake awl, and a polished basalt chip were also observed. This site will be directly impacted by the proposed condominium development, and should have been tested for significance.

Site E. This is a small niche burial located almost directly below Site 1606, on the south side of Kawakiu-Nui Gulch. The front of this small cave is walled up, but a small human mandible can be seen through gaps between the stones. This site is presently heavily overgrown.

While this burial will not be directly impacted by construction activities, the human skeletal material should either be removed and reinterred in a permanent cemetery, or the opening should be securely sealed, so that the remains will not become the object of vandalism.

Sand Dune. At the end of the existing jeep road, at the mouth of Kawakiu-Nui Gulch, on the south side of the streambed is an extensive sand dune (c. 40 by 25 meters). While we do not know whether or not this dune contains cultural deposits, we do know that other sand dunes in Hawaii have frequently yielded significant cultural deposits (e.g. Kawela, Moloka'i; Bellows Beach, O'ahu; Halawa Valley, Moloka'i; and South Point, Hawaii). It is possible that the Kawakiu-Nui sand dune may also contain significant cultural deposits and/or human burials. This dune will be directly impacted by the construction of a proposed park in this area, and should therefore be archaeologically tested for intact cultural materials. This testing could be done quite efficiently with a system of hand-augur holes.

excavated to recover the significant data it most certainly contains. Although the site is outside of the area of proposed condominium development, there is absolutely no doubt that the condominium and proposed park linked to the condominium development will have serious indirect impact upon this site.

SITES NOT PREVIOUSLY RECORDED

In addition to the sites discussed above, the SHA field investigation team discovered an additional six sites not reported in either of the ARCH reports. These are briefly reported here:

Site A. On the point of land seaward of Site 38, and some 10 meters seaward of unrecorded Site D (see below), is a small, eroded midden remnant ca. 3 by 3 meters in area, lying adjacent to a boulder outcrop. This remnant deposit contains both shellfish remains and lithic materials, including one large struck flake of fine-grained basalt observed on the surface. There is a strong possibility that this site is a remnant of the ko'a or fishing shrine first recorded by Stokes in 1909, and again by Summers as Site 37 (1971:47, fig. 10). The ko'a was thought to have been completely destroyed by the tsunami of 1946, but this midden remnant suggests that destruction may not have been total. A data-recovery excavation program may be warranted for Site A.

Site B. Approximately 2 meters east of the southeast corner of Site 1606 is a length of stone wall ca. 15 meters long, 1.0 meter high, and 2.0 meters wide, with a right-angle bend at one point. The wall parallels the present beach-access road. Heavy vegetation and a lack of time precluded a detailed inspection by the SHA team.

Site C. Approximately 8 meters on an azimuth of 40° from Site 1605-C is an unrecorded feature, somewhat disturbed and affected by wind erosion. This feature appeared to be a series of 4 stepped terraces, marked by single course, parallel alignments, the longest alignment measuring 2.45 meters long. The total length of the site is 7.7 meters. Between alignments are traces of cobble-sized rough stone paving. On the site's surface we noted a flaked basalt cobble, a basalt flake, and pieces of shell midden (Cypraea, Thais, coral). The site does not have excavation potential, but should have been recorded.

Site D. This site is located approximately 20 meters west of the northwest corner of Site 38, in an area clear of vegetation. It is a boulder alignment 4.4 meters long, with an intact cultural deposit extending 3.3

SUMMARY

Archaeological resource management, or what is commonly referred to as "contract archaeology", has as its primary purpose the preservation of information from cultural resources (archaeological sites) before they are altered or destroyed in the process of modern land development. Mitigation of these effects may take the form of actual site preservation, or of a properly-executed intensive data recovery program (sometimes and perhaps inappropriately termed "salvage" excavation). Sufficient information must be gathered so that present and future generations will have a clear record of what human activities occurred at a particular locale. Cultural resources are non-renewable resources and extreme care must be exercized in mitigating any adverse impacts that these resources may be subjected to from construction activities. The best course, where possible, is to avoid impacting these sites since future generations will have increased sophistication in interpreting them.

Based upon our detailed review of the ARCH archaeological reports, combined with two on-site field inspections, we can only conclude:

(1) that the archaeological survey performed by ARCH was incomplete, and therefore inadequate, since at least 5 sites were missed, including a midden deposit with excavation potential, and at least one human burial, and since no subsurface testing was done to locate buried sites;

(2) that the ARCH excavations were lacking in professional quality and rigor, as evidenced for example by the errors in site plans and sections, in the discard of lithic artifacts and hammerstones, and in the lack of an overt research design and rationale;

(3) that the full potential of Sites 38 and others to add significant knowledge regarding ancient Hawaiian culture has by no means been realized due to insufficient sampling, to the lack of any significant analysis of lithic materials, faunal remains (especially fishbone), and other items, and to a concentration upon a single feature (the Site 38 enclosure) to the exclusion of others; and

(4) that these inadequacies are rendered even more serious by the fact that the ARCH work was not a preliminary survey but was supposed to be an

intensive data retrieval operation prior to the modification and destruction of these cultural resources.

We prefer at this time not to offer any specific recommendations for mitigation of adverse impacts to archaeological resources at Kawakiu-Nui, since such recommendations should properly receive input from the State Historic Preservation Officer. However, we do recommend, at a minimum, that (1) Site 38 be preserved, (2) that test excavations be conducted at other sites as noted above, in order to assess their significance, (3) that a plan be prepared for the disposition of human burials, and (4) that a scientifically-valid intensive data recovery program be carried out for those sites with significant cultural deposits, and for which preservation in place is not feasible (e.g. those sites which are already suffering from erosion, or those to be impacted by construction). A special concern is the as-yet unexcavated interior of Site 38, which if left as is may be threatened by vandalism and desecration. We also believe that the State Historic Preservation Officer should investigate the possibility that the entire complex of archaeological sites at Kawakiu-Nui may be eligible for inclusion on the National Register of Historic Places.

In sum, we urge all interested parties, most especially Kalua Koi Corp., CAM Molokai Associates, and Maui County to take all necessary actions to ensure that Kawakiu-Nui's unique and highly significant cultural resources are not lost. Any unmitigated adverse impacts to these cultural resources by construction activities would constitute a crime against society--past, present, and future.

REFERENCES

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Hammatt, Hallatt H.

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1979 "Archaeological excavations: Kawakiu-Nui, Kaluako'i, Moloka'i Island, Hawaii." Manuscript prepared for Kaluakoi Corporation by Archaeological Research Center Hawaii, Inc.

Summers, Catherine C.

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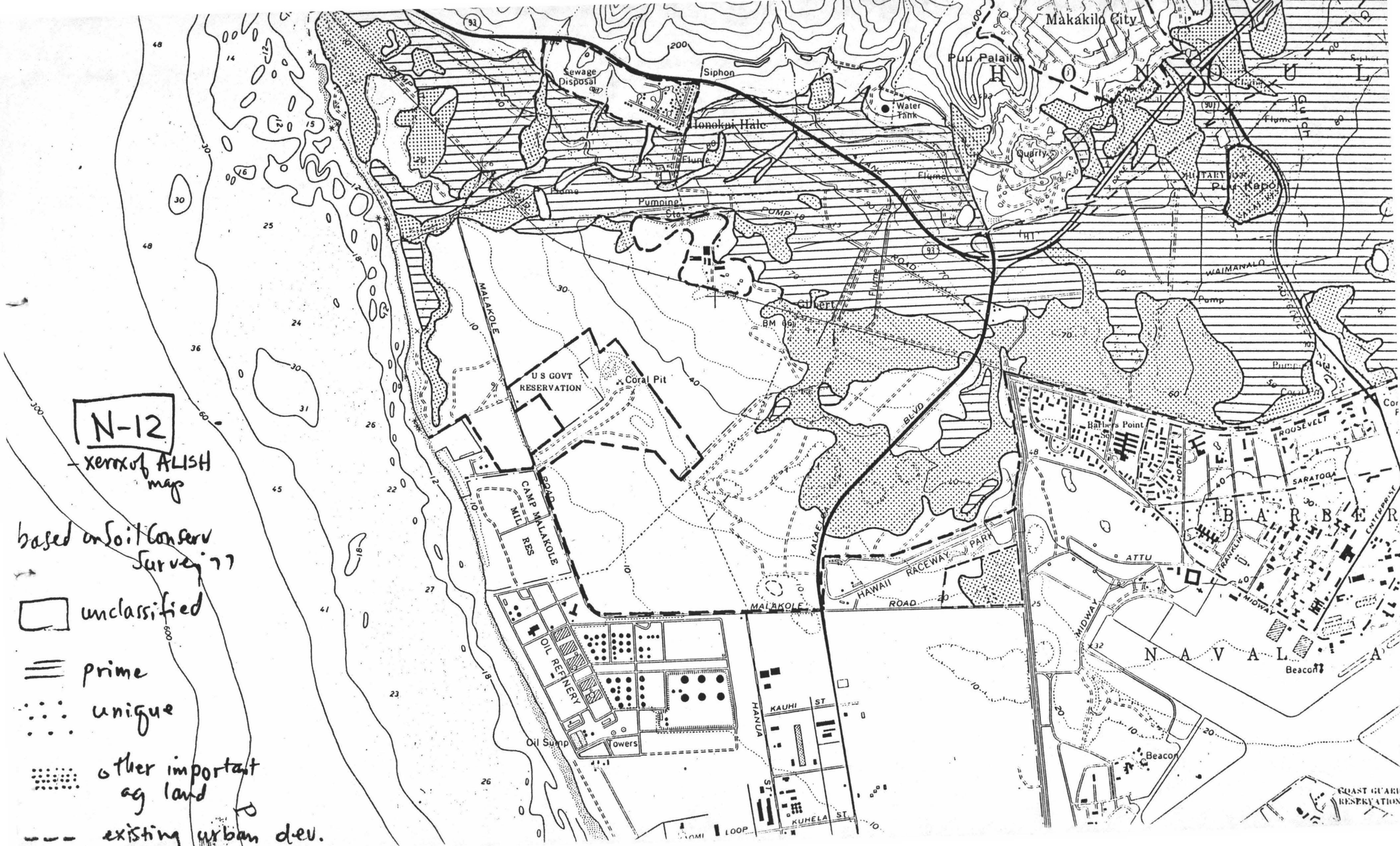
ADDENDUM

After this report was completed, Dr. Kirch had an opportunity to question Mr. C. Summers (a member of the Cooke family and aknowledged authority on the archaeology of Molokai) regarding the sites at Kawakiu-Nui. Mrs. Summers reported that she has heard from a reliable, local informant associated with Molokai Ranch that a human skull was exposed from the sand dune at Kawakiu-Nui about 50 years ago. This information lends support to our contention that the sand dune should be tested for its archaeological content prior to any proposed development in the area.


N-12
- xerox of ALISH map
based on Soil Conserv Survey '77
unclassified
prime
unique
other important ag land
existing urban dev.
Makakilo City
Puu Palaila
Sewage Disposal
Siphon
Water Tank
Honokai Hale
Quarry
Puu Kapolei
Pumping Sta
Flume
Pump
MALAKOLE
ROAD
Gilbert
BM 66
U S GOVT RESERVATION
Coral Pit
CAMP MALAKOLE MIL RES
OIL REFINERY
Towers
Oil Sump
KALAELOA BLVD
HAWAII RACEWAY PARK
MAIAKOLE ROAD
HANUA
KAUHI ST
KUHELA ST
WAIMANALO
Barbers Point
ROOSEVELT
SARATOGA
ENTERPRISE
FRANKLIN
MIDWAY
ATTU
N A V A L
Beacon
COAST GUARD RESERVATION

SOCIETY FOR HAWAIIAN ARCHAEOLOGY

15 September, 1981

President:
Patrick V. Kirch
Department of Anthropology
Bernice P. Bishop Museum
P.O. Box 19000-A
Honolulu, Hawai'i 96819

Mr. Michael M. McElroy
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. McElroy:

The Society for Hawaiian Archaeology has formed an ad hoc committee to review the final draft report on "Archaeological and Paleontological Investigation at Kalaeloa (Barber's Point), Honouliuli, 'Ewa, O'ahu, Federal Study Areas 1a and 1b, and Hawaii Optional Area 1." While the review has not yet been completed owing to late receipt of this document, the members of the committee are of the opinion that this report, like the earlier drafts, is inadequate in terms of fulfilling either the general or specific tasks set forth in the Revised Scope of Work and in the Revised Research Design. There is, moreover, a consensus of opinion that the report fails to meet the standards and reporting requirements set forth in 36CFR Part 66 (42 Federal Register 5374, January 28, 1977). In short, we seriously question the acceptance of this report as constituting adequate mitigation of the impacts of harbor construction on the archaeological and paleontological resources in the Barber's Point area. It is our recommendation that additional salvage excavations should be undertaken prior to any further land alterations in this area.

We are grateful for the opportunity to present this testimony and would be happy to provide you with a copy of our final review of the subject report on which decisions of far-reaching importance are now being made.

Sincerely yours,

Patrick C. McCoy

Patrick C. McCoy, Ph.D.
Chairman, Ad Hoc Committee to
Review the Hammatt/Folk Report on
Barber's Point

N-13

ovember 26, 1977

Interim Subcommittee on the 1995 Honolulu Harbor Master Plan

Reference materials for Verbal Testimony

Akihiko Sinoto
Field Director
Barbers Point Survey
Bernice P. Bishop Museum
Honolulu, Hawaii

At the request of the U.S. Army Corps of Engineers, the Department of Anthropology, B. P. Bishop Museum, conducted a Cultural Resources Survey at Barbers Point, Oahu Island, during July and August, 1976 and 1977. The project area, on Campbell Estate land, is now under design-phase planning for a deep-draft boat harbor. Two preliminary surveys in the area had located thirty archaeological sites; six of these have been destroyed. During the present survey, sixty-eight more sites were found and recorded, bringing the total of known sites in the area to ninety-two. Sites range in form from simple stone mounds and modified limestone sinkholes to relatively large, well-constructed enclosures and dense clusters of small structures. Test excavations were conducted on twenty-seven sites, and six sites were completely salvaged.

The Barbers Point area, located on a karstic limestone plain, has been regarded as a marginal area, unfavorable for anything other than temporary forms of precontact cultural activity. The number, size, and extent of archaeological sites, and the number of artifacts and samples recovered from the test excavations, cast new light on this limited idea of the prehistory of the area.

Perhaps even more significant than the archaeological remains, however, was the identification of some of the recovered skeletal material as the remains of extinct native Hawaiian birds, including some species that have never been found before. The favorable potential for the recovery of more fossil avifauna, and the possible archaeological, zoological, and paleontological

implications of such finds, accord great significance and value to the Barbers Point project area.

In view of the significant results obtained through the Cultural Resources Survey, work is recommended for the Barbers Point survey area, in order to mitigate the effect of the proposed harbor project and to prevent loss of significant archaeological and paleontological data.

The archaeological significance of the Barbers Point area lies in the opportunity to extract data from sites in a marginal area, about which little is known. The Barbers Point survey area is eligible for nomination to the National Register of Historic Sites because it has yielded, information important to prehistory. From an archaeological point of view, it is necessary to salvage deposits in areas that will be affected by construction--those areas that are in the immediate impact area, and those areas that will be disturbed by construction-related activities.

The uniqueness of the Barbers Point area, and its unusual significance in terms of historical and research value, is paleontological because of the recovery of "fossil" birdbone, the remains of extinct birds. The amount and distribution of fossil bone recovered thus far indicates a high probability that other such deposits will be found throughout the survey area. Now that we know the importance of the birdbone deposits, it is necessary to test all sinkholes in the project area to assure that all such deposits have been located. Location of all birdbone deposits will then allow a more realistic evaluation of the need for and scope of paleontological salvage. Consultation with Dr. Storrs Olson is needed to obtain more specific information about the significance of the birdbone material, and for specific recommendations about salvage and/or preservation. Dr. Olson is an avian paleontologist with the Smithsonian Institution. His statement attesting to the significance of the bone is as follows:

The various limestone sinks on the raised reef at Barbers Point, Oahu, contain probably the most extensive fossil avifauna in Hawaii with many new species endemic to the island. Such fossils have not and probably cannot be found anywhere else on the island. Furthermore, the nature of the preservation is such as to insure that virtually complete skeletons can probably be assembled for most species. Thus, there is much highly significant and totally new biological and paleontological information that can be obtained only at the Barbers Point site.

Destruction of any of the potential fossil sinks would result in the loss of many specimens, some possibly unique since one sinkhole might contain species absent in another. Also, the fauna of one sinkhole might not be coetaneous with that of another, the age of a deposit being determined by when a sinkhole first formed. Therefore, an investigation of the faunas of different sinks might show changes in species composition and changes in morphology within a species through time. Finally, it would also be desirable to retain some sinks intact as fossil "banks" should some new technique or different information be desired in the future. The fossil deposits at Barbers Point are a unique and irreplacable resource.

Engineers Given Harbor Complaint

By David Shapiro
Gannett News Service

WASHINGTON — A Hawaii environmental group has launched a last-ditch campaign to head off federal approval of the controversial Barbers Point deep-draft harbor.

Wayne Gagne, president of the Conservation Council for Hawaii, met Thursday with William Gianelli, assistant Army secretary for civil works, to urge that the Army Corps of Engineers not award construction contracts for the project, even if funds are approved by Congress.

Gagne claimed that construction of a major new harbor at Barbers Point would have a severe impact on West Oahu's water supply and strip the area of archaeologically valuable fossil deposits.

He also questioned a cost-sharing agreement that would allow the Campbell Estate, owner of nearly 250 acres of land to be used for the harbor, to profit from the sale of coral dredged out of the harbor during construction.

Gagne said he was "warmly received" by Gianelli, but received no commitment that contract awards for the new harbor would be delayed.

The House has already voted $10 million in 1982 construction funds for the Barbers Point harbor, and the Senate is expected to follow suit when it takes up the Energy and Water Development Act next week.

The project, which is expected to cost a total of $121 million in state and federal funds, is strongly supported by Hawaii's congressional delegation, Gov. George Ariyoshi, the state Legislature and the Honolulu City Council.

Proponents contend that a new harbor is badly needed to handle future spillover traffic from Honolulu Harbor, which they say is running out of space for expansion.

The only official opposition to the project came from Frank Fasi, former mayor of Honolulu, who disputed the state's projections of future shipping needs and criticized the harbor's likely impact on land-use planning in West Oahu.

Fasi argued that Hawaii's shipping expansion could be accommodated by making greater use of Honolulu Harbor or opening part of Pearl Harbor to commercial traffic.

In his meeting with Gianelli, Gagne said arguments about the future need for a new harbor on Oahu are "higly speculative."

He said Matson Navigation Co., the largest shipper in Hawaii, recently made a major commitment to Honolulu Harbor by signing a 25-year lease for new facilities there.

Gagne said construction of the Barbers Point harbor would result in four million gallons of brackish groundwater spilling into the ocean each day, which would reduce groundwater retention in Ewa's coral aquifer and increase the salinity of the water.

He said these problems were not considered in the environmental statement prepared for the project.

Gagne also criticized the "quality and thoroughness" of the archaeological survey done by the Corps of Engineers at the proposed harbor site.

"The Ewa area is extraordinarily rich in fossil deposits of animal remains associated with the period of early native Hawaiian settlement," he said. "The objective should be a more complete salvage or recovery of these cultural and biological resources, rather than the sketchy reconnaissance that has taken place to date."

N-15

FOR
HAWAII
PO BOX 2923 • HONOLULU, HAWAII 96802

September 10, 1981

HAND DELIVERED

Honorable William Gianelli
Assistant Secretary of the Army
for Civil Works
The Pentagon
Washington, D.C. 20310

Dear Mr. Secretary:

On behalf of conservationists in the State of Hawaii, I am asking you to take action to postpone the awarding of construction contracts for the Barbers Point Harbor Project. In the absence of such intercession by your office, we are informed that the principle contract to construct this project will be awarded between September 15 and 30.

At the outset, let me say that much of the biological investigation and endangered species mitigation performed at the harbor site under the auspices of the Corp has been highly commendable. However, the purpose of this letter is to bring to your attention three specific concerns that point to the inappropriateness of committing construction funding to the project at this time.

First we are concerned about massive discharges of groundwater into the proposed harbor excavation. The environmental impact statement estimates this seepage at four million gallons per day. While this water is primarily brackish, it is not without value to the hydrological regime of the Ewa coastal plain.

The groundwater discharges resulting from the project will have two predictable effects, neither of which were discussed in the environmental impact statement filed for the project. The drainage to the harbor will reduce groundwater retention time in the coral aquifer and lower the water table. Additionally, harbor construction will have the effect of advancing salinity gradients landward. These combined effects will further diminish the utility of the groundwater resource of the coral aquifer on the Ewa plain. Neither the physical nor economic impacts of such a change were analyzed in the EIS. Nor was there discussion of prospective costs and benefits that might be attributed to grouting the harbor excavation or any other remedial measures that might be taken to reduce groundwater discharges to the harbor.

Secondly, the Conservation Council is greatly concerned with the quality and thoroughness of archaeological recovery work at the harbor site to date. Indeed, peer review of the work of the Corps' archaeological contractor has documented numerous difficiencies. The Ewa area is extraordinarily rich in fossil deposits of animal remains associated with the period of early native Hawaiian settlement. Under these

circumstances, the objective should be a more complete salvage or recovery of these cultural and biological resources, rather than the sketchy reconnaisance that has taken place to date.

There is no stratigraphic and chronological examination of cultural materials, especially the date of interfacing of fossil bird bone material and human cultural material and whether introduced Polynesian rat bones are contemporaneous with the fossil birds. Thus, the foremost research problem at Barber's Point--whether the extinct avifauna existed within the span of human occupation of O'ahu was given only cursory attention. The archaeological survey did not determine the nature of the prehistoric subsistence activities at Barber's Point. The basic quantitative data are woefully inadequate to permit conclusions in this aspect.

An Ad Hoc Committee of the Society for Hawaiian Archaeology has identified 21 shortcomings in the Draft"Archaeological and Paleontological Investigation at Kalaeloa (Barbers Point), Hono'uli'uli, 'Ewa, O'ahu." These they are presently critiquing and their report should be available in a couple of weeks.

Finally, we wish to call your attention to the cost-sharing contract between the United States and the State of Hawaii, together with associated non-federal agreements governing the sale of coral dredge material. The Department of the Army had sought to increase non-federal cost-sharing on the Barbers Point Harbor above and beyond the nominal cash contribution specified when the project was authorized in 1965. This action takes appropriate notice of the windfall resulting from increasing commercial value of dredged coral. However, we question the effectiveness of the "221 Contract" executed January 5, 1981, in assuring the United States an appropriate share of excess revenues accruing to non-federal interests from the sale of dredged coral.

Attached is a copy of the "221 Contract," along with a 1976 memorandum of intent between the State of Hawaii and the harbor site landowner, Campbell Estate, and a sales contract recently executed governing the terms of prospective coral sales. Taken together, we fail to see how the interests of the United States and the original intent of the Department of the Army are protected by these contracts. We urge a close review of these documents and revisions where appropriate prior to the commitment of federal funds emboided in the impending construction contract.

In conclusion, we note that the budgetary strictures under which the Civil Works Program must operate are likely to remain severe. The

major users of Honolulu Harbor, Matson Navigation (which transports approximately 80% of Hawaii's imported foodstuffs) has just moved to new facilities within the Harbor and have signed a 25-year lease for the use of these facilities. In light of the highly speculative nature of the"need" for the Barbers Point Harbor any time in this century, we urge you to consider funds previously appropriated for this project for transfer, deferral, or rescission.

Sincerely,

Wayne Gagne
President

cc: Hawaii Congressional Delegation
Hon. George Ariyoshi, Governor
Hon. Jean S. King, Lt. Governor
Col. Alfred J. Thiede, District Engineer

University of Hawaii at Manoa

Department of Anthropology
Porteus Hall 346 • 2424 Maile Way
Honolulu, Hawaii 96822

19 October 1981

Mr. Kisuk Cheung
Chief, Engineering Division
US Army Corps of Engineers, Pacific Ocean Division
Building 230
Fort Shafter, Hawaii 96858

SUBJECT: Review of Archaeological Research Center Hawaii (ARCH) Report:

Archaeological and Paleontological Investigation at Kalaeloa (Barber's Point), Hono'uli'uli. 'Ewa, O'ahu--Federal Study Areas 1a and 1b, State of Hawaii Optional Area 1 --FINAL DRAFT--

Dear Mr. Cheung:

Comment regarding the above named document is being submitted as per your letter of transmittal (no date) received 23 September 1981.

This is the third review of the ARCH salvage program I have undertaken since it was proposed in 1979 and I must confess that after several readings, despite the completion of sections missing from the initial review draft, I find little substantive improvement in the "final draft." Indeed, the additional information now provided makes many of the theoretical and methodological weaknesses all the more apparent.

I have consistently expressed concern regarding the lak of an explicitly stated sampling strategy for data recovery, and the lack of criteria for determining the adequacy of the data recovered to address stated research goals. These have been; in my opinion, critical problem areas since the inception of the salvage program and have unnecessarily flawed the final results. No amount of cosmetic editorial work or additional laboratory analysis, except perhaps in alternative dating techniques, can resolve these deficiencies after-the-fact. In as much as the present document remains essentially unchanged from previous drafts, I see little reason to justify another lengthy and detailed review. My earlier comments are therefore appended.

In the long run this is a most unfortunate circumstance since a number of parties have expended considerable effort to assure that the enormous potential of the Barbers Point area be successfully realized. Yet, in its present form, the "final" ARCH report must be considered inadequate for the purposes of mitigating adverse impact and unreliable as a potential resource document to guide further scientific research in the Ewa region.

Sincerely,

Bertell D. Davis

Bertell D. Davis

N-16

University of Hawaii at Manoa

Department of Anthropology
Porteus Hall 346 • 2424 Maile Way
Honolulu, Hawaii 96822

11 March 1981

Mr. Kisuk Cheung
Chief, Engineering Division
U.S. Army Corps of Engineers, Pacific Ocean Division
Building 230
Fort Shafter, Hawaii 96858

SUBJECT: Review of Archaeological Research Center Hawaii (ARCH) Report: Archaeological and Paleontological Investigation at Kalaeloa (Barber's Point), Hono'uli'uli, 'Ewa, O'ahu -- Federal Study Areas 1a and 1b, and State of Hawaii Optional Area 1

Dear Mr. Cheung:

The following is a review of the ARCH report submitted to the U.S. Army Corps of Engineers, Pacific Ocean Division, on archaeological and palaeontological salvage excavations conducted in the Federal Areas 1a and 1b and the State of Hawaii Optional Area 1 at Barbers Point, Oahu. The report and pertinent reference documents were received in mid-February, but many of the figures and tables were incomplete. Although the letter of transmittal noted that the missing material would be forwarded as soon as available, these have not arrived. For this reason, and for other apparent instances of omission or incomplete information, the report in its present form cannot be considered adequate for review as other than a draft manuscript. This review is therefore only a preliminary evaluation of the salvage report; a more thoroughgoing review should be made when the entire document has been completed.

To begin with, because of my own research interest in the Barbers Point area, in March of 1980, after ARCH had begun fieldwork, I requested copies of the ARCH revised research designs for the Federal and State Areas from the State Historic Preservation Office (SHPO). Except for site-specific details, the two documents were essentially the same.

Although the overall archaeological significance of the Barbers Point area and the strategy for realizing that significance seemed generally well set forth by the research designs, there were a number of significant points which were treated in a less than satisfying manner. Specifically, the problem areas were: (a) lack of an explicitly stated sampling design for data recovery, (b) lack of criteria for determining adequacy of the data recovered to address stated research goals, and (c) estimated project time by which to attain those goals. Using the research design for the Federal portion of the project area as a basis for comment, I therefore submitted an unsolicited review to the SHPO (that review is attached for your reference).

In reading over the "draft" salvage report I can only surmise that the deficiencies addressed in the previous review have indeed seriously affected the research results at Barbers Point. The attached review of the research design will therefore serve as the major portion of my comments regarding the "draft" report. However, there are several issues I wish to emphasize further.

1. Sampling Procedures and Strategy.

The "draft" report notes that in addition to a statement of the research problems the research design included "a statement of data requirements; a sampling strategy to collect adequate data to test the hypotheses" (page 7). I do not find this to be the case. Nor was this true for the revised research designs, as stated in my previous review. Nowhere in the current document or in the background material is the sampling strategy or the criteria for determining the adequacy of the recovered data set explicitly defined. This is a most important issue since the function of a sampling frame is to allow the researcher to arrive at reasoned conclusions based on controlled quantification of the data. Where the sampling design is not made explicit, subsequent conclusions are likely to rest solely upon assumption and intuition. For example, consider how the midden and other small remains were collected as stated in the "draft" report.

> Shell, bone, midden, and other residue were screened from the matrix with a 100% sample collected from the 1 4-inch screen (page 10)...all material retained by the 1 8-inch screen was discarded after field checking to isolate shell species or other materials not represented in the midden from the 1 4-inch screen and to recover artifactual material (page 169).

As early as March-April of 1979, ARCH was appraised of potential problems regarding the extent and the rather small size of the material content of the cultural deposits at Barbers Point. This was in fact noted in the revised research design by reference to my personal communication. Although at that time I had not yet quantified the potential loss of material through 1 4-inch screens, it was estimated to be possibly as much as 30% of the total midden with even higher loss rates for potentially important food resources subject to greater breakage, such as fish bone or the Brachidontes mussel shell.

That the kind of sampling frame employed can yield different information from the same excavation is clearly recognized in the "draft" report by the following:

> The preliminary evaluation of artifact and midden assemblages and densities found during the testing focused excavation on sites with defined manufacturing and subsistence activity areas...Considering the effects of various types of sampling strategies on the types or intensities of field and laboratory analytical techniques, the emphasis was placed on establishing inter- and intra-feature chronology and on defining distinct activity areas to the maximum extent of their horizontal spread (page 11; emphasis mine).

In my experience at Barbers Point, the volcanic glass is the class of material which potentially suffers the greatest loss when using 1 4-inch screens and

not retaining the 1 8-inch material for laboratory analysis. In one site I excavated, for which analysis is now complete, $15m^2$ averaging 5-10cm deep yielded in excess of 900 pieces of volcanic glass. Of this, an estimated 75% would have been lost through the 1 4-inch screen. And adjacent to the State Optional Area, the B6-58 site excavated by Aki Sinoto of the Bishop Museum yielded 107 pieces of volcanic glass from approximately $7m^2$ (1976: Cultural Resources Survey Report). It is certainly true, however, that there are sites at Barbers Point which yield no glass, but these are apparently very task-specific structures and not "ordinary" or multi-purpose habitation sites. In contrast, more than $130m^2$ (the information in the "draft" report is incomplete on this point) were excavated at 14 surface habitation sites in the Federal and State Areas, yet this yielded only 55 pieces of volcanic glass. It seems very likely that the low recovery rate for volcanic glass expressed in the "draft" report is more the result of field technique rather than solely the absence of this material in the sites.

2. Effects of Sampling on Functional and Temporal Interpretations.

The above situation is most unfortunate since so much of the salvage work emphasized deliniating activity areas (and therefrom probable site functions) and developing a firm chronology for human settlement at Barbers Point. Thus the midden in general and the volcanic glass in particular were important to several of the major hypotheses set out in the research design.

> In the prehistoric period, intensity of occupation as well as specialization of function of certain features are related to the size of the features and size and density of the features clusterings.
>
> The larger residence units show greater specialization of function of each feature within the unit and greater intensity of occupation than the smaller units.
>
> There is differentiation of site-feature function with all occupation features showing evidence of food preparation and consumption but only features within larger site clusters showing evidence of manufacturing activities.
> Specific food preparation and cooking activity areas can be discerned in the archaeological record and the dominant subsistence indicated by these areas is based on marine resources, and increasingly on terrestrial resources over time.
>
> Manufacturing activity areas consisting of working of stone, bone, and shell materials is definable (sic) can be defined in the archaeological record and occurs in association with the food-preparation and cooking areas. Manufacturing activities emphasizes marine subsistence and terrestrial resources increasingly over time (pages 8-9; emphasis mine).

Clearly, intensity of occupation, specialization of function, greater intensity or specialization, and so on are all relative terms. Determining that one site was more or less intensively utilized than another requires rigorous quantification of various data sets from all the features being so compared. But if the midden and other refuse are collected in such a way that distorts the qualitative and quantitative content of these residues, then any results

derived from analyzing the skewed data set are spurious. As for deliniating activity areas, potential skewness is an equally serious problem. Although the presence of non-portable features such as hearths may indicate the location of possible cooking areas, defining manufacturing areas requires that certain materials occur in demonstrable quantities greater in some sites (or portions of larger site deposits) than in others. Example: the presence of volcanic glass from seemingly random locations within the overall site does not necessarily indicate that glass flaking was a significant activity at that site. But finding quantities of small waste flakes throughout the site would suggest that all or most of the site may have been a glass workshop, whereas finding these waste flakes concentrated within a limited area of the site would suggest that only a portion of the site was used as a workshop with other portions of the site likely serving other functions. This example is rather abbreviated, but the point is that if upwards to three-quarters of the volcanic glass in a potential workshop is lost through improper collecting techniques, such patterns may be obscured or lost entirely.

3. Adequacy of Conclusions Regarding Function.

Given the above discussion, the generalized conclusion offered in the "draft" report that the Barbers Point sites are similar to other typical prehistoric occupation areas (page 19) is unfounded. I feel this is so for two additional reasons. First, just what consitutes "typical...small occupation sites of common status peoples found in many coastal areas throughout the main Hawaiian Islands" (page 20) is never stated. Secondly, referring back to the statement that "preliminary evaluation of artifact and midden assemblages and densities found during the testing focused excavation on sites with defined manufacturing and subsistence activity areas" (page 11; emphasis mine) suggests to me that habitation sites which did not express such activity areas were not investigated during the salvage portion of the project. (I will return to this point in section 5 below). In reviewing the research design (see attachment, page 4: item 2) I addressed a similar problem regarding omission of potentially important sites from the salvage phase because the sites did not demonstrate the desired time range of occupation. To thus limit the investigation of the Barbers Point sites to a few select feature types will not yield the broader range of data necessary to determine the overall pattern of aboriginal settlement in the region.

4. Adequacy of Conclusions Regarding Chronology.

Returning to the "draft" report's emphasis on developing a firm chronology for human settlement at Barbers Point, it was hypothesized that:

> The spacial-temporal pattern in the occupation is represented by initial occupation of smaller, more isolated residence sites, followed by a shift to the larger, more tightly clustered residence complexes, and then a reversal of the trend in the post-European contact period (page 8).

On the basis of the data recovered, the authors were forced to conclude that this hypothesis "proved untestable due to the paucity of datable material in

a large number of the sites and to the contemporaneity of the dated samples" (page 15). The results are similarly inconclusive regarding the hypothesis that terrestrial subsistence resources increased in importance over marine resources through time.

Clearly the probable loss of volcanic glass as discussed above may well account for the "paucity of datable material". However, the above statement, among others, suggests to me a more pervasive weakness in the "draft" report: an apparent lack of due consideration for alternative hypotheses. If the dated samples are contemporaneous and are also from different sites (this cannot be determined from the present report), this and other lines of evidence may indicate that there was little or no shift in the basic settlement pattern over the apparently short period of human occupation of Barbers Point. In either respect, a line of scientific inquiry must be demonstrated to be unprofitable before it is finally abandoned, and this must be done rigorously--not by assumption or facile judgements.

5. Assumptions Regarding Adequacy of Test Results for Selecting Sites to be Salvaged.

As an example of how unstated assumptions can adversely affect subsequent research results, consider the following.

> These test excavations made possible evaluation of artifact content and density, midden content and density, depth and lateral extent of cultural deposits (in square meters), and potential subsistence and manufacturing activities and activity areas within and around features (page 10; emphasis mine).

In reviewing the research design I noted that such testing would provide a solid foundation for subsequent salvage excavations, but only by employing a well planned strategy for collecting pertinent test data in the field and only if all the test data were analyzed prior to excavation (see attachment, page 6). How these test data were analyzed to justify the above statement is not known; this is not discussed in the "draft" report nor in the two letter reports sumitted following the close of the testing phase of the project (letters dated 26 March and 4 April 1980 for the Federal and State Areas, respectively). The letter do, however, indicate that these tests were excavated pit ranging from 1 x 1m down to 25 x 25cm in size. In-field observation noted that the latter was the most frequent size. The point is that one or two test pits measuring only 25 x 25cm does not reveal the lateral extent of cultural deposits which may range from only $10m^2$ to $120m^2$ or more--the possibility of which ARCH had been appraised in 1979. Indeed, although the "draft" report generally indicates the area of excavation in most of the sites, nowhere in the report could I find any information as to the total estimated areas of the various deposits.

If the total area of a given deposit cannot be estimated, then it follows that artifact and midden densities cannot be determined nor can potential activity areas be evaluated. If so, then it seems to me that to focus salvage excavations on only those sites with "defined manufacturing and subsistence activity areas" (page 11) as determined from the test data is to in effect make decisions based on assumption and false evidence. The net result is that only 14 of the 46 potential habitation structures in

NOTE: REVIEW of REVISED ARCH PROPOSAL (12 OCTOBER 1979) for FEDERAL STOCKPILE AREA

24 March 1980

TO: Patricia Beggerly, Archaeologist
State Historic Preservation Office
Department of Land and Natural Resources
State of Hawaii

FROM: Bertell D. Davis, Archaeologist
Department of Anthropology
University of Hawaii-Manoa

SUBJECT: Review of Archaeological Research Center Hawaii Proposal:
A Research Design for Cultural Resources Data Recovery at
Barbers Point Harbor, Honouliuli, Ewa, Oahu Island, Hawaii

The following is a review of the ARCH proposal submitted to the U.S. Army Corps of Engineers, Pacific Ocean Division, to conduct salvage excavation of archaeological and palaeontological resources located in the proposed Dredged Spoils Stockpile Areas 1a and 1b at Barbers Point, Oahu. This review is prepared for use by the State Historic Preservation Office, State of Hawaii.

To begin with, the research design proposed by ARCH briefly addresses the overall archaeological significance of the Barbers Point area. The general strategy for realizing that significance is also reasonably well set forth. Testing for possible evidence of aboriginal food plant cultivation seems especially well planned and, given the particular expertise of the principal investigator, this part of the proposed study should be most informative.

A number of relevant points should be considered in greater detail, however. Serious theoretical and methodological weaknesses occur in three areas: (a) the significance of the palaeontological resources apart from their possible cultural associations, (b) the nature of the sampling scheme to be employed, and (c) the estimated project time by which to attain the stated research goals. It is first of all my opinion that the proposed field-laboratory/office time ratio of approximately 1:1 is not sufficient to properly control and analyze the materials which can be expected from the excavations at Barbers Point. Secondly, the estimated time in the field is itself most unrealistic for achieving the stated research goals, given the potential extent and complexity of especially the habitation sites in the study area. And finally, my reservations regarding adequate time are based largely on the lack of clear definition of what is proposed as an adequate and appropriate sample of information from the cultural resources.

the project area were excavated. Little or no reliable information is resently available from the remaining 32 features.

In sum, the "draft" report states that "the contractor has recovered and preserved an adequate sample of paleontological, scientific, prehistorical and historical archaeological data for analysis and interpretation of the cultural and environmental conditions prevailing during the period of human occupation" (page 5). Regarding the appended reports by Olson on the avian palaeontology, by Kirch and Christensen on the terrestrial mollusks, and by Albert on the military history of Barbers Point, the contractor's claim may be appropriate. But as for the archaeological report, for the reasons presented in this and in the attached review, I can only disagree.

Respectfully,

Bertell D. Davis
Archaeologist

Because of the interdependence of these conditions, I will first address the proposed scheduling and the implicit sampling scheme upon which it is apparently based before discussing other concerns. A table of the tentative work schedule is appended to the proposal. Field and laboratory/office time may be broken down into man-days as follows.

> Total time in the field is 390 man-days, of which: 90 are for archaeological testing; 280 for salvage excavation; and 20 for land snail and avifaunal work.
>
> Total time in the laboratory/office is 370 man-days, of which: 205 are for archaeological analysis; 50 for land snail, avifaunal and dating analysis; and 115 for all write-up, including research of historical documents.

Clearly, 205 man-days are not sufficient to adequately treat the archaeological materials recovered by 370 man-days of testing and salvage excavation. Nor are 50 man-days adequate for the effort required in analyzing land snail and avifaunal materials recovered in 20 man-days of fieldwork if that must also be combined with dating analysis.

The proposal calls for two consecutive phases of fieldwork: test excavation and archaeological (salvage) excavation. On page 8 the proposal states that "test excavations of all suspected habitation features covering an area of at least 1 square meter..." /will be done; emphasis mine/; and again on page 9, "all habitation features from study area 1a and 1b were selected for testing." However, the proposed list of features to be tested (pages 9-10) includes ahu, rock mounds and modified sinkholes. Yet 5 habitation features (3 from Area 1a and 2 from Area 1b) are omitted without explanation. If these are added to the list, the total number of features to be tested would be 52 for a minimum of $52m^2$ excavated.

On page 13 it is estimated that 1 man-day is required to excavate $0.25m^2$. Previously excavated deposits have ranged from 5-30cm deep with an average of about 15cm. Thus, $52m^2$ would equal $7.8m^3$ requiring 31 man-days to excavate.

An estimated field time of 35 working days (210 man-days for a crew of 6) for salvage excavations is also presented in a table on page 13 (see table at end of review). The proposed sample size, or volume, to be excavated is included, but nowhere is it stated what this is based upon--although it seems that the approximate combined structural area of the features selected for the test excavation phase may have been the primary criterion. This estimated area is presented in column B of the attached table. Column D of the table then converts the proposed cubic-meter sample into square meters and percent of total area, again using the 15cm average depth.

The high sample size (149%) in Site Complex 2700 probably reflects the presence of the large habitation structure where the deposit may be expected to extend beyond the structure itself. In this and other habitation sites, "every effort will...be made to excavate total activity areas to the total extent of their horizontal spread.../for the/ establishment of inter and intra feature chronology and the definition of distinct activity areas" (page 11).

However, it is then not explained why the 4 habitation features of Site Complex 2702 are to be excavated for a sample of only 70%. Nor is it explained why the 5 house sites discussed above were deleted from the test excavation phase, and presumably also from the salvage phase of fieldwork. On the other hand, the large proposed samples for Site Complexes 2704 (125%) and 2706 (133%) apparently have little to do with the single house site listed, but rather with the several ahu and modified sinkholes. If this is true, then it is difficult to explain why three rather large ahu in Site Complex 2705 were also omitted from the listed test excavations.

At first glance, the 270 man-days allowed in the tentative work schedule for archaeological testing and salvage seems most adequate in view of the approximately 240 man-days (31 for testing and 210 for salvage) extrapolated from the text of the proposal. But if the estimated time required for the deleted habitation sites and ahu are included (column F in attached table), then an additional 42 man-days, or about 285 man-days total (column H) are needed to excavate the same proportionate sample (column G) as proposed. The most important point here is that this is estimated time for the archaeology only; there are no specific references to scheduling for the palaeontology beyond the tentative schedule appended to the proposal. The palaeontological and land snail work are allowed only 20 man-days total in the field. Given the complexities expected of trying to stratigraphically relate the extinct avifauna to the cultural deposits, 20 days for the palaeontologist himself seems hardly sufficient. Unless time is sacrificed from other tasks, the palaeontology will come up short. But even if the time is sacrificed, from whatever task, the project as a whole still lacks the time to meet its proposed goals.

This is a very important point, since whatever criteria the proposed estimates were based upon, they clearly fail to take new data into account regarding the potential extent of the habitation deposits. That ARCH was aware that the cultural deposits were far exceeding the structural areas of the sites is indicated by the reference to Davis' personal communication—which included this information in addition to the location of the hearths and possible activity areas.

The recent excavations on which the communication was based showed that the cultural depoists ranged from $0m^2$ in sites which proved sterile to as much as 6.5 times the structural area of the site. Comparing the total structural area of these house sites ($118m^2$) with the total estimated area of the associated deposits (ca. $290m^2$) gives a structure to deposit ratio of about 1:2.5. If we use the conservative figure of 1:2 and apply it to the structural area of the habitation sites listed in the ARCH proposal (and to the features omitted), we get new areal figures for the site complexes to be excavated (column I in the table) from which to estimate new sample sizes (it should be noted that the percent-sample for Complexes 2700, 2704 and 2706 must be reduced to 100% since we are now using deposit and not structural area) and field time required (columns J and K). This yields a required time of about 450 man-days of archaeological excavation to fulfill the stated research goals in the manner proposed. Moreover, even allowing that the $52m^2$ of test excavation are included in this final sample, the total estimated project time, including laboratory and office time at the inadequate ratio of 1:1, would be 450 + 20 (not adjusting any time for the palaeontology

and land snails) + 470 (laboratory and office) totalling 940 man-days, or nearly 200 man-days more than proposed!

Time estimates are of course based on the amount of work proposed, the data sample required to effectively attain stated research goals, and how that work is to be conducted. This is one purpose for developing a research design. Page 2 of the proposal states that

> The purpose of this research design is to detail the general goals of the research, and the methods of data recovery and analysis required to salvage an adequate and appropriate sample of information from the cultural resources...(emphasis mine).

The general research goals are in fact rather well stated by the proposal. But just what constitutes an adequate and appropriate sample is not discussed, and the resulting problems in estimating project time are apparent as discussed above. Indeed, the statement on page 11 that "the preliminary chronology developed during testing will permit the design of a sampling strategy..." indicates that the research design itself is incomplete and that the adequate and appropriate sample has not been defined.

The problem is two-fold. First, neither the customer nor the reviewer can confidently determine the relationship between the proposed work and the estimated time to do that work, and ultimately (for the customer at least) the cost. Secondly, for the archaeologist himself not to have clearly defined at least a preliminary framework to sample what and how much for what ends leaves him without planned control over the progress of the work. One simply does not recognize whether the expected data or new and potentially significant data are forthcoming without some basis of comparison. Thus, the sampling design is a tool for planning ahead as well as for evaluating results, and as such it should be defined and implemented from the start. If modifications become necessary as work progresses, the archaeologist will then be in a position to control for it.

That some advance thought has been given to sampling is evident in the proposal. But it seems to me that this is largely implicit, unorganized and possibly contradictory. Consider the following statements (some already mentioned above).

1. It was twice stated that test excavations would be conducted in all habitation sites in Areas 1a and 1b (pages 8-9).

However, 5 habitation features were omitted without explanation from the list of specific features to be tested. If, as discussed below, the purpose of the tests is to identify particular sites for later salvage excavation, then these 5 sites would be omitted from the study completely and no data would be had from them beyond that from the survey. Given the significant data recovered from the recent excavations in similar sites at Barbers Point, this represents a potentially serious loss of information--especially for determining chronological relationships.

2. The test excavation phase is intended to "permit the design of a sampling strategy in which sites and features of different ages

> are excavated for the purpose of developing a diachronic sequence for settlement patterns...archaeologically expressed cultural variability through time. Therefore, features which reflect the greatest time range both internally and externally will be selected" (page 11).

This in itself is a reasonable strategy for obtaining relevant settlement data. It is also clearly a sampling frame in which the first echelon of the sample is composed of sites selected among sites. But habitation features which fall into this category could be among the 5 for which no testing in proposed. Moreover, what <u>is</u> the greatest internal and external time range, and what does this mean in terms of the overall period of aboriginal settlement which is so far dated at about A.D. 1600-1870? Suppose a number of task-specific features exhibit contemporaneous but relatively short duration of use--are these to be ignored because they do not reflect the greatest time range? If so, this seems to contradict the purpose of the sampling scheme for excavating sites and features of <u>different</u> ages.

3. "Every effort will...be made to excavate total activity areas to the total extent of their horizontal spread.../<u>for the</u>/ establishment of inter and intra feature chronology and the definition of distinct activity areas" (page 11).

I agree that control of inter and intra feature chronology is critical in determining the nature of the aboriginal settlement and how it may have changed through the prehistoric and early historic periods. But I am uncertain as to what is meant by "total activity areas". In my experience at Barbers Point, this could be virtually the entire cultural deposit associated with <u>each</u> house site, particularly since these deposits <u>have not</u> yet proven to be continuous from one house site to another. If this is what is meant by total activity areas, then certainly there is not enough time allowed in the proposal for such excavation, especially since it is not determined (or at least not stated) how many sites are finally to be excavated. Indeed, one gets the feeling that an ill-planned time schedule may ultimately become the critical factor in the final sampling design. However, even if time were available, I question whether such an approach would be profitable for the research. Would it not be more efficient to systematically sample (note that I <u>do not</u> mean merely a few test squares) <u>all</u> the habitation sites to answer specific questions (especially inter feature), and then do total excavation of several sites selected to answer other questions (especially intra feature) derived, or more clearly deliniated, from the initial sampling phase? Granted that this may seem to be what is proposed by ARCH, but it is a methodologically more rigorous approach.

If, on the other hand, total activity areas are meant to be only the hearths and the presumably associated volcanic glass core and flake remains referenced in the background section of the proposal, then I must ask what of the rest of the deposit in this site or that site? By focusing exclusively on one aspect of the house sites at Barbers Point we will come to know a great deal about that aspect. But we will know little or nothing about other aspects equally important to understanding especially the nature of the local residence groups--whether these be single or multiple households, or some other social unit.

4. "Shell, bone, and other residue will be screened from the matrix with a 100% sample collected..." (page 8, 11).

Again the research design is incomplete since the field methods are not further elaborated. What is meant here by a 100% sample collected? If it is intended to mean that all midden in the excavated squares will be collected, then this obviously is in error since some of that midden will be lost through the screen. The only 100% sample possible is of all midden remaining in the screen. But other questions arise. Will the midden be sorted from the screens in the field, or will all screened material be processed in the laboratory? The latter is the only way to assure complete collection. Also, what mesh size will be used, and will control units be excavated to determine the probable rate of material lost by screening? This is most critical, since the recent work at Barbers Point has shown, for example, that 60-80% of the volcanic glass artifacts may be lost by using 1/4-inch mesh screens--a loss which could serious affect inferences regarding activity areas.

5. And finally, regarding the sampling problem, "food residues (midden) analysis, including sorting of components, species identification, weighing and calculations of weight percent, and concentration indicies will be done. Samples will be selected and analyzed in this way to document spacial and temporal patterns of residue disposal and subsistence" (page 14).

Accepting that, with the appropriate field methods, these residues will be collected so other more detailed analyses may be carried out by interested researchers at a later date, the proposed analysis seems most adequate for providing an initial interpretive foundation. If done rigorously, this will also suffice for the purposes of the contract and for fulfilling responsibilities of historic preservation. But I can only infer from the concluding sentence that the analysis will use only what amounts to samples of samples. While this may be an appropriate strategy for analyzing midden from features selected for large-scale excavation, what of the other sites in which only a small portion of the cultural deposits are excavated? Again it is not stated how much or from which possible sites these samples will be selected.

Beyond the scheduling and sampling problems discussed thus far, I must comment on what I see as a number of procedural assumptions relating the test excavation phase of the project with the archaeological salvage phase. First of all,

> "As a result of the test excavations /in the suspected habitation sites/ it will be possible to evaluate artifact content and density, midden composition and density, depth and lateral extent of cultural deposits in square meters, and potential subsistence and manufacturing activities and activity areas within and around features...and on the basis of the results it will be possible to grasp the major elements of the research universe" (page 8).

What is proposed here would indeed provide a solid foundation for the major phase of salvage excavations. To accomplish this, however, would clearly require not only a well planned strategy for collecting pertinent test data in the field, but also that all the test data be analyzed in detail before the subsequent phase of research be undertaken.

As already mentioned, this preliminary analysis will include age determination of the volcanic glass for developing a chronology which will be the basis of the sampling design. There are only two laboratories in the state for glass analysis. The volume of work which both are now handling is such that some delay in receiving the results of the analysis must be expected, especially since glass may be recovered from all 33 suspected habitation sites and that perhaps 5-10 samples from each site may be required to assure dating of the approximate duration of occupation. This rather high initial sample is suugested from experience in which all 5 initial glass samples from two recently excavated sites each proved opaque in thin-section, and thus not datable.

Because of the two-phase organization of the proposed project with its heavy emphasis on the analysis of the test data as the foundation for developing the ultimate design of the archaeological salvage, I most strongly recommend that an interim progress report be prepared for review by both the U.S. Army Engineer's Environmental Section and the State Historic Preservation Office. Such a report could be quite preliminary, but it should thoroughly discuss the test data and the sampling design derived from that data to assure that expected research goals will be reasonably well met.

Up to this point I have focused only on the cultural resources, and indeed the proposal itself focuses primarily upon the archaeology. On page 2 the proposal states that

> "...19 separate sinkholes [are recommended by the Bishop Museum] for paleontological salvage. We feel that paleontological research on such a scale is unnecessary at this stage as the main focus of the paleontological work is on human avifaunal relationships" (emphasis mine).

First of all, let us not forget that a good part of the significance of the Barbers Point area rests on the extinct bird remains in addition to the cultural resources, and that resources which have demonstrated significant value for natural history are equally important in the view of the National Register as are the cultural resources. And secondly, once this work is completed the archaeologist has in effect said that no further work is necessary in Areas 1a and 1b. I must therefore ask at what stage will palaeontological research at the scale recommended by the Museum be necessary? If it is unnecessary in Areas 1a and 1b, then will it be appropriate in the State's shore-side facilities area, or in alternative stockpile areas, or will it be only once these resources are lost and it is too late? In my opinion, this proposition is totally unacceptable without some clear explanation as to why further work is unnecessary.

Indeed, if the Museum's recommendations go beyond the perceived goals of the proposed research, then why call for additional testing for palaeontological remains?

> "In addition five to six unmodified sinkholes will be tested in order to evaluate paleontological potential..."(page 9).

The Museum tested a total of 24 sinkholes in Area 1b located within quadrats selected by a systematic stratified sampling frame. Bird remains were found

in 19 sinkholes, or 80% of the test sample, and 3 of these also yielded extinct bird remains. It is very likely, based on past experience, that more extinct avifaunal material will be found upon closer examination of the material from the other sinks. The additional testing may be proposed for Area 1a for which there is little preliminary information, but this is not stated to be the case.

In sum, I do not find this proposal adequate or appropriate for the research that is required by the archaeological and palaeontological resources at Barbers Point. Although the general research goals are well stated for the archaeology, they are too limited with respect to the extinct avifauna. Both the field and laboratory methods understated, and the sampling design itself seems largely undefined. Thus, it is most difficult to evaluate the proposed time schedule with any degree of confidence. If unchanged, in the long run these deficiencies can only hinder the successful completion of what should be rightfully significant research into one sector of Hawaii's prehistory.

Estimates on extent of habitation deposits based on excavations in Survey Zone II (see Davis and Griffin 1978, Eds. Barbers Point Archaeological Survey).

Site/ Feature	Structural Area	Estimated Deposit	Deposit Area as % of Structure Area
2714-2 (C-shape)	$15m^2$	Sterile	0
2714-3 (C-shape)	9	Sterile	0
2714-4 (C-shape)	7	Sterile	0
2714-5 (C-shape)	10	$65m^2$	650 %
2716-2 (Enclosure)	25	125	500 %
2716-3 (Enclosure)	17	17	100 %
2716-4 (Enclosure)	15	20	133 %
2716-5 (C-shape)	20	25	125 %
2716-6 (C-shape)	6	40	666 %
	$118m^2$	$292m^2$	

Ratio of Structural Area to Estimated Deposit: $1:2.47m^2$

A Site Complex	B Struct Area	C Propose Sample	D Sample by Area / %	E Propose Field Time	F Adjust Area	G Adjust Sample	H Adjust Field Time	I Total Area	J Total Sample	K Total Field Time
2700	$67m^2$	$15m^3$	100 / 149	10 days	$67m^2$	$15m^3$	10 days	$120m^2$	$18m^3$	12 days
2701	30	3	20 / 67	2	30	3	2	48	5	3
2702	43	4.5	30 / 70	3	43	4.5	3	86	9	6
2704	8	1.5	10 / 125	1	8	1.5	1	13	2	2
2705	48	3	20 / 42	2	56	4	3	79	5	3
2706	15	3	20 / 133	2	47	9	6	95	14	10
2707	135	7.5	50 / 37	5	135	7.5	5	135	7.5	5
9646-9684	123	15	100 / 81	10	145	18	12	422	51	34
				35 working days			42 working days			75 working days

Estimated rate of excavation is $0.25m^3$ per man-day, and using a 6-man crew

Therefore: 35 working days -- 210 man-days
42 working days -- 252 man-days
75 working days -- 450 man-days

SOPA Society Of Professional Archeologists

October 9, 1973

TO: Regional Coordinators for Peer Review

FROM: Carl H. Chapman, SOPA Coordinator with the Contractor's Authorized Representative

SUBJECT: Suggested Guidelines for Peer Review

You may have a copy of the contract with SOPA to use as a guide. Enclosed is another copy. Note that our review services will be called for directly by IAS field offices only after first obtaining oral approval by the Contracting Officer's authorized representative (CAOR-WASCO), Lawrence E. Aten. Although the contract specifies that "Otherwise, coordination will be carried out directly between SOPA and the requesting IAS office", I have interpreted that to mean that I am to be informed in advance of all reviews (as coordinator with CAOR-WASCO and as the one who has to certify all expenditures reported and payments requested). Expenses of reviewers will be reimbursed. Receipts will be needed for travel, lodging and related expenses by the regional coordinator and by the peer reviewers selected by the regional coordinators. Request for reimbursement should be sent to Dr. Stanley South, Secretary/Treasurer, SOPA, Institute of Archeology and Anthropology. University of South Carolina, Columbia, South Carolina 29208

Coordinators should select peer reviewers who have experience in and a broad knowledge of the region where the project is being proposed, reviewed or monitored whenever possible. Also, if possible find someone close to the project to be monitored or close to the regional headquarters for the TEC evaluation process. Honoraria may be offered on the basis of $100 per day in those instances where an individual is monitoring a project or is participating in a proposal evaluation/technical evaluation committee (TEC). Scope of Work review, Proposal Review and Report Review honoraria should be based upon the length of the document to be reviewed, probably no more than $50 for Scope of Work and Proposals. If more than $100 is thought to be necessary, clear this with me first as our funds are limited, and I will need to be certain that we have sufficient funds to provide the honoraria, and complete the contract under its stated terms.

We should keep in mind that the peer review process is designed primarily to maintain quality in the whole process of archeological contract work. It should be stressed to all reviewers selected that their reviews should be frank, honest, scrutinizing and

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reflect the b[illegible] professional judgment o[illegible] the reviewer. A statement of the methods and rationale used in making the review should be included in the reviewers report, and all statements concerning good and bad aspects of the particular project, report, etc. reviewed should be explicitly and fully documented. No reviews will be anonymous and reviewers should be told this when solicited to make the review. Coordinators must check with the regional chief of the regional office to determine whether a conflict of interest might exist before the reviewer is selected.

The following are questions suggested for reviewers to ask in each review area (If you have other suggestions please let me know what they are.)

SCOPE OF WORK:

1. Is a detailed research design required?
2. Does it take into consideration all cultural resources, and if not, are they being taken care of in another scope of work covering aspects other than archeology?
3. Does it require or encourage a multi-disciplinary approach? (*If pertinent*).
4. Are specific statements and documentation of site significcance and site eligibility for the National Register required? (*If pertinent*).
5. Does it provide a reasonable means of making available the resulting data for legitimate researchers?
6. Does it require a section in lay language of the results in terms of public interest and understanding? The public has the right to know what their money was spent for and how the results relate to the public good.
7. Does it require that the contractee demonstrate that they have or can furnish the necessary professional expertise with experience and knowledge in the region and the capability of preservation and curation of the data obtained for a specified time into the future or in perpetuity?
8. Does it require that the institution, individual or company demonstrate that they have the physical capability and resources to conduct the project properly in the best interests of the cultural resource base?
9. Does it require that the final report provide an evaluation of the place that the data recovered fits in the regional archeological sphere?
10. Does it require that the contractee provide a detailed statement as to the contribution that the research has made to archeology and to the nation?
11. Is a report format required consistent with standards of professional journals in archeology?
12. Is there a requirement that recommendations be made concerning the archeological-historical resource base in the future?

PROPOSAL REVIEW:

1. Are research problems which will be investigated stated in specific terms? Are the investigation of the problems a necessary part of the project and coordinated with the Scope of Work?
2. Is the budget reasonable for the work proposed?
3. Are non-archeological personnel needed to carry the work to reasonable conclusion provided for? Here such expertise as ethnobotanists, soil specialists, remote sensing experts, etc. should be identified and their availability specified. (If pertinent).
4. Is there adequate provision for curation of resulting data and has this been authenticated. Furthermore has it been demonstrated that the data (artifacts, notes, photos, etc.) will be reasonably available for use by the archeological community within the relatively near future.
5. Is there provision for dissemination of the final report to the archeological community in some reasonable form and within a definite time schedule?

PROJECT MONITORING:

Before monitoring a project the Regional Coordinator should make certain that the individual doing the monitoring has available a copy of the Scope of Work and the Project Proposal. These should be in the hands of the one doing the monitoring so they can be reviewed well in advance of visiting the project. The following are suggested as means of assessing project actions.

1. Determine whether the research design in the proposal is being followed in a reasonable manner.
2. Note whether the requirements in the Scope of Work are being met in a timely, reasonable fashion.
3. Check to see if project staff and facilities are commensurate with those in the proposal.
4. Ascertain whether or not adequate provision has been made for maintaining contact between the principal investigator(s) and the in-field staff and laboratory staff.
5. Find out whether specific problems stated in the proposal are being addressed satisfactorily by the project work.
6. Check the record keeping, laboratory work and personnel safety provisions on the job by interviews and observations.

REPORT REVIEW:

Scope of Work and the Project Proposal should be available to the report reviewer at the same time as the report. The coordinator should arrange for this with the chief of the IAS region. Questions for the reviewer to ask are suggested as follows:

1. Does the report fulfill the Scope of Work requirements?
2. Has the research design stated in the proposal been followed?
3. Have problems stated in the proposal been satisfactorily approached?

4. Are judgments of site significance explicitly stated and justified fully with documentation?
5. Is the methodology used explicated sufficiently?
6. Are recommendations concerning the resources in the future (if any) reasonably attainable?
7. Are conclusions logical?
8. Is the report organized so that pertinent information is easily found?

The preceding suggestions for reviewers are perhaps redundant or unnecessary for many reviewers. They have been noted because the reviews we are conducting are different from those for NSF, NEH, etc., because we are dealing with legal contracts that must be fulfilled as the contracts state. The prime purpose of most of the contracts to be reviewed is not basic research, though basic research may be a part of the research design. Any suggestions for additions or deletions of the suggestions would be appreciated.

Please keep in touch. My phone numbers are Office: 314-882-8364, 314-882-4465, 314-882-3544 and Home: 314-442-1243.

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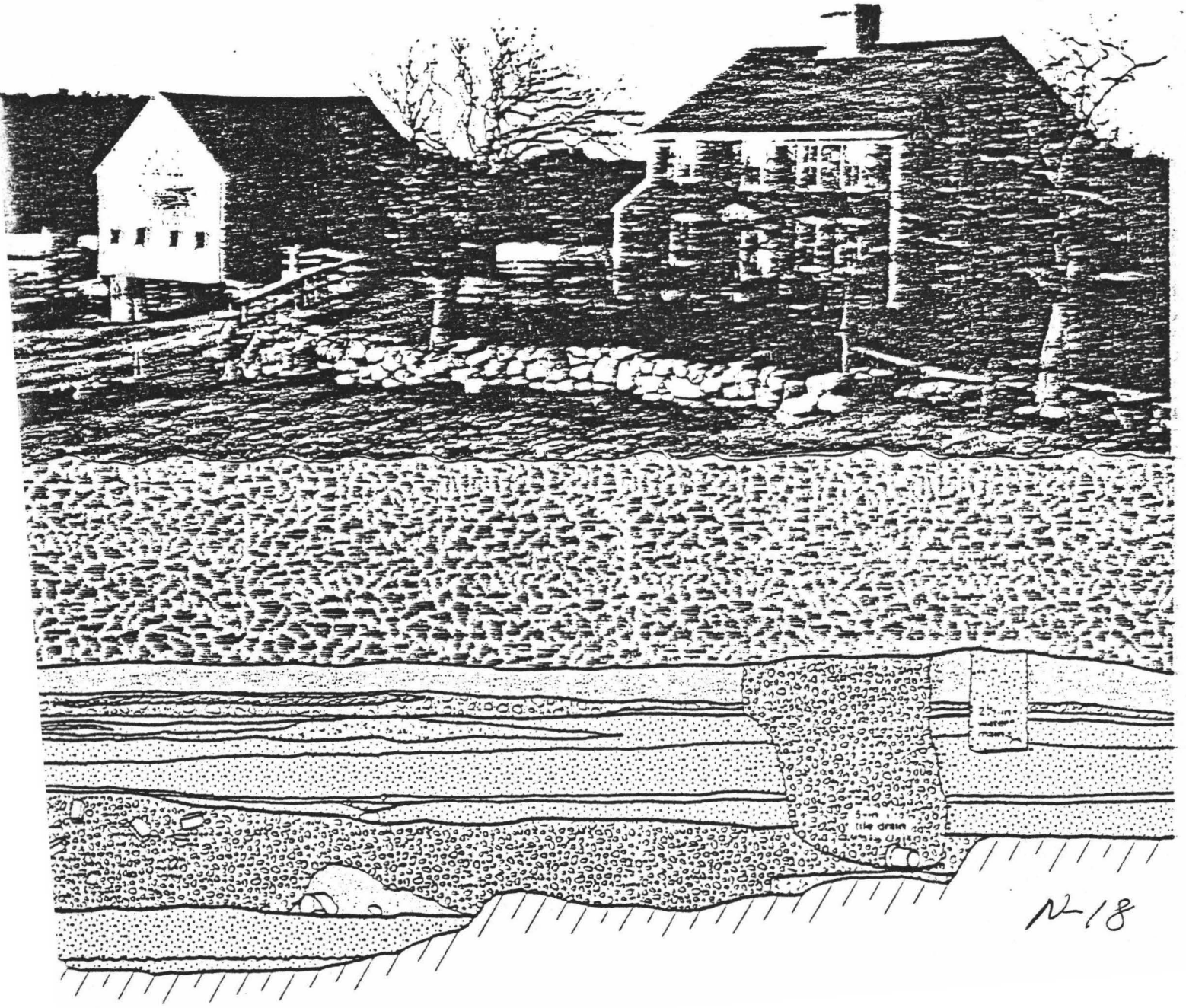
Treatment of Archeological Properties

A Handbook



TREATMENT OF ARCHEOLOGICAL PROPERTIES:

A HANDBOOK

A guide to principles, procedures, and methods for the treatment of archeological properties in accordance with 36 CFR Part 800.

Approved by the Council's Archeology Task Force September 26, 1980

Endorsed by the Advisory Council November 5, 1980.

INTRODUCTORY NOTE

The Council is working with the Department of the Interior toward publication of this Handbook together with the Department's guidelines for archeological surveys, evaluation, data recovery, and related activities, so that Federal agencies, States, local governments, contractors, and the archeological community will be able to find all major Federal guidelines for archeology between two covers.

While this effort is in progress, the Council is pleased to make this photocopy of the Handbook available for use.

Robert R. Garvey, Jr.
Executive Director

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TREATMENT OF ARCHEOLOGICAL PROPERTIES:

A Handbook

PREFACE

Purpose

This Handbook is an elaboration on and explanation of the Supplementary Guidance published on November 26, 1980, in the Federal Register (45 FR 78808), under the authority of the Executive Director of the Advisory Council on Historic Preservation set forth in 36 CFR Sec. 800.14. As indicated by the cited section, its purpose is "to interpret...(the Advisory Council's) regulations to assist Federal agencies and State Historic Preservation Officers in meeting their responsibilities."

The Handbook is designed to assist the parties consulting under the Council's regulations to determine how archeological programs and projects should be conducted. It is also designed to assist the Council staff, Federal agencies, and the State Historic Preservation Officers in implementing recommendations of the Council's 1979 Task Force on Archeology. Most generally, it sets forth principles that will guide the Council staff in its review of proposals for archeological data recovery projects.

Background

For several years the Advisory Council has been concerned about treatment of archeological resources under the authority of Section 106 of the National Historic Preservation Act, Executive Order 11593, and the Council's regulations (36 CFR Part 800). Cases involving archeological resources and concerns have often presented difficult problems, and have stimulated controversy. In 1977, the Chairman of the Council appointed a Task Force on Archeology, which rendered its report to the Council in 1979. This report included a number of recommendations, directed to Federal agencies, the Secretary of the Interior, and the Council staff. Also in 1979, the General Accounting Office (GAO) conducted an investigation of archeological work at New Melones Dam and Reservoir in California, which had been the subject of a Memorandum of Agreement and substantial subsequent controversy. The GAO investigation was later broadened to deal with the general topic of how archeology is handled by Federal agencies. An important question raised by the GAO early in its investigation was that of "how much archeology is enough" in order to mitigate the adverse effects of Federal construction projects. The Executive Director of the Council takes the position that there is no simple standard by which to determine how much archeological data recovery is sufficient in every case, but that the nature, scope, and boundaries of each data recovery program should be determined by the parties consulting under the Council's regulations. Supplementary guidance was determined to be needed to simplify such consultation.

This Handbook was prepared under the principal authorship of Dr. Thomas F. King, the Council's Senior Archeologist and Director of the Office of Cultural Resource Preservation. It was extensively coordinated with Dr. Bennie Keel, the Department of the Interior's Departmental Consulting Archeologist.

It was reviewed, commented upon, and approved after extensive rewriting and editing by the Council's Archeology Task Force on September 26, 1980. The Task Force members are as follows.

Chairman: Dr. Larry Tise, National Conference of State Historic Preservation Officers

Alternate: Dr. Adrian Anderson, Iowa State Historic Preservation Officer

Members:	Department of Agriculture:	Mr. Barry Flamm
		Dr. Janet Friedman
	Department of the Interior:	Dr. Bennie Keel
	Department of Defense:	Mr. Richard Leverty
	Department of Transportation:	Mr. Robert Crecco
		Mr. Bruce Eberle
	Smithsonian Institution:	Dr. Paul Perrot
	National Endowment for the Humanities:	Dr. Kathryn Abramovitz
	State Historic Preservation Officers:	Ms. Patricia Weslowski (Massachusetts)
	Advisory Council Member:	Dr. Joseph Mahan, Jr.
	Society for American Archeology:	Dr. Ruthann Knudson
	American Society for Conservation Archeology:	Dr. Margaret Lyneis
	Society of Professional Archeologists	Dr. James Hester

The Handbook was endorsed by the full Council at its November, 1980 quarterly meeting. Part II of this Handbook, the "Executive Director's Procedures," was published as Supplementary Guidance on November 26, 1980, in the Federal Register (45 FR 78808).

Organization

The Handbook is divided into four parts. The first discusses principles that will guide the Executive Director in dealing with archeological matters. It should assist agencies in meeting their responsibilities under 36 CFR Part 800 by helping them understand the conceptual basis for Council advice, requests, and positions in the consultation process.

The second part sets forth internal procedures the Executive Director will employ in reviewing proposals for treatment of archeological properties. This is provided in order to help agencies ensure that determinations of "No Adverse Effect," Preliminary Case Reports, and other documentation provided to the Council will be organized so as to facilitate consultation. This part of the Handbook supersedes The "Guidelines for Making 'Adverse Effect' and 'No Adverse Effect' Determinations for Archeological Resources in Accordance with 36 CFR Part 800."

The third part provides recommendations for use in developing archeological data recovery programs. These are based on the principles set forth in the first part of the Handbook; full consideration of them by agencies planning data recovery will help ensure that documentation submitted to the Council is complete and understandable.

The fourth part includes two appendices presenting examples of research topics which provide bases for organizing archeological data recovery operations.

Development of this Handbook has been coordinated with the Department of the Interior. It is designed to be consistent with the standards and approaches set forth by the Department in 36 CFR Part 1210. Agencies are urged to fully acquaint themselves with 36 CFR Part 1210 as well as with this Handbook when considering archeological data recovery operations.

Interpretation and Application

This Handbook will not be interpreted inflexibly by the Council. For example, should an agency propose an expensive data recovery program in an urban area where there is an active, responsible, avocational archeological society, the Executive Director may draw the agency's attention to Part III, Section VIII of the Handbook, and ask what consideration has been given to involving the avocational group as a way of reducing costs and serving multiple public interests. If the program is being undertaken in circumstances where it appears that effective use of volunteers would be difficult, however, the Executive Director will not make an issue of volunteerism isimply because it is in the Handbook.

The principles set forth in Part I will generally guide the Executive Director in dealing with archeological properties. They will provide a rationale for the Council's day-to-day activities where archeological matters are concerned. The procedures in Part II will be used with varying degrees of rigor. With respect to "Identification of Archeological Properties," Section II, the Executive Director will try to be sure that an adequate job of identification has been done. This does not require that the Executive Director review every survey report, only that the Executive Director be able to determine whether the responsible agency has made a reasonable effort to identify potentially affected properties. Similarly, the Executive Director will try to be sure that, within reason, adequate consideration has been given to preservation in place (Sec. III), and non-archeological interests (Sec. IV). If it appears that preservaton in place might be feasible, or that there are non-archeological interests to be considered, the Executive Director will try to get the agency to look into the possibility and document its findings, but the Executive Director will not, as a matter of rote, demand such documentation. Sections V through VII will be used generally in reviewing data recovery plans.

With respect to budgets, some agencies are legitimately unable to provide budgets for review, and some will not do so as a matter of policy. Budget review is not the Council's main function, and the Executive Director will not insist on doing so as a matter of course. Where a budget is provided, however, the Executive Director will review it to see if anything appears unreasonable. The Executive Director will also be available to discuss appropriate expenses with agencies that seek advice.

In constrast with the above, fairly flexible procedures, Sec. X (Negating Adverse Effect) must be used with greater rigor. When an agency determines that its undertaking will have no adverse effect because of data recovery, it is making a very positive statement about the nature of the affected property and the quality of its data recovery effort, and it should be able to back up its claims.

In several subsections, notably X.3, XI.1.B., and XIII.1, reference is made to establishing data recovery plans "consistant with the 'Recommendations for Archeological Data Recovery.'" This does not mean that data recovery plans must conform exactly to the "Recommendations." "Rather, the agency should use the "Recommendations" as general guidelines. If a data recovery program contains a glaring omisson, from the point of view of the "Recommendations," the Executive Director will recommend its correction. If the omission appears serious, and no compromise can be reached, the Executive Director may determine that a failure to agree exists and the consultation process must be terminated. On the other hand, the Executive Director will not demand something just because it is in the "Recommendations." The "Recommendations" are not a cookbook. The "Recommendations" may be prescribed for step-by-step use in Programmatic Memoranda of Agreement or similar instruments, where an agency agrees to establish a data recovery plan at a later date.

PART I
PRINCIPLES IN THE TREATMENT OF ARCHEOLOGICAL PROPERTIES

Introduction

Section 106 of the National Historic Preservation Act requires that Federal agencies take into account the effects of their undertakings on properties included in or eligible for the National Register of Historic Places, and afford the Advisory Council the opportunity to comment on such undertakings. Section 101(a)(1) of the Act defines properties "significant in American... archeology" among those that may be included in the Register.

Council comments are rendered through the process described in the Council's regulations (36 CFR Part 800). This process characteristically involves consultation among the Executive Director, agency officials, and the responsible State Historic Preservation Officer(s) to decide on methods to avoid, reduce, or mitigate adverse effects on historic and cultural properties. In this consultation process, the Executive Director is guided by certain basic principles about the nature of such properties and about appropriate and inappropriate methods of treating them. This part of the Handbook sets forth the principles that guide the Executive Director with respect to archeological properties.

Archeological properties are those properties included in, eligible for, or potentially eligible for, the National Register, whose significance lies wholly or partly in the archeological data they contain. Archeological data are data embodied in material remains (artifacts, structures, refuse, etc.) utilized purposely or accidentally by human beings, in the spatial relationship among such remains, and in the environmental context of such remains. Archeological data include historic, prehistoric, and scientific data as defined by the Department to the Interior in accordance with Public Law 93-291 (cf. 36. CFR Part 1210).

The following pages discuss 13 principles which the Executive Director will use in consultation with Federal agencies and State Historic Preservation Officers concerning archeological properties.

Principle I: Archeological research, addressing significant questions about the past, is in the public interest.

Among the stated intents of the National Historic Preservation Act is "to insure future generations a genuine opportunity to appreciate and enjoy the rich heritage of our Nation" (P.L. 89-665, Preamble). One of the many ways in which people appreciate and enjoy this heritage is through archeological research.

Archeological research seeks to answer major questions about human nature, human history, and the changing environment (see Appendix A). Answering such questions helps us to better understand ourselves and our world, and better prepare for our future.

Archeological research can also contribute directly to public understanding and hence appreciation of specific events in the past, specific processes of historic and prehistoric human development, and the history and prehistory of specific places and groups (see Appendix B).

Principle II: Archeological properties may be sites, buildings, structures, districts, and objects.

Archeology is often erroneously thought of as involving only excavation in the ground, and as addressing archeological "sites" which may or may not contain the remains of buildings or other structures. In fact, however, it is possible for any sort of property to be "archeological" if its significance lies wholly or in part in the information it contains. For example:

1. A group of sites comprising a district might be important because one can learn about population dynamics, interaction processes, or social organization by studying the relationships among the sites.

2. An early 20th century garage (building), containing tools, car and buggy parts, receipt books, old trade magazines, and instruction manuals, might be important wholly or in part because of what it can tell us about the economics and social implications of the development of the automobile.

3. A bridge (structure) might be important in whole or in part because its study could elucidate methods of design, engineering, and construction.

4. A rock covered with petroglyphs (object) might be important because of what its study could reveal about symbolism and ancient forms of communication.

It might be appropriate to treat any property like those illustrated above as archeological, with due attention to any other types of historical, cultural, or architectural significance it possesses.

Principle III: Archeological properties are important wholly or in part because they may contribute to the study of important research problems.

An archeological property may have been created during the prehistoric period, the historic (postcontact) period, or both; it may consist of materials above the ground, below it, or both. It may have cultural or religious value to particular social groups, it may have actual or potential use as an exhibit in place for public understanding and enjoyment, it may be exemplary of great or vernacular architecture; it may contain artifacts of great beauty and monetary worth, or it may contain nothing but fragments of pottery, chips of flint, or glass shards. Whatever such characteristics it may or may not have, the defining characteristic of an archeological property is that it can be studied in order to identify, learn about, or solve problems in our understanding of the past. Properties draw their archeological value from the assumption that they can be used fruitfully for research.

Principle IV: Not all research problems are equally important; hence not all archeological properties are equally important.

Archeological research problems are derived from a variety of other disciplines as well as archeology itself. Archeologists address problems that are of importance to geographers, anthropologists, social historians, geologists,

biologists, medical researchers, climatologists, ecologists, and land use planners, among others. Archeologists also address questions that are of humanistic importance to local communities and social groups: "what was our town like 100 years ago?"; "how did our people live 3000 years ago?"; "when and how did our ancestors come to this area?". Finally, archeologists address questions that are of technical importance to archeologists: "how do refuse piles change over time into archeological sites?"; "how different are the trashpits of rich people and poor people after they have been buried for 200 years?" "does the processing of animal hides result in discernable changes in soil chemistry?". These questions are useful because they help archeologists become more skilled at interpreting the archeological record, although they may have no intrinsic value.

Not all research questions are equally important. An archeologist can develop research questions about almost any distribution of materials. Coming upon a scattered group of beer cans along a country road, an archeologist could easily undertake research into the drinking (and other) behavior that produced the phenomenon, by studying what had been left behind and how it was distributed on the land. The fact that such research can be done, however, does not mean that it is important enough to do. It may be more efficient to learn about drinking behavior by talking with the drinkers. We may not care enough about drinking behavior to bother about it. Only if (a) we think it is important to learn about drinking behavior, and if (b) studying discarded beer cans appears to be an efficient way to learn about such behavior, is such a study worth doing. In the same way, one can learn something from any archeological property, but what one can learn may not be worth the trouble to learn it. The question: "how many type 5B2 arrowheads are there in site 923" has no importance, unless answering it will provide a clue to answering some larger question. The question: "how have cultural systems changed over the last 10,000 years in Nevada" is important to the extent that (a) answering it may help anthropologists understand how cultural systems change in general; (b) knowing how culture has changed in the area may help us understand how the environment has changed, which can contribute to a better general understanding of the physical processes that affect our lives; (c) answering it may contribute to answering or asking other questions (e.g., "what caused the Paiute and related groups to spread through the Great Basin"), and (d) answering it may contribute to the understanding and appreciation that Nevadans have for the area in which they live. The question: "what will we find in the trashpit of a 17th century merchant in Manhattan" is only a matter of curiosity unless there is something about 17th century Manhattan merchants that is (a) likely to be learned from their trash pits and (b) likely to enlighten us about some important historical event or process.

If an archeological property can be used only to address unimportant questions, or questions that have been or can be better addressed using other sources of information, then the property itself is unimportant from an archeological standpoint. Of course, the same property may be valuable for some other reason, such as the quality of its architecture, its association with some important historical event, or its cultural significance to a local group.

Principle V: Treatment of an archeological property depends on its value for research, balanced against other public values.

All else being equal, any property that contains information that may help answer important research questions should be preserved in place for careful, long-term study by qualified scholars. Since all else is seldom equal, this ideal often cannot be attained. Decisions about treatment of archeological properties requires balancing the research value of each property or group of properties against at least 3 other considerations:

A. Other aspects of the property's significance (architectural, cultural, artistic, etc.). If the property is perceived by a local social group to have religious cultural value, for example, this value must be taken into account.

B. Other societal needs, most obviously those needs that stimulate the Federal undertaking that may affect the property.

C. Preservation potential; if the property cannot be preserved in any event (eg., if it promptly will be destroyed by private construction, absent the Federal undertaking that threatens it), there is no point in considering preservation treatment.

Principle VI: Eligibility for the National Register suggests, but does not define, how an archeological property should be treated

Archeological properties are often listed in or determined to be eligible for the National Register of Historic Places in whole or in part because they contain "information significant in history or prehistory (36 CFR Sec. 1202.6(d). Such a determination implies that the property can productively be used for archeological research. That the information is "significant in history or prehistory" also implies that at least one of the other National Register criteria is satisfied, for example, that the information can be studied to learn about "events that have made a significant contribution to the broad patterns of our history" (36 CFR Sec. 1202.6(a)). If a property is determined eligible for the National Register entirely or primarily because of the information it contains, the implication exists that it would be desirable, under appropriate circumstances, to extract that information and make it available for study. It does not necessarily follow, however, that every archeological property determined eligible for the National Register is automatically determined appropriate for excavation or other forms of archeological investigation.

An archeological property may be important for nonarcheological reasons as well, and these may take precedence over its utility for research. For example, it may be in the public interest to preserve intact a property of cultural value to a local community, even though its excavation would help answer important research questions.

Even if a property is important solely for the information it contains, extraction of the information may not be in the public interest. Consider, for example, the following hypothetical cases:

Case 1: An ancient village site contains complicated soil strata, each of which contains the minute remains of plants and animals, well preserved but fragile. The remains are of great potential value to the reconstruction of past environments and food habits, but the excavation and analytical technology available to archeologists today is not sufficient to extract all the useful information contained in the strata. In such a case, all else being equal, it would be most appropriate not to excavate the site until the relevant technology has developed further.

Case 2: Most of the prehistoric sites in a metropolitan area have been destroyed over time by construction, agriculture, and other forms of modern land use. In one portion of the area, a cluster of fairly intact sites is found, and determined eligible for the information it may contain. Since this cluster is in essense the only surviving representative of the area's prehistory, it would be beneficial to preserve it for careful excavation over many years, as research questions about the area's past are refined.

Case 3: A Revolutionary War era shipwreck is found on the Continental Shelf, and determined eligible for the information it contains about marine architecture and the lifeways of 18th century sailers. Major historical studies are known to be underway or planned into this general research topic, by various university scholars. It is reasonable to expect that in another ten or twenty years, as these studies are completed, it will be possible to develop much more specific research questions than can now be used to guide investigation of the wreck. All else being equal, it would be beneficial to put off excavation of the wreck.

Case 4: An historic homestead site is determined eligible for inclusion in the National Register as part of an archeological district. No standing buildings remain, and the site is valuable solely for the information it may yield about local residential patterns in the early 19th century. Subsequent study of the district, historical records, and other source material in the context of current anthropological, geographic, and historical theory results in a research design that should answer all important questions about local residential patterns through the study of several other sites; the information contained in this particular homestead is not necessary. In such a case, excavation of the homestead is not cost effective.

Case 5: A small prehistoric site is determined eligible, during planning for a reservoir project, because it contains information that may be important to defining local settlement patterns during the period 200-100 B.C.; these in turn may indicate how the environment changed, how new forms of technology were adopted, and how social organization changed during the period. The project is delayed for a number of years, and in the meantime a great deal of research is done on similar sites. All major questions about settlement patterns during the subject time period are answered. The project is re-activated, and the site is reevaluated. Unless new questions have emerged from the recent research, to which the site is pertinent, it no longer may be worth excavation; the information it contains has become irrelevant because the research questions it could have helped address have been answered.

Case 6: Along a potential highway corridor, 75 archeological sites are found, all consisting of flakes and pottery sherds on the surface of the ground and in the plow zone. All are determined eligible for the information they can yield about population distribution and land use during the Upper Middle Stoneland Period. Review of the sites to develop a data recovery plan reveals that to answer the important research questions about the period all one needs to know is the size and depth of all the sites--which has already been determined during the identification survey--plus some details that can be learned by excavating five or ten representative sites. Further study of the remaining sites is unnecessary, and they can be sacrificed.

Case 7: A nuclear test site will destroy 4,000 stone rectangles on the surface of the ground; these represent ancient habitations. Testing has shown that subsurface cultural deposits are never found around such house squares. All have been determined eligible because their study can contribute to understanding social relationships 4,000 years ago when they were occupied. Such relationships are reflected in the ways the house squares lie in relation to one another on the ground. Information on these relationships has been gathered in full during the determination of eligibility process, through detailed aerial photography. No further relevant data are collectable given current technology and concepts; accordingly, no additional data recovery is appropriate.

Thus, while defining the significance of an archeological property for eligibility determination is important to later decisionmaking about the property, it does not by itself indicate how the property should be treated. How the property should be treated depends on its nature, its relationship to current and conceivable future important research questions, and the circumstances under which treatment is considered. In Cases 1 through 3 above, it would be preferable to preserve the properties in place, but if other public needs demanded their destruction, data recovery would probably be appropriate. In Cases 4 through 7, it would be preferable to preserve the properties (on the grounds that unforseen research questions might someday arise that would make them important), but if preservation was not practical, data recovery would probably not be appropriate either, and the properties could be legitimately sacrificed without further study.

Principle VII: If an archeological property can be practically preserved in place, it should be.

It would be arrogant to assume that we who are alive today can decide precisely which questions we need to ask about the past, and which we do not. New questions about the past are always developing, and old questions are being answered. Answering old questions usually generates new ones. As new questions are asked, different kinds of information become important, and information may need to be examined in different ways. At the same time, techniques of field study and analysis are constantly being developed and improved, making it possible to address questions that could not be addressed using older techniques. Thus there is a danger that if only those archeological properties we see as valuable today are protected, we will allow the destruction of properties that will be of great value in the future.

Accordingly, it is appropriate to preserve in place as large a range of archeological properties as possible, even if we cannot define precisely how we would use the information they contain. There are obvious practical limits to application of this principle, but as a rule, if an archeological property can practically be left in place and preserved from damage, it should be. There is a large number of ways in which this may be done; for example, any of the following may be appropriate in a given case.

1. Designing construction projects so as to leave an archeological property in reasonably protected open space (eg., the median of a highway).

2. Covering an archeological site with fill, provided caution is exercised to limit compaction, disturbance of the soil, chemical changes, and changes in soil structure, and provided access can be assured within reason for future research.

3. Protecting properties from damage by nearby project activities through fencing, shoreline armoring, construction of berms, routing of construction activities, etc.

4. Designing structures over an archeological site in such a way as to minimize subsurface disturbance.

5. Establishing protective covenants or other arrangements with the residents, operators, or users of constructed facilities to protect properties within their control.

Principle VIII: If an archeological property is to be preserved in place, extensive excavation of the property is seldom appropriate.

Occasionally, agencies propose to conduct excavations in an archeological site that will be protected in place, in order to "evaluate" it or for some other reason. On the whole, such excavations are inappropriate uses of Federal funds, because they do not contribute to fulfillment of the agency's preservation responsibility. There are exceptions to this rule, of course, for example:

1. When a property is to be buried under fill, it may be appropriate to conduct test excavations so there will be a reasonable record of what has been buried;

2. If there is reason to be less than fully confident about the protective mechanism employed (for instance, protective covenants may be lost as title changes hands in the future), some data recovery may be appropriate.

3. If a property that can be protected within a project's area of impact needs study in order to deal fully with research questions being asked in connection with the project at other properties, this may be appropriate if carefully limited.

Principle IX: Both data recovery and destruction without data recovery may be appropriate treatments for archeological properties.

Where it is not practical to protect an archeological property in place, one of two things may occur.

1. The adverse effect of the property's destruction may be negated or mitigated through recovery of the valuable data contained in the property, or

2. Destruction of the property, without recovery of data, may be accepted by the consulting parties as a regrettable but necessary loss in the public interest.

If the data contained in the property can be used fruitfully to address valuable research questions, the data should be recovered. If the data cannot be so used, data recovery is not an appropriate use of public funds, and should not be undertaken.

To decide whether data recovery should be undertaken at a property that cannot be preserved in place, the responsible agency and its contractors must have a full understanding of previous local research, pertinent historic and prehistoric data, and the principles, models, and theories in history, anthropology, geography, and other disciplines that form the basis for developing archeological research questions. Based on this knowledge, research questions should be developed and the property considered as a source of data for answering those questions. If it appears that it will be useful as a source, data recovery should be conducted; if it does not appear to be useful, data recovery should not be conducted.

The decision to destroy an archeological property without data recovery is a serious one; it is like throwing away a book without reading it. Accordingly, the responsible agency and its contractor should be sure to consider the widest reasonable range of potentially valuable research topics to which study of the property might contribute, and should consult with all those who might have useful suggestions about topics. Those reviewing agency decisions (the Council, the SHPO, and others) should give close attention to the justification for deciding not to conduct data recovery.

On the other hand, there is no more reason to study every archeological property than there is read every cheap novel ever published. If it cannot be shown, after a reasonable, good faith effort to do so, that a given archeological property can be studied usefully to address important research questions, it should not be studied at public expense.

Principle X: Once a decision is made to undertake data recovery, the work should be done in the most thorough, efficient manner

Deciding to conduct data recovery is an investment, both of the archeological property involved and of Federal (and sometimes non-Federal) funds. One should seek to get the most feasible return on the investment. It follows that:

1. Research questions to be asked through the data recovery effort should be defined as clearly and precisely as possible, and the methods employed should be directed toward answering the questions efficiently.

2. Wherever possible, the data recovery effort should be made to serve multiple public interest functions. For example, if it can serve educational functions by involving school classes or volunteers, if it can serve social and economic functions by providing employment to the unemployed, or if it can serve planning functions by experimenting with new techniques, without adversely impacting its prime function, it should be made to do so.

3. Data recovery should employ the fastest, least expensive techniques that will yield the desired research results. Excavation should not be done with a camel's hair brush if a shovel will provide the required data, nor should it be done with a shovel if a bulldozer will provide the required data. Conversely, of course, a bulldozer should not be used to seek the kinds of information that only a shovel or a brush can provide.

4. Data recovery budgets should be carefully developed, justified, and reviewed.

Principle XI: Data recovery should be based on firm background data and planning.

Decisions about what sorts of data to seek, and how to seek them, cannot be made in a vacuum; one needs to know, insofar as is feasible, the historical, environmental, and theoretical context in which one is working. It follows that:

1. Data recovery plans should be based on a reasonable level of prior survey, to identify the universe of archeological properties, and the overall environment, within which one is planning.

2. Data recovery should be preceded by appropriate types of background research, addressing pertinent aspects of local history and prehistory, the local environment, theoretical and methodological issues pertinent to the research topics to be addressed, and so on.

3. Data recovery should be carried out in accordance with a well thought out plan that has been subjected to a reasonable level of review.

Principle XII: Data recovery should relate positively to the development of State Historic Preservation Plans.

Section 102(a)(2) of the National Historic Preservation Act mandates the creation of comprehensive statewide historic preservation plans. The Heritage Conservation and Recreation Service, which administers the provisions of Section 102, is working with the States to develop and implement such Plans. State Historic Preservation Plans should guide the establishment of research and data recovery priorities and methods; conversely, data recovery efforts should produce information that supports development and refinement of the Plans. It is in the public interest for archeologists and agencies that conduct data recovery to work with State Historic Preservation Officers in developing, reviewing, and refining State Historic Preservation Plans, to ensure that the Plans, and hence future data recovery efforts, accommodate the development of new research questions and new data gathering techniques.

Ultimately, each State Historic Preservation Plan should provide a logical basis for determining which classes of archeological property contain no needed information and are hence neither eligible for the National Register nor appropriate for data recovery. Accordingly, data recovery efforts should be planned with reference to the State Historic Preservation Plan where relevant, and the results of such efforts should be used to the extent possible in State Historic Preservation Plan development.

Principle XIII: Completion of an approved data recovery plan consummates an agency's data recovery responsibilities.

When an agency has responsibly identified archeological properties eligible for inclusion in the National Register, considered alternatives to preserve the properties in place, obtained Council comment through the steps outlined in 36 CFR Part 800 (giving due consideration to the "Recommendations for Archeological Data Recovery" and 36 CFR Part 1210), implemented a data recovery program developed through this process and ensured proper curation of recovered materials and dissemination of data to scholars and the public, its responsibilities toward the data in question are at an end. In other words, the answer to the question: "How much archeology is enough?" is, "enough to conclude the data recovery program approved by the consulting parties under 36 CFR Part 800." An exception to this rule would be the circumstance in which unexpected data are discovered after the consultation process prescribed by 36 CFR Sec. 800.4 and Sec. 800.6 is complete; in such an exceptional circumstance, the responsible agency is to be guided by 36 CFR Sec. 800.7 and 36 CFR Sec. 1210.6.

PART II
EXECUTIVE DIRECTOR'S PROCEDURES FOR REVIEW OF PROPOSALS FOR TREATMENT OF ARCHEOLOGICAL PROPERTIES

I. Introduction

The following procedures will be used by the Executive Director of the Council in review of projects involving treatment of archeological properties. They are based on the Council's "Principles in the Treatment of Archeological Properties" (Part I). They do not amend or modify the duties of Federal agencies under Section 106 of the National Historic Preservation Act and the implementing regulations (36 CFR Part 800), but agency cognizance of them will make consultation under the regulations easier.

II. Identification and Evaluation of Archeological Properties

1. 36 CFR Sec. 800.4 establishes that "it is the primary responsibility of each Agency Official requesting Council comments to conduct the appropriate studies and to provide the information necessary for an adequate review of the effect a proposed undertaking may have on a National Register or eligible property, as well as the information necessary for adequate consideration of modifications or alterations to the proposed undertaking that could avoid, mitigate, or minimize any adverse effects. It is the responsibility of each Agency Official requesting consultation with a SHPO under this section to provide the information that is necessary to make an informed and reasonable evaluation of whether a property meets National Register criteria and to determine the effect of a proposed undertaking on a National Register or eligible property." Identification is the obvious first step to be taken by an Agency in defining its responsibilities with respect to archeological and other historic properties.

In evaluation of proposals for treatment of archeological properties, the Executive Director may review field surveys and other identification efforts that have been conducted as part of the Agency's planning process, to determine whether:

A. the identification effort appears to be consistent with the scale and expected impacts of the proposed project;

B. the identification effort appears to be conducted at a sufficient level of intensity in relation to the numbers and types of archeological properties expected to occur in the area; and,

C. the data recovery proposal submitted for Council consideration appears consistent with the results of the identification effort.

2. The Executive Director will use 36 CFR Part 1210, Appendix B, as a general standard for reviewing identification efforts.

3. The Executive Director will encourage recognition of the difference between "testing" archeological sites for identification and evaluation and excavating them for purposes of data recovery. Testing is usually conducted

in order to answer questions about an archeological site's eligibility for the National Register, or to obtain data needed to make decisions about how to mitigate project impacts on a site already determined eligible or placed on the Register. Such testing is directed toward determining the site's boundaries, the depth of its deposits, and/or its basic nature and condition. Only a very small sample of the site need be disturbed in order to make such determinations. Excavation for data recovery, on the other hand, is directed toward recovering as much of the important information in the site as possible, given time and other constraints. Unlike testing, excavation for data recovery is seldom simply directed at defining the size, depth, nature and condition of the site; it is directed at answering or contributing to research questions. Excavation for data recovery may result in very extensive--even complete--disturbance of a site. While it is impossible to define a point, applicable in all instances, at which testing ends and data recovery begins, a rule of thumb is that testing is completed when sufficient information has been gathered to make a determination of eligibility or a management decision. Since testing is done, in most cases, before the fate of the site has been determinated through the consultation process, it should be kept to the absolute minimum necessary for eligibility determination and/or management purposes. "Testing" that destroys large portions of a site forecloses the Council's opportunity to comment, and circumvents the intent of Section 106. The Executive Director will discourage such "testing," and will notify the Secretary of the Interior, pursuant to P.L. 93-291 Sec.4(a), in instances where such "testing" threatens the irrevocable loss of scientific, prehistoric, historic, or archeological data.

III. Consideration of In-Place Preservation

In review of projects involving archeological properties, the Executive Director will seek to ensure that all due consideration is given to practical methods of preserving such properties in place.

IV. Consideration of Non-Archeological Interests

In review of projects involving archeological properties, the Executive Director will seek to ensure that all due consideration is given to whatever non-archeological historical and cultural values the properties may represent. For example, if an archeological property is also valuable to a local community for cultural reasons, the Executive Director will seek to ensure that this value is considered and given appropriate weight in decisionmaking.

V. Data Recovery Directed to Research Questions

Where it is concluded through the consultation process that preservation in place is not practical, and that data recovery is appropriate, the Executive Director will seek to ensure that the data recovery effort addresses defined and defensible research questions. Such questions should relate to issues of importance in the sciences or humanities, or to matters of importance to local communities with historical connections to the property or properties. It is expected, however, that the specificity of research questions, and their relationship to larger issues, will vary with the character and quality of prior archeological work in the area, the state of existing

knowledge of the property, the nature of local, regional, and topical research efforts pertinent to the property, and the quality of the State Historic Preservation Plan in force in the state at the time the project is undertaken.

VI. Sacrifice of Properties Without Data Recovery

Where an archeological property cannot practically be preserved in place, and the responsible agency proposes to destroy or damage it without data recovery, the Executive Director will seek to ensure that all reasonable consideration has been and is given to the property's potential to yield information relevant to important research questions. The Executive Director will not support or sanction the recovery of data simply because they exist, nor will the Executive Director support arbitrary destruction of data.

VII. Efficiency of Data Recovery

Where data recovery is to be undertaken, the Executive Director will seek to ensure that it is conducted in the most efficient manner possible, in the context of an appropriate data recovery plan. Data recovery programs should be organized to extract, digest, and make available the pertinent data in the most efficient manner possible, taking into account local conditions, the potential for unexpected discoveries, non-archeological concerns, and other relevant factors. The kinds of techniques, tools, and expertise required in a given data recovery program are dependent on the kinds of data to be recovered and analyzed. Although all archeological projects share certain basic principles, there is no single, standard way to conduct archeological fieldwork. As a rule, the Executive Director will seek to ensure that the fastest, most economical methods are used that will achieve the desired research result.

VIII. Consideration of Guidance

Where data recovery is to be undertaken, the Executive Director will seek to ensure that due consideration has been given to the Council's "Recommendations for Archeological Data Recovery" (Part III) and 36 CFR Part 1210 ("Recovery of Scientific, Prehistoric, Historic, and Archeological Data: Methods, Standards, and Reporting Requirements").

IX. Budgets

To the extent feasible given Council and staff priorities and agency contracting policy, the Executive Director will provide advice to agencies, seeking to ensure that budgets developed for data recovery and other archeological activities are reasonable and cost-effective.

X. Negating Adverse Effect: Documenting "No Adverse Effect" Determinations

1. Undertakings that result directly or indirectly in the disturbance of an archeological property clearly have adverse effects on that property. In some cases, however, this adverse effect can be essentially negated through data recovery; in such cases a determination of "no adverse effect,"

pursuant to 36 CFR Sec. 800.4(c), may be appropriate. When an agency makes such a determination, the Executive Director's review will focus on the extent to which the adverse effect will in fact be negated by the data recovery effort. The ability to negate adverse effect depends upon (a) the nature of the affecting action, (b) the nature of the archeological property, and (c) the quality of the data recovery effort proposed.

2. To determine whether a data recovery program will negate the adverse effects of an undertaking, the agency, in consultation with the State Historic Preservation Officer, should answer the following questions:

A(1) Does the significance of the property, as documented in the nomination to or determination of eligibility for the National Register, lie primarily in the data it contains, so that retrieval of the data in an appropriate manner may preserve this significance? If so:

A(2) Does it appear that preservation in place would be more costly, or otherwise less practical, than data recovery? If so:

B(1) Will the effects of the undertaking be minor relative to the size and nature of the property? Examples of such effects include:

(a) Marginal disturbance to an extensive archeological site by construction along one edge.

(b) Minor disruption of the surface of an archeological site whose primary valuable information lies in subsurface deposits, where this disruption is unlikely to have long-range effects on subsurface conditions (e.g., by causing erosion, etc.).

B(2) Is the property subject to destruction regardless of the undertaking, so the agency's action is only slightly hastening an inevitable process? Examples of such a condition include:

(a) Disturbance of an archeological site on a rapidly eroding cliff, where measures to halt erosion are not practical.

(b) Disturbance of an archeological site that is being vandalized or clearly will be subject to vandalism, where there is no practical way to deter the vandals;

(c) Disturbance of an archeological site on land that has great potential for non-Federal development, where no mechanisms (zoning, State or local preservation ordinances, easements) are likely to be employable for protection.

B(3) Is the property <u>not</u>:

(a) a National Historic Landmark, a National Historic Site in non-Federal ownership, or a property of national historical significance so designated within the National Park System;

(b) important enough to fulfillment of purposes set forth in the State Historic Preservation Plan to require its protection in place;

(c) in itself, or as an element of a larger property, significantly valuable as an exhibit in place for public understanding and enjoyment;

(d) known or thought to have historic, cultural, or religious significance to a community, neighborhood, or social or ethnic group that would be impaired by its disturbance; or,

(e) so complex, or containing such complicated data, that currently available technology, funding, time, or expertise are insufficient to recover the significant information contained in it.

3. If the agency and the SHPO agree that questions A(1) and A(2), and questions B(1), B(2) or B(3) are answered in the affirmative, and if the agency establishes a data recovery program consistent with the Council's "Recommendations for Archeological Data Recovery" (Part III) and 36 CFR Part 1210, the agency has grounds for concluding that the data recovery program will negate the adverse effect, and can hence determine that the undertaking will have No Adverse Effect on the property.

4. In documenting a determination of No Adverse Effect based on this conclusion, pursuant to 36 CFR Sec. 800.4(c) and 800.13(a), the agency should:

(A) report clearly and concisely how it has reached its conclusion;

(B) document the concurrence of the SHPO and, if pertinent, consultation with, and the opinions of, other specialists and authorities concerned with the property, concerned social and ethnic groups, local government, and the public;

(C) provide a copy of the data recovery plan; and,

(D) show that sufficient time and funds have been allocated to execute the data recovery plan.

3. The Executive Director will review the documentation provided in accordance with 36 CFR Sec. 800.6(a) to determine whether (a) the property is shown to be valuable primarily for the information it contains, or whether other public interests are involved, and whether (b) it appears that the adverse effects of the undertaking will in fact be negated, thereby justifying a determination of No Adverse Effect.

XI. Preliminary Case Reports

1. Where it is determined that the undertaking will have an adverse effect on historic properties, the Preliminary Case Report developed by the agency pursuant to 36 CFR Sec. 800.4(d)(1) should:

A. document consideration of alternatives that would preserve the archeological property in place, and give reasons for rejecting those alternatives not preferred;

B. where data recovery is proposed, provide a data recovery plan consistent with the Council's "Recommendations for Archeological Data Recovery" (Part III) and with 36 CFR Part 1210; and,

C. where data recovery is not proposed, explain why it is not proposed. An agency may demonstrate that loss of an archeological property without data recovery is acceptable by showing that:

(1) there is no reasonable way to protect the property in place; and,

(2) having made a good-faith effort to identify research questions of the kinds discussed in Appendices A and B of this Handbook, to which the recovery of data from the property would contribute, the agency has been unable to identify such questions. In seeking to identify such questions, the agency should utilize available literature in archeology, anthropology, history, and other disciplines, consult with the State Historic Preservation Officer, and consult with State, regional, and local archeological and historical organizations. The Executive Director will review closely the documentation of such efforts, and may suggest additional research questions or sources of advice to be considered.

XII. Memoranda of Agreement

1. Ordinarily, Memoranda of Agreement executed pursuant to 36 CFR Sec. 800.6(c) that provide for data recovery from archeological properties should include or refer directly to a data recovery plan consistent with the Council's "Recommendations for Archeological Data Recovery" and 36 CFR Part 1210. Exceptions to this rule may include, but are not necessarily limited to:

A. A Programmatic Memorandum of Agreement, which may provide for preparation and review of such plans in the context of an ongoing program;

B. A Memorandum of Agreement that covers a planning process, which may provide for preparation and review of a data recovery plan at a subsequent stage in the agreed-upon process; and,

C. A Memorandum of Agreement that provides for archeological monitoring or other forms of data recovery as guards against uncertain discovery possibilities (for example, where there is some possibility that archeological data will be discovered when a building is demolished). In such an instance, it may not be feasible to develop a detailed data recovery plan because the nature of the possible discovery situation is too uncertain.

2. The purpose of the data recovery plan is to ensure that the data are recovered in an effective manner using the best applicable professional standards under the circumstances. Technical assistance in developing data recovery plans is available from the State Historic Preservation Officer and Interagency Archeological Services, Heritage Conservation and Recreation Service, Department of the Interior. The Executive Director will give data recovery plans the same level of professional review afforded to architectural designs, plans for adaptive reuse, development plans, etc.

3. Memoranda of Agreement may provide for phased data recovery. An example of phased data recovery is:

A. Phase 1: Testing of archeological sites and other research leading to development of a detailed data recovery work plan. The Memorandum of Agreement should set forth guidelines for the testing and other research.

B. Phase 2: Development of a data recovery plan. The Memorandum of Agreement should provide an opportunity for appropriate technical review of the plan, usually by the SHPO and the Council, and where needed, through peer review by outside parties.

C. Phase 3: Selection of a contractor. The Memorandum of Agreement should ensure that the agency provides a reliable mechanism for obtaining the best qualified contractor(s) for the project at the most reasonable cost, consistent with satisfactory work performance.

D. Phase 4: Conduct of the work plan, typically including recovery of data, analysis, curation, and dissemination of results.

4. In developing Memoranda of Agreement including provisions for data recovery, the Executive Director will attempt to ensure that the data recovery plan in fact is the best feasible method of addressing the archeological value of the property in the public interest. An agency can facilitate development of such Memoranda by notifying the Council of the steps it has taken to develop its data recovery plan, by identifying the parties consulted during its preparation, by ensuring that all concerened parties have had an opportunity to contribute to its preparation, and by articulating the plan as clearly and concisely as possible.

XIII. Programmatic Memoranda of Agreement

Where appropriate under 36 CFR Sec. 800.8, the Executive Director will consider execution of Programmatic Memoranda of Agreement with agencies to cover archeological data recovery activities and other activities discussed in this Handbook. Such a Programmatic Memorandum of Agreement should take this Handbook and 36 CFR Part 1210 into account, and specify or stipulate a process for establishing:

1. Conditions in a given State or region, or with reference to the agency's specific types of undertakings, in which data recovery would be appropriate.

2. Guidelines for data recovery, taking into account conditions in a State or region, and/or the agency's types of undertakings and planning/development stages.

3. Methods for procuring appropriate specialists, and controlling costs, and

4. Consultation methods, establishing how the SHPO and other appropriate authorities will be involved in decisionmaking.

XIV. Counterpart Regulations

The Executive Director will use this Handbook in reviewing and helping prepare guidelines, standards, and other measures as part of Counterpart Regulations authorized by 36 CFR Sec. 800.11.

XV. Archeology For Research

1. When archeological excavations are conducted on Federal land for research purposes, and the only Federal involvement in the excavations is issuance of a permit under the Archeological Resources Protection Act of 1979 (P.L. 96-95) the comments of the Council need not be sought (16 U.S.C. Sec. 470 cc(1)).

2. If Federal actions are involved in the research besides issuance of an ARPA permit (eg., funding, other permits or licenses) the Council's regulations (36 CFR Part 800) apply.

A. Research projects to which the regulations apply, that involve the physical disturbance of archeological properties, should in most cases be considered to have adverse effects on the properties; the responsible agency should seek the Council's comments in accordance with 36 CFR Sec. 800.4, or programmatically in accordance with 36 CFR Sec. 800.8.

B. Projects that address management needs as well as research interests may be taken to have no adverse effect on the properties they disturb, if the facts warrant. Generally, the Executive Director will concur in a "no adverse effect" determination when the following conditions exist:

(1) the research project addresses management needs, such as:

(a) excavation of a site that is subject to uncontrollable vandalism;

(b) excavation of a site that is subject to serious natural erosion;

(c) recording of a site or structure that is deteriorating; and,

(d) stabilizing a deteriorating or endangered site or structure

(2) the determination has been made following Sec. K ("Negating Adverse Effect") of this part of the Handbook;

(3) the project will be conducted under the supervision of persons meeting, at a minimum, the qualifications set forth in 36 CFR Part 1210, Appendix C; and,

(4) the project will be conducted in accordance with a research design that takes into account the Council's "Recommendations for Archeological Data Recovery" (Part III).

PART III
RECOMMENDATIONS FOR ARCHEOLOGICAL DATA RECOVERY

The following recommendations are for agency consideration in developing archeological data recovery operations. They are not mandatory under the authority of the National Historic Preservation Act and 36 CFR Part 800, but full consideration of them will facilitate the consultation process. They are designed to be consistent with the standards of the Department of the Interior, issued pursuant to the Archeological and Historic Preservation Act of 1974 (P.L. 93-291), and embodied in 36 CFR Part 1210.3.

I. Identification

1. Data recovery operations should be based on an adequate understanding of the range of archeological properties subject to adverse effect, and their importance and nature relative to other such properties. Accordingly, plans for data recovery should be based on an adequate identification effort.

2. Identification studies should be conducted in a manner consistent with 36 CFR Part 1210, Appendix B, and with the recommendations of the State Historic Preservation Officer. If standards and guidelines for identification have been adopted as part of the State Historic Preservation Plan, the identification effort should be consistent with them.

3. Agencies should use "The Archeological Survey: Methods and Uses" (GPO Stock No. 024-016-0091-9), "Guidelines for Local Surveys: A Basis for Preservation Planning" (GPO Stock No. 024-016-00089-7), and relevant State, regional, and local literature for general guidelines.

II. Qualified Supervision

1. Data recovery operations should be conducted under the supervision of qualified professionals in the disciplines appropriate to the data that are to be recovered. Minimum qualifications commonly required for professionals are set forth in 36 CFR Part 1210, Appendix C. For supervision of most projects, Appendix C qualifications should be taken as a minimum. The agency should develop additional qualifications for supervision of the particular project.

   In some cases, it may be appropriate to select a supervisor whose qualifications differ from those given in 36 CFR Part 1210, Appendix C. In such cases, the qualifications should be specified by the agency in project documents, together with the rationale for their selection.

2. A data recovery operation should be directed by a Principal Investigator, whose background and performance demonstrates:

   A. an understanding of the research value of the property, as specified in location and identification studies,

documentation for determination of eligibility or nomination to the National Register, and/or other relevant documents, such as the scope-of-work prepared by the agency;

B. familiarity with previous relevant research, including research in the vicinity of the proposed undertaking and research on topics germane to the data recovery program regardless of where such research has been carried out;

C. competence to address research problems pertinent to the data to be recovered, taking into account the identified research value of the property and other relevant research and general theory in the social and natural sciences and humanities;

D. responsiveness to the need to recover a usable sample of data on the major research problems that reflect the property's research value, and a sensitivity to other valuable research problems that may become apparent during the project; and,

E. competence in the methods and techniques necessary to recover the pertinent data contained in the property, or in supervising staff or consultants with such competence.

III. Relation to State Historic Preservation Plan and Other Plans

1. Where a State Historic Preservation Plan, developed by the State Historic Preservation Officer and approved by the Secretary of the Interior, details approved methods for data recovery from archeological properties, agency data recovery programs should take these methods into account.

2. Where regional or local plans, developed by the SHPO, professional organizations, local government, or others detail recommended methods for data recovery from archeological properties, agency data recovery programs should take these methods into account.

IV. Data Recovery Plan

1. Every data recovery operation should be conducted in accordance with a data recovery plan (often called a research design). The plan should be designed to ensure that the operation addresses legitimate research questions, that it produces useful results, that it is conducted efficiently, and that it produces the maximum direct and indirect benefit to the public for the least cost. Generally speaking, a data recovery plan should include the following elements:

A. Specification of properties to be studied and not studied within the environmental impact area of the undertaking. A rationale should be provided if it is proposed not to study any property included in or eligible for inclusion in the National Register that is subject to adverse effect.

B. Development of research questions, taking into account the identified research value of the property and other relevant research and general theory in the social and natural sciences and humanities. These are questions of scientific or humanistic concern which are expected to be answered, partially answered, or at least elucidated through the work proposed, such as

(1) questions of recognizable importance to science (cf. Appendix A), and

(2) questions of humanistic interest, or interest to a local community, or of defined local historical value (cf. Appendix B).

In most areas of the United States, enough is known of history and prehistory to establish at least some basic research questions. Therefore, a plan that proposes data recovery because "little is known of the history or prehistory of the area," without setting forth more explicit research questions, should be treated with caution. Such undirected plans provide little basis for conducting research, may result only in the accumulation of useless, trivial, or repetitive information, and are sometimes only masks for the ignorance of the parties preparing the plan. There are, of course, some areas, and some time periods in history and prehistory, for which this is not the case.

C. Establishment of study topics, springing from the research questions. These are the specific topics to be addressed in the study area. For example, if the research question is: "Why was agriculture adopted?" a study topic might be: "When, and in what cultural context, did agriculture appear in the study area?"

D. Establishment of study priorities. It is not necessary, and is often counterproductive, to give the same level of effort to all study topics. The plan should consider all study topics but should establish and justify priorities for their investigation.

E. Definition of data needs. The plan should identify the data needed to address each topic selected for study.

F. Description of methods to be employed in fieldwork and analysis, in seeking the needed data. Methods should be justified in terms of the data sought or expected, but with recognition of the fact that unexpected important data may emerge during fieldwork or analysis and need to be addressed. As a rule, the fastest, least expensive available methods should be used, provided they are effective in recovering the data sought or expected, and provided they do not destroy properties or data that otherwise could be preserved in place.

4. The data recovery plan should be developed and reviewed by the agency, the SHPO, and where needed, the Council, Interagency Archeological Services, and others, before data recovery operations are begun.

V. Staff, Facilities, Equipment, and Consultants

1. A data recovery program should provide for adequate personnel, facilities, and equipment to implement fully the data recovery plan.

2. A data recovery program should provide for adequate consultation with scholars whose research interests or specialties would enable them to contribute to the program.

VI. Methods: Basic Standards

1. Regardless of the research topics being addressed, a data recovery program should employ methods that will ensure full, clear, and accurate descriptions of all field operations and observations. For example, excavation techniques, recording methods, stratigraphic and associational relationships, environmental relationships, and analytic techniqes should be described, insofar as is feasible, in such a way as to allow future researchers to reconstruct what was done, what was observed, and why.

2. To the extent feasible, the methods should take into account the possibility that future researchers will need to use the recovered data to address problems not recognized at the time the data were recovered.

3. If portions or elements of the property under investigation can be preserved in place, the data recovery program should employ methods that will leave those portions or elements of the property in place. Destructive methods should not be applied to such portions or elements if nondestructive methods are practical.

4. Where architectural characteristics are recorded, such recording should be consistent with the standards published by the National Architectural and Engineering Record (NAER). Updated guidelines for recording architectural and engineering data may be obtained from the Director, Heritage Conservation and Recreation Service, or Executive Order Consultant for NAER.

5. To the extent feasible within the data recovery plan, data should be recorded in a manner compatible with those systems utilized by the State Historic Preservation Officer and by State and Federal agencies that store and utilize archeological data, so that they can have maximum applicability to future studies and planning efforts.

6. The data recovery program should include both field operations and post-fieldwork analysis sufficient to address the research topics.

VII. Public Participation

1. To the extent feasible, a data recovery program should provide for public participation, through arrangements for public inspection of the work in progress, the use of volunteers, cooperation with local educational programs, etc.

2. A data recovery program should provide a means by which the public can be informed of the program and its results, before, during, and/or at the conclusion of the program.

VIII. Cost Minimization

1. In developing a data recovery program, agencies should consider methods to minimize costs while ensuring that quality is not sacrificed. Examples of methods that may reduce costs include:

   A. investment in full pre-fieldwork analysis of pertinent available data, to avoid spending time and money in the field gathering data to answer questions that are already answerable;

   B. sharing of personnel and facilities among projects and agencies;

   C. use of volunteers and trainees under appropriate supervision;

   D. appropriate use of mechanized equipment and advanced technology (Experimentation with potentially cost-effecient methods of discovery, recovery, and processing of data is encouraged), and

   E. use of methods to avoid late or accidental discoveries that could cause costly construction delays. (For example, where construction will destroy an archeological site, the last stage of data recovery should be to destroy the site under archeological supervision before construction begins).

2. Seeking to minimize costs by selecting contractors on the basis of bid is generally not encouraged; experience shows that this practice tends to produce substandard results. However, in cases where detailed data recovery plans have been developed in advance of soliciting proposals, and sufficient control is exercised to ensure receipt of technically comparable proposals, an agency might find this practice useful. Agencies should consider 36 CFR Part 1210, Appendix D, when preparing to procure services for data recovery operations.

IX. Reports and Data Management

1. In order for recovered data to be useful, they must be made available to scholars and planners in usable forms. Generally speaking, the following products (other than physical specimens) are expected from a data recovery operation:

   A. a report or reports that describes the operation and its results, with reference to the research topics addressed by the operation;

   B. digested data in the form of tables, charts, graphs, computer software, etc.;

   C. raw data in the form of field notes, photographs, magnetic tapes, etc.; and,

   D. scholarly and other articles utilizing the results of the work for analytic or public-interpretive purposes.

2. All data recovery projects should result in a report or reports containing the reasons for the project, the data recovery plan, the methods employed in both field work and analysis, the data recovered, observations made, insights gained, conclusions reached, and a presentation of pertinent data. The report should meet contemporary professional standards, and should be prepared in accordance with the format standards set forth in 36 CFR Part 1210, Appendix A.

   Provision should be made for disseminating the report. At a minimum, two copies of the report must be provided to the Department of the Interior pursuant to P.L. 93-291, Section 3(a), and 36 CFR Part 1210.5. In addition, agencies are encouraged to disseminate reports to the widest possible audience. Appropriate methods of dissemination include, but are not limited to, publication in scholarly journals, monographs, popular articles, books, and the National Technical Information Service, and presentation of papers at scholarly Conference. Agencies should provide a copy of each report to the State Historic Preservation Officer and other appropriate archives and research libraries.

3. Digested data should be stored in a manner that makes them readily retrievable for further study and analysis. Use of modern systems of information storage and retrieval is encouraged. Such systems should be as compatible as possible with those used by the SHPO and other agencies and institutions with potential uses for the data.

4. Raw data should be stored in a manner that ensures their long-term maintenance and availability, usually in an appropriate research institution (cf. 36 CFR Sec. 1210.4).

5. Although agencies are not necessarily responsible for developing or supporting the development of scholarly analytic articles beyond those embodied in the report(s) on each data recovery operation itself, use of recovered data for such purposes should be encouraged.

X. Curation of Specimens

1. A data recovery program should include provision for curation (care, maintenance, and where applicable, duplication and disposition) of recovered specimens. In developing such provisions, the agency should give due consideration to the standards set forth in 36 CFR Sec. 1210.4, and recognize any competing public and private interests. Care should be taken during conservation, curation, and handling of specimens and records to ensure that the material is not lost, inappropriately altered, or damaged.

2. In general, acceptable curation arrangements may include, but are not necessarily limited to:

   A. permanent storage at a regional research center or appropriate public or private repository meeting the standards set forth at 36 CFR Sec. 1210.4(a)(1), provided reasonable access is guaranteed for future study;

   B. return to private owners where private property rights so require, after description, study, and analysis in accordance with the data recovery plan are complete;

   C. loan or lease to public or private parties, after description, study, and analysis in accordance with the data recovery plan are complete, provided access for future study and proper care of the specimens can be expected; and,

   D. return of specimens having religious or cultural significance to practitioners of the religion or cultural institutions in question, after description, study, and analysis in accordance with the data recovery plan are complete.

3. Curation of human remains (eg., skeletons, cremations, mummified bodies), requires careful balancing of the needs of science and a sensitivity to the concerns of genetic and cultural descendents of the dead. Where a demonstrable ethnic affinity exists between recovered human remains and living groups, a systematic effort should be made to seek out and consult with appropriate representatives of such groups to define acceptable methods of treatment. Where recovery of human remains is expected, prior consultation with such groups, and with cultural anthropologists or others capable of serving as sensitive intermediaries where needed, is strongly recommended. If reinterment, cremation, or other disposal is requested that will place the human remains out of the reach of future scientists, documentation of the remains in consultation with specialists in physical anthropology and other pertinent

fields should be completed before disposal. Where no association can be determined between recovered human remains and living groups, the remains should be documented in accordance with the data recovery plan, and curated in a manner appropriate to the dignity and respect befitting any deceased person.

XI. Budgeting

1. At an appropriate stage in the process of developing a data recovery plan or procuring the necessary contractors or staff to execute it, the agency should develop or obtain a detailed budget, and subject it to careful analysis. Line items should refer clearly to elements of the data recovery plan, and should be justified. For example, if technical consultants are budgetted for, they should be those required to recover and analyze the data that are needed to address the research topics. Estimates of man-hours required for supervision, administration, fieldwork, analysis, specialist consultation, and other activities should be developed, together with fee schedules for the various types of personnel required. Time and fee schedules should be realistic in terms of project needs and local conditions. To minimize the danger of establishing budgetary "targets" not based on actual needs, the budget should be prepared without reference to the 1% limitation imposed by Sec. 7(a) of Public Law 93-291 on data recovery funds transferred to the Secretary of the Interior. Should the budget for a project to which Sec. 7(a) applies exceed 1% of the total cost of the undertaking, the Council will assist the agency as possible during the consultation process to find ways to reduce costs or to obtain additional funding.

2. Sufficient funds to support the data recovery program should be clearly identified by the agency. Should there be any uncertainty about the availability of funds, this should be revealed to the Council and SHPO so it can be taken into account during the consultation process. If the agency anticipates that the Secretary of the Interior will fund the program under the authority of Sec. 3(b), Sec. 4(a), or Sec. 7(c) of Public Law 93-291, the agency should document to the Council and the SHPO that the Secretary is aware of and has accepted this responsibility.

XII. Treatment of Non-Archeological Concerns

1. A data recovery program should relate positively to non-archeological concerns with the area and its archeological properties. Such concerns include, but are not limited to:

   A. Religious and other cultural concerns of Native Americans and/or other descendents of the historic and prehistoric people of the study area;

   B. The interests of local communities or other groups in the history of the area;

C. The educational interests of local museums, academic institutions, etc.;

D. The interests of private property owners in maintaining the integrity of their property rights;

E. Any architectural, artistic, or aesthetic values that may be present in the property;

F. Any paleontological, geological, or related values that may be present in the property; and

G. The environmental integrity of the property and its environs.

XIII. Flexibility

1. Situations may arise or data may be encountered that were not anticipated in designing a data recovery program, particularly when it is conducted on a potentially complex property (e.g., a recent town site; a prehistoric site that may contain many occupation layers, cemeteries, or architectural remains). Adequate provision should be made for modification of the program to cope with unforeseen discoveries or other unexpected circumstances.

2. Innovative approaches to data recovery, which are constantly being developed, should be encouraged as long as the basic purposes of data recovery to preserve significant information are addressed.

Appendix A: SOME EXAMPLES OF SCIENTIFIC ARCHEOLOGICAL RESEARCH QUESTIONS

The following eight questions are examples only, and should not be taken as limiting. Archeology is the study of human behavior, beliefs, social institutions, and organization in the past, and it can and does address a very broad range of questions. The examples chosen illustrate something of the range of research questions addressed by archeology, and provide an idea of the kind of general value a research question should usually have to provide a legitimate rationale for expending public funds.

Example 1: Pleistocene Extinctions

At the end of the Ice Age, many species of large mammals in North America died out. Why did this happen? To what extent were people involved in these extinctions? One school of thought holds that the entry of people into North America so upset the balance among species living on the continent that many species could not survive. This question relates to more general questions in ecology about how species interact, and what happens when a new species or new technology is introduced into a stable environment. It also bears on general humanistic issues about the relationship of people to their environment. Addressing this question requires studies of human settlement patterns and lifeways at the end of the Ice Age, as well as the distribution of animal populations and the organization of the natural environment.

Example 2: Forms of Political Organization

Human populations, including North American Indian, Euro-American, and non-native minority groups, exhibit a broad array of types of political organization, ranging from small bands organized around family heads to Nation-States with powerful rulers, bureaucracies, complicated economic systems, and specialized industries. Determining how different forms of political organization came to be not only informs us about the culture-histories of particular groups, but provides a basis for generalization about how different forms of organization have developed elsewhere in the world, and what forms political organization may take in the future. Archeological studies of political organization, and change in political organization, usually focus on the organization of settlements, groups of settlements, particular features that reveal the organization of a given society, such as community planning, architecture, and the organization of cemeteries, and systems of trade and interaction. Information on the reasons for the development of different forms of political orgnization can be developed through the study of both prehistoric and historic archeological properties. Studies of contact and historical sites, utilizing both archeological studies and historical and documentary information, hold particularly fruitful potential for understanding development and change in political organization, expecially in the face of environmental and social pressures.

Example 3: Origins of Agriculture

Throughout the world, the inception of agriculture seems to have been a major event in cultural evolution, related to the establishment of permanent settlements, elaboration of government and social control, and the beginning

of the population explosion. The reasons why people began to practice agriculture are by no means clear, however, and there are important unanswered questions about the relationship between the development of agriculture and changes in other aspects of human life. The map of prehistoric North America is a complex mosaic of agricultural, semi-agricultural, and non-agricultural groups; it is an ideal place to study why and how people began to practice agriculture, and what its effects were. Studies of agricultural origins typically involve seeking evidence of the initiation of agriculture in different areas, and seeking concurrent changes in settlement organization, local economics, trade, population size and distribution, and the nature of the local environment.

Example 4: Contacts between Cultures

Contacts between dissimilar cultures remain a source of problems for humanity today, and have been so in the past. Study of the effects of such contacts in the past, often involving relatively small groups, can allow us to generalize about the effects of such contacts involving much larger, more complex groups today and in the future. Culture-contact studies are particularly appropriate as bases for research in historic sites that reflect contact between American Indian groups and Euroamericans, between Euroamericans and non-native minority groups, or between differing non-native minority groups, and in earlier sites where pre-Columbian contacts are possible.

Example 5: Symbolism

Are there basic structures to the human mind, defining how we visualize, characterize, and categorize things in our environment? What role does culture play in defining what we perceive and do not perceive, and how we organize our universe? Such questions are difficult to address, but they are very basic to our understanding of what being human is, to our understanding of differences and similarities among people, and to improving communication among people. When people have purposely organized something, such as art, writing, the contents of a tomb, or the contents of a house, they have left something physical that reflects, to some extent, how they perceive the world around them. This evidence is potentially interpretable through archeology, and can be used to test predictions based on general theory.

Example 6: Climatic Change

Meteorologists make predictions about changes in the weather that are quite accurate over short periods of time, but they are limited in longer-term predictions by limited information on past trends. Geophysicists and other specialists can make statements about climatic change over tens of thousands of years, but their accuracy is limited because of the nature of their data base. Archeology can reveal information on the nature and extent of climate change in terms of decades and centuries, often with considerable accuracy. Archeological sites may contain direct evidence of environmental change resulting from climate change (in the form of fossil pollen, preserved plant material, animal remains, or different types of soil), and they may also reflect such changes indirectly but with considerable accuracy. For

example, a change in the organization of settlements in an area may reflect a change in methods of getting or growing food, which in turn may result from a change in the environment caused by a change in climate. Such evidence can be used to establish trends in climate change that serve as the bases for predictions about what will happen in various parts of the nation and the world over the next centuries. Although climate change can be easily reconstructed during the historic period, the possibility of checking the archeological record against archival records, including accounts of various people's reaction and responses to marked climatic change, affords great potential to generalize about human behavior in the face of climatic change.

Example 7: Disease

The history of a disease can tell much about its nature, how it responds to varying environments, and how susceptible different types of populations are living under different circumstances. Some diseases leave distinctive traces in the bones, which can be detected either visually or by physical and chemical analysis. Using the skeletal populations of ancient cemeteries, physical anthropologists and paleoepidemiologists can trace the spread of a disease, its effects on different populations, how it changed through time, and how it reacted with populations living under different social, economic, and environmental conditions, and in the face of different medical practices. This makes it possible to make predictions about how the disease, or similar diseases, may behave in the future.

Example 8: Diet and Nutrition

The study of a population's diet and nutrition can provide insight into the social, economic, and other human effects of environmental and population pressure, technological innovation, foreign trade and domestic exchange, etc. Comparative study of bones and other faunal remains, plant remains, and artifacts associated with food processing and storage can indicate the degree of dependence on wild versus domesticated and indigenous versus exotic plants and animals, relative nutritional intake and health conditions, methods of procurement, butchering, cooking and other preparation, and the development of new methods and assemblages of artifacts when new foods are introduced.

Appendix B: SOME EXAMPLES OF HUMANISTIC, HISTORICAL, AND LOCAL-INTEREST ARCHEOLOGICAL RESEARCH QUESTIONS

Humanistic

The study of the humanities is, of course, an extremely broad field, covering aspects of history, philosophy, architecture, and a variety of other disciplines. It overlaps substantially with the social sciences; hence most research questions of the type discussed in Appendix A would be of humanistic interest as well. Example of more strictly humanistic research questions that might form legitimate bases for data recovery include:

Example 1: Study of an architectural style:

A given high or vernacular architectural style might be poorly documented by surviving examples or written and drawn records, or the evolution of the style through time might be poorly known. Excavation or other documentation of structures, or sites where structures once stood that represented the style, might be directed toward elucidating the style and its evolution.

Example 2: Study of an art form:

A site containing prehistoric rock art might be studied by art historians to document the forms and modes of expression it represents in comparison with other types of artistic expression.

Example 3: Study of a philosophy:

Throughout the history of the United States, utopian communities have developed that have isolated themselves from the "mainstream" population to practice their chosen ways of life without contamination. Often elements of the community's philosophy have been expressed in its organization of space (eg., organization along sexual rather than family-unit lines) or in its choice of artifacts (eg., rejection of power tools). Archeological study of an extinct or extant utopian community could both indicate how these elements are expresssed, and how and whether change has occured in such elements over time.

Historical

Virtually any study of an archeological property deals with history in some sense, but some legitimate studies are directed specifically toward checking or correcting historical accounts, or toward broadening and deepening our understanding of history; for example:

Example 4: Early explorers

The lines of march, stopping places, and landfalls of early explorers of North America are often at issue among historians. Archeological studies can contribute to settling such disputes by showing that given locations were or were not occupied at the time the explorer-of-interest was in the vicinity, did or did not look like locations described by the

explorer or members of his or her party, do or do not contain artifacts attributable to the explorer, and so on.

Example 5: PreColumbian Transoceanic contacts

Historians and archeologists have argued for many years about whether there were contacts between Europe, Africa, and Asia and the Americas, before the voyages of Columbus. The pre-Columbian presence of Scandanavians along the Atlantic coast of Canada, and probably of the United States as well, has now been reasonably well demonstrated; some scholars argue for the presence of Sumerians, Egyptians, Lybians, Phoenicians, Hebrews, Basques, and Celts, and support their contentions with archeological evidence ranging from architectural similarities between certain European and American structures, through the identification (and sometimes, decipherment) of rock carvings thought to resemble European and African writing systems, to the discovery of artifacts and evidence of industrial and agricultural practices associatable with Europe, Africa, or Asia. Archeological studies are potentially the primary method for validating or disvalidating such arguments.

Example 6: Descriptions of little-documented social groups, activities, processes

Written history tends to document the activities of the affluent and influential. The contributions of those groups that wielded little economic power, and that were often illiterate, at least in English, to the history of the Nation and its regions are often poorly documented. Archeology can be used to fill in gaps in the historical records, to give a more balanced picture. Similarly, archeology can be used to flesh out the record of groups that have been well documented in certain aspects of their lives. For example, there is much documentary data on southern Plantation life in the early 19th century, but these data provide little besides stereotypes regarding the daily life of slaves, or often of slave/owner relationships. Archeology can fill out this record by revealing what slaves ate, what sorts of groups they lived in, what tools and weapons their owners entrusted them with, etc.; it also can reveal how the owner ate, what he or she imported or produced onsite, and how his or her way of life differed from those of the slaves. Archeology can also be used to elucidate otherwise little-known industrial or agricultural practices; the excavation and mapping of 19th century mill sites, for example, can provide information on how water resources were used and how milling systems operated--information that is often not available in useful form in written records.

Local Interest

A local community, neighborhood, or social group may have cultural interests in its past that can be satisfied or developed through archeology. These may provide an important basis for data recovery; for example:

Example 7: Traditional history

A local American Indian, Eskimo, Hawaiian, or other traditional cultural group may want to know how its traditional history relates to information in and on the ground. The group may have traditions about its origins,

the other groups it encountered in coming into its area, early leaders, wars, natural catastrophes, or other events that can be elucidated through archeology. Very ancient traditional history, which often involves supernatural events, is seldom subject to very detailed archeological study, but more recent historical events may be fixed precisely in time, and described in detail from the archeological record.

Example 8: "How our ancestors lived"

The residents of a community or neighborhood that has been long at the same location may simply be curious about how their ancestors lived. Particularly where the community or neighborhood represents a population that is poorly represented in written records, archeology may be the only way to satisfy this curiosity, which in turn is an expression of the identity and sense of place whose perceived imminent loss in large part stimulated enactment of the National Historic Preservation Act.

Return to: Executive Director
Advisory Council on Historic Preservation
1522 K St. NW
Washington D.C. 20005

QUESTIONNAIRE: ARCHEOLOGY HANDBOOK

I expect to order _____ copies of the final publication of the Council's handbook, "Treatment of Archeological Properties".

I understand that this final publication will be available during the summer of 1981

Please notify me at the address below when the publication is available:

(Name:) _____

_____

_____

_____

Optional statistical data

1. I am/represent: _____a State Historic Preservation Officer

_____a Federal agency

_____a state agency (other than the SHPO)

_____a local government or agency

_____a professional archeologist

_____an avocational archeologist

_____a preservation professional (non-archeologist)

_____other (_____)

2. I do___do not___regularly participate in consultations under the Council's regulations (36 CFR Part 800).

GPO 389 436

Report of A Field Investigation of Archaeological Research Conducted At Komohana Kai Subdivision Holualoa, No. Kona, Hawaii

May 2, 1980

Patricia Beggerly

80-19

INTRODUCTION

In response to a request on February 22, 1980 from the Department of Housing and Urban Development, the Historic Site Section, staff archaeologist, Patricia Beggerly conducted a review and evaluation of two archaeological research reports.

Both of these reports addressed research conducted for the G. C. Development Co., Inc. and covered a 103 acre area included in the boundaries of TMK 7-6-13:7,26 and 31 and 7-7-04:20, Holualoa, Kona, Hawaii.

The first of these research projects was an archaeological reconnaissance conducted by Scientific Applications, Inc. between March 31 and April 19, 1979. As stated in the report, "the basic purpose of a full reconnaissance survey is to locate all sites and features of possible archaeological significance. . . it is extensive rather than intensive in scope--conducted to determine the presence or absence of archaeological resources within a specified project area. . . survey (1) permits a preliminary evaluation of archaeological resources, and (2) facilitates formulation of realistic recommendations and estimates for any further archaeological work that might be necessary."

The second project was an archaeological surface survey and excavation program conducted by Archaeological Research Center Hawaii, Inc. As stated in the report," . . a surface survey of both units of the study area was completed first. This was followed by excavation of a selected sample of sites which as determined during the survey showed potential of yielding cultural material of value in establishing the nature and time depth of human occupation." (Hammatt 1979, p. 4).

Upon completion of the Archaeological Research Center Hawaii, Inc. research, certain statements and recommendations were made,as follows: (Hammatt 1979, p. 4)

1. "All of the surface stone structures excavated showed none or insignificant cultural residue."

2. "All surface structures with any likelihood of containing burials have been tested for human skeleton remains."

3. "Considering the above, complete archaeological clearance is recommended for the entire project area with the exception of the large heiau."

When analyzing the two archaeological reports there

appeared to be conflicting determinations regarding the value of the archaeological resources present on the development site and the question of compliance with the Advisory Council's regulations and procedures for historic preservation.

In an attempt to resolve this conflict, Mr. Frank Johnson, Department of Housing and Urban Development, contacted the parties involved, and a field investigation was conducted of a portion of the Komohana Kai Subdivision, Holualoa, Hawaii on May 2, 1980.

Present during all or portions of this field investigation were the following:

Mr. Frank Johnson	Department of Housing and Urban Development
Mr. John W. Godfrey	President, G. C. Development Co., Inc.
Mr. Donald McIntosh	Survey
Mr. Gary Adkinson	Survey
Ms. Virginia Goldstein	County of Hawaii Planning Office
Mr. Francis K. W. Ching	President, Archaeological Research Center Hawaii, Inc.
Dr. Hallett H. Hammatt	Archaeological Research Center Hawaii, Inc. Archaeologist
Dr. Paul H. Rosendahl	Science Applications, Inc. Archaeologist
Mr. Robert D. Connolly, III	Science Applications, Inc. Archaeologist
Miss Jo Lynn Gunness	Science Applications, Inc. Archaeologist
Mr. Ralston Nagata	Historic Sites Program Director
Mrs. Patricia Beggerly	Historic Sites Section Archaeologist

Because the development covers approximately 103 acres, contains as many as 120-140 sites, and is heavily vegetated with grasses, shrubs and trees it was impossible for the team of investigators to visit and evaluate all of the sites

within the time available for the field investigation. It was therefore suggested, that Scientific Applications, Inc. (SAI) and Archaeological Research Center Hawaii, Inc. (ARCH) be allowed to alternately choose feature/sites which they wished to present to the investigation team. It was requested that feature/sites chosen consecutively be within the vicinity of the preceding feature/site so that the team did not have to unnecessarily backtrack across the project site.

Ten feature/sites were visited and evaluated by the team:

FEATURE SAI DESIGNATION		SITE ARCH DESIGNATION
M-1	Terrace	voided
M-2	Mound	voided
L-16	Terraces	voided
L-17	Mound	Stone Clearance Mound 50-10-37-6609
L-18	Mound	voided
E-1	Terrace Complex	Wall - included with SAI G-5 50-10-37-6649
C-1	Stepped Platform	Platform 50-10-37-6656
C-4	Stepped Platform and associated modified outcrops	Platform 50-10-37-6654
T-12	Stepped Platform Complex	Platform 50-10-37-6653
P-3	Heiau	Heiau 50-10-37-6661

Following is a paraphrased summary of the explanations of the resources by both SAI and ARCH personnel in the field, my observations of the cultural remains and my opinions regarding the Archaeological Research Center Hawaii, Inc. report of the data from specific sites. This information is presented in 6 parts, as follows:

1. The feature/site number as designated by Scientific Applications, Inc. and

FIELD DATA, OBSERVATIONS, OPINIONS

Archaeological Research Center Hawaii, Inc. and each researcher's classification of the feature/site.

2. An enumeration of page numbers where each research report primarily addresses each feature/site.

3. A paraphrased summary of the information I gathered from the discussions of the feature/site(s) within the text of the report.

4. A recap of my understanding of the remarks made during the field examination regarding each feature/site by personnel from SAI and ARCH.

5. My opinion of the information contained in the Archaeological Research Corporation Hawaii, Inc. report versus my observations of the physical data in the field.

6. Where applicable, two cross section/plan views are included in the presentation of the feature/site. The first rendering is the ARCH figure with my additions as indicated in this report. The second is the ARCH figure as it appeared in their report, with the exception of the figure illustrating Fe. C-1/Site 50-10-37-6656. In this case, only the SAI figure is included because the ARCH report did not include a figure for this site in their report.

SAI Fe. M-1 Terrace
ARCH Natural Outcrop

SAI addresses this feature on page 24 of Ms. 3-042079.

ARCH addresses this feature on page 51 Report 14-138.

The SAI report indicates this feature to be a terrace and suggests that it is a probable agricultural feature. No further work is recommended for this feature.

ARCH voided the feature and classified it as a natural outcrop.

During the May 2, 1980 field inspection, SAI employee Robert Connolly stated that it was classified as a cultural feature due to the terracing on the makai portion of the feature. Dr. Rosendahl suggested that it represented a stone clearing mound associated with an adjacent flat planting area.

Dr. Hammatt indicated that he believed it represented a bulldozer tailing because of the presence of dirt on top of the stones, there were large logs in close proximity to the feature, there were scars on the stones and it was near to a recently bulldozed area.

In my opinion, this may represent a group of stones placed on bedrock to clear an area for agriculture. However if this was an archaeological feature, it is now quite disturbed by bulldozer activity. I believe I would have recorded it as a possible agricultural feature which has sustained modern disturbance.

SAI Fe. M-2 Mound
ARCH Bulldozer Tailing

SAI addresses this feature on page 24 of Ms. 3-042079.

ARCH addresses this feature on page 51, Report 14-138.

The SAI report classifies this feature as a poorly constructed C-shaped mound. No further work is recommended for this feature by SAI.

ARCH voided the feature and classified it as a natural outcrop.

SAI personnel present during the field inspection on May 2, 1980 indicated that this feature represented a stone clearing mound for agricultural purposes.

Dr. Hammatt of ARCH indicated that it represented bulldozer tailings based on the observation that there was unconsolidated dirt on top of the stones and it was near to a recently bulldozed area.

In my opinion, this may represent a group of stones placed on bedrock to clear an area for agriculture that has recently been disturbed by bulldozer activity. I believe it most accurately should be recorded as a possible agricultural feature with modern disturbance.

SAI Fe. L-16 Terraces
ARCH Bulldozed Pile

SAI addresses this feature on page 15 and 23 of Ms. 3-042079.

ARCH addresses this feature on page 51 Report 14-138.

The SAI report indicates this feature to be a terrace and suggests that it is a probable agricultural feature. No further work is recommended for this terrace.

ARCH voided the feature and classified it as a bulldozed pile.

SAI personnel present during the field inspection indicated this was a cultural feature.

ARCH personnel reiterated, it was a bulldozed pile and pointed out bulldozer tracks in the vicinity of the feature.

In my opinion, this again could represent an area of agricultural clearing, however if it does represent early agricultural clearing it has been modified recently by heavy machinery.

SAI Fe. L-17 Mound
ARCH Stone Clearance Mound
Site 50-10-37-6609

SAI addresses this feature on pages 15 and 23 of Ms. 3-042079.

ARCH addresses this feature on pages 47 and 53 Report 14-183.

SAI states this feature is a mound. No further work is recommended for this feature.

ARCH also indicates this site is a mound and describes it as a stone clearance mound on low bedrock bluff.

SAI Fe. L-18 Mound
ARCH Bulldozed Pile

SAI addresses this feature on pages 15 and 23 of Ms. 3-042079.

ARCH addresses this feature on page 51 Report 14-138.

SAI states this feature is a mound in direct association with Fe. L-17.

ARCH states this is a bulldozed pile.

During the field survey, SAI personnel indicated that at least two features L-17 and L-18 were clearly agricultural features. Dr. Rosendahl pointed out that, although they are associated with basalt bedrock outcrops that if one were to clear a field for agriculture, this is where you might place the stones from the surrounding soil.

In my opinion, there are at least two if not three clearing mounds within close proximity of each other in this area. Although bedrock is present in the vicinity of the mounds, I must concur with Dr. Rosendahl that this is a logical place to store stones removed from areas intended to be utilized for agriculture.

SAI Fe. E-1 Terrace Complex
ARCH Included with G-5, Wall
Site 50-10-37-6649

SAI addresses this feature on pages 15 and 19 Ms. 3-042079.

ARCH addresses this Site on page 58 Report 14-138.

The SAI report indicates this feature is a well built, faced terrace with associated modified pahoehoe outcrops (p. 19). They recommend that this terrace complex be recorded in detail and that test excavations should be conducted.

The ARCH report lumped this feature number with G-5 and described it as a wall which adjoins the Great Wall of Kuakini and extends perpendicular to it in an easterly direction.

During the field inspection only one area of modified pahoehoe was located due to the presence of very dense tall grass. The wall G-5 (Site 50-10-37-6649) was also located.

Dr. Rosendahl, SAI, indicated that the feature located, was a portion of the Terrace Complex Fe. E-1 and that it represented a stone clearing mound located on bedrock. He suggested that the stones had been placed on the bedrock to clear an area down slope for agricultural purposes. To emphasize this point, he removed the front facing of the feature and revealed the filled portion of the mound.

My opinion is that it was a stone clearing mound. This opinion is based on the smaller stone fill revealed when the front facing stones were removed, the fact that immediately down slope was a fairly level soil area which would be appropriate for agricultural purposes, and the presence of a second sharp drop down slope of the hypothesized planting area.

SAI Fe. C-1 Stepped Platform
ARCH Platform
Site 50-10-37-6656

SAI addresses this feature on pages 10, 15 and 18, Ms. 3-042079.

ARCH addresses this Site primarily on pages 14, 49 and 60 Report 14-138.

The SAI report indicates this feature is a stepped platform, possibly a habitation feature or small heiau; very well constructed and in excellent condition. They recommend that the feature be recorded in detail and test excavations be conducted.

The ARCH report describes this site as a two tiered rectangular platform. They indicate that the side walls and corners are composed of upright slabs and the top surface of both levels is flat. They further indicate that signs of occupation near or on the structure are entirely absent, and a habitation function is unlikely. They did not excavate this platform nor did they produce a plan view for permanent recording of the site before its destruction by modern construction.

Several discrepancies were found between the ARCH report of the research, the SAI report and the actual physical remains seen during the field examination, as follows:

1. The ARCH report indicates that the platform is 8M long by 6M wide. However, the SAI report indicates that the platform is 9M long by 5M wide.

2. The ARCH report indicates that the upper tier is 5M x 6M, the SAI report indicates that the upper level is 5M x 5M.

3. The ARCH report indicates that the lower tier is 3M X 4.6M, the SAI report indicates this tier to be 4M X 5M.

(Note) These measurements were not field checked.

4. A triangular shaped feature attached to the northwest corner of the structure is not indicated in the ARCH report.

5. A raised area in the center of the northern end of the upper tier is not indicated in the ARCH report.

6. During the field examination a piece of portafactual coral was found associated with this site near the southwest corner.

7. No mention is made in the ARCH report that this site is thickly covered with air plant (Oliwa-Ku-Kahakai, Bryophyllum pinnatum) which was not seen growing on any of the other sites inspected on May 2, 1980.

In my opinion, a plan view and cross section drawing should have been produced as a permanent record of this site prior to recommending archaeological clearance for construction. I would also have recommended test excavation of the site to determine if this was an habitation area or even, perhaps, a burial platform.

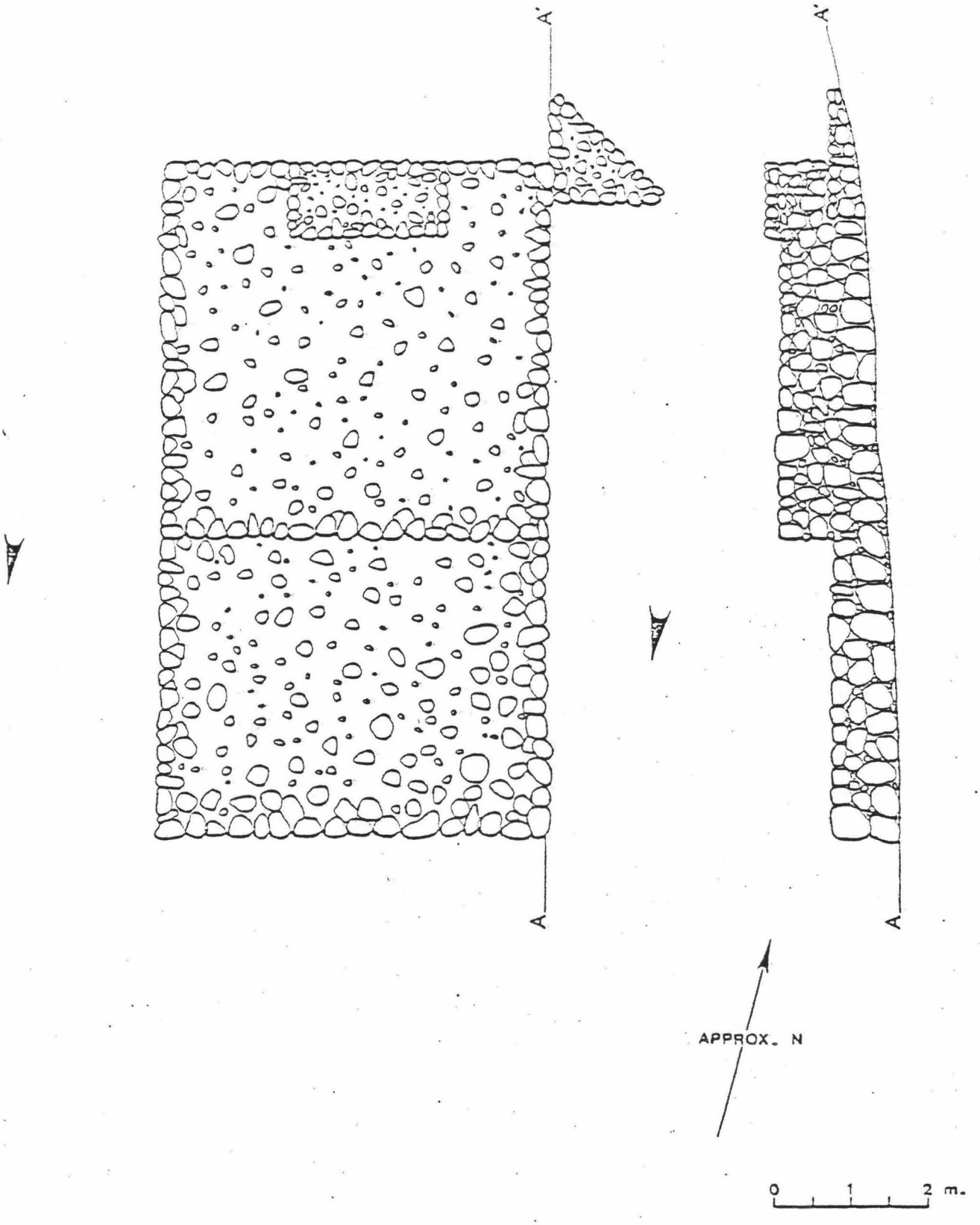


Figure 3. FEATURE C1 - STEPPED PLATFORM (Sketch Map)
SAI Reconnaissance Level Plan View and Cross Section of ARCH Site 50-10-37-6654

SAI Fe. C-4 Stepped Platform and Associated Modified Outcrops
ARCH Platform
Site 50-10-37-6654

SAI addresses this feature on pages 9, 15, and 19 Ms. 3-042079.

ARCH addresses this site on pages 14, 19, 22, 23, and 59 Report 14-138.

The SAI report indicates this feature is a faced, stepped platform with a wall on the seaward side, and a series of modified outcrops. They recommend that this feature be recorded in detail and test excavations be conducted.

The ARCH report describes this site as a platform with a faced retaining wall which reaches a height of 1M. A second wall extends from both sides of the platform to form an oval enclosure. The platform contains two small rock lined pits of undetermined function and a rock mound located slightly to the northwest.

ARCH further reports that, "a one meter wide trench was placed from the front of the platform 1.5 meters to the mauka side and was excavated to bed rock (my emphasis) at a depth of 45 centimeters. No cultural material was uncovered (my emphasis) either in the platform and pit fill or underneath." "The base of the smaller stone lined pit rested directly on bedrock at a depth of 50 cm. with no cultural material or internal features present." (Hammatt 1979, p. 22)

During the field examination of this feature/site on May 2, 1980, several discrepancies were found between the ARCH report of the research and the actual physical remains, as follows:

a. An examination of the excavation unit associated with Pit A was found to contain at least 20-30 cm. of dirt.

b. A brief examination of the trench fill was conducted in three areas of the Pit A/e excavated unit which yielded several specimens of cultural material, as follows:

SPECIMEN	NUMBER
kukui nut fragments	11
charcoal fragments	4
volcanic glass	1
marine shell	
cowry	2

Note: This material was retrieved by Dr. Rosendahl using a machete to scrape across the soil to a depth of approximately 10 cm. in three small (approx. 15 cm. X 15 cm.) areas. Although it was considered by most of the archaeologists present to be an inappropriate manner in which to conduct test excavations, the project site had been recommended for "complete archaeological clearance" with the exception of the heiau, Site 50-10-37-6661 (Hammatt 1979, p. 4) and destruction of the site was imminent.

c. In addition to the cultural material found within the trench, a large (10x9x10 cm.) piece of culturally altered coral was found upon the surface of the feature/site at approximately point "a".

d. In addition to the above, several discrepancies were noted on the plan view and in the description of the feature/site (Hammatt 1979, pp. 14,22,23, and 59).

1. The "Planting Area" was not an "oval enclosure" but rather was a rectangle with interior angles on the front wall of approximately 45°.

2. The "Planting Area" was not approximately 35M long by 10M wide but rather was approximately 16M long by 4M wide.

3. The excavated pit (A) was not located where it is illustrated on the platform, but rather, was located approximately as delineated by feature "e".

4. The edge of the platform (point f-f^1) might more accurately have been illustrated by a straight line rather than the bowed one as shown on the Plan View.

5. Point g-g[1] which measures approximately 10 M might more accurately be illustrated to measure approximately 6M.

6. There was a break in the wall at point "h" which is not illustrated on the Plan View.

e. No mention is made in the ARCH report of several cultural features in close proximity to the site to the west of the platform which, in my opinion, are associated spatially with this site.

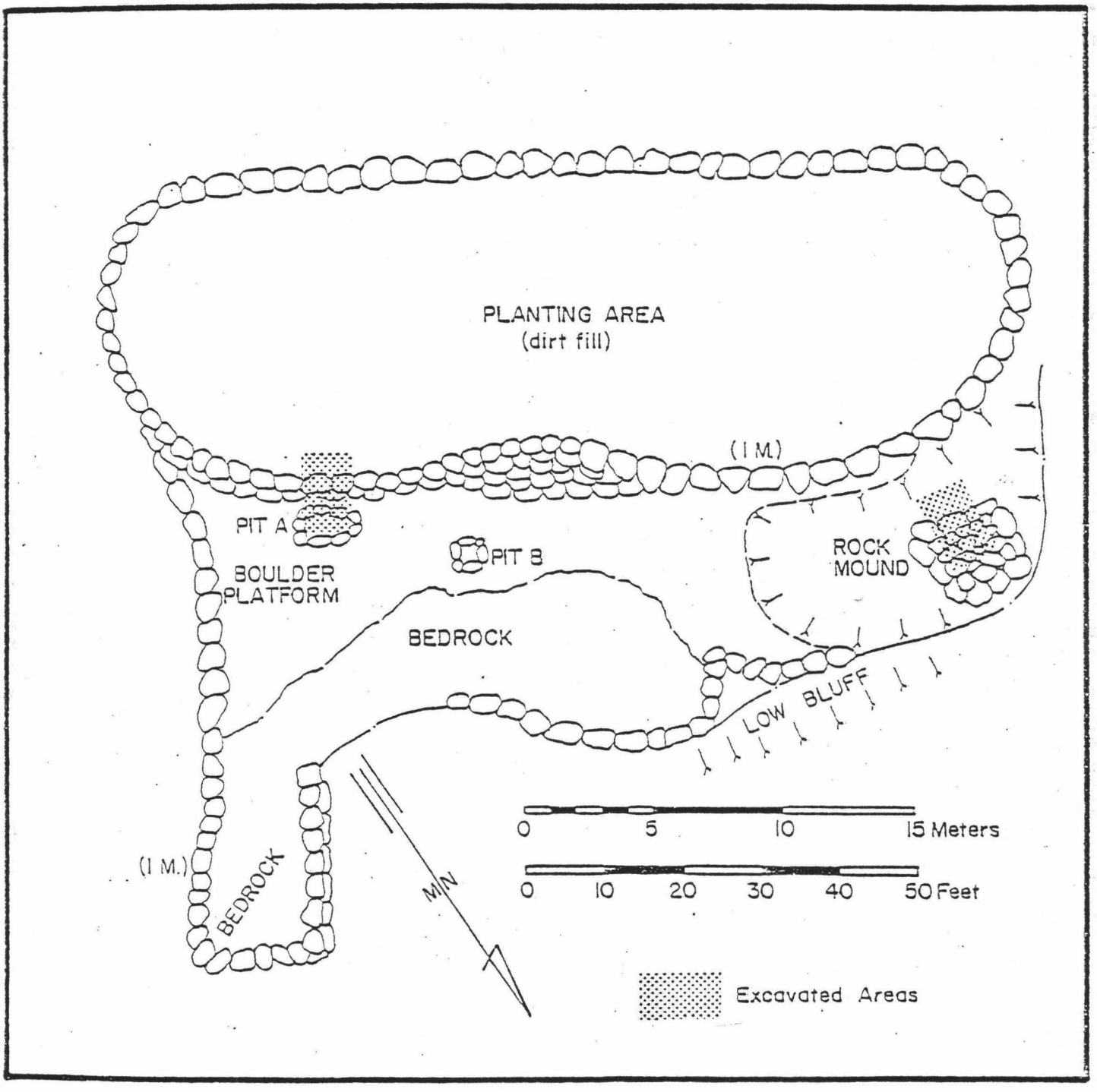


FIGURE 6 Site 50-10-37-6654 Plan View

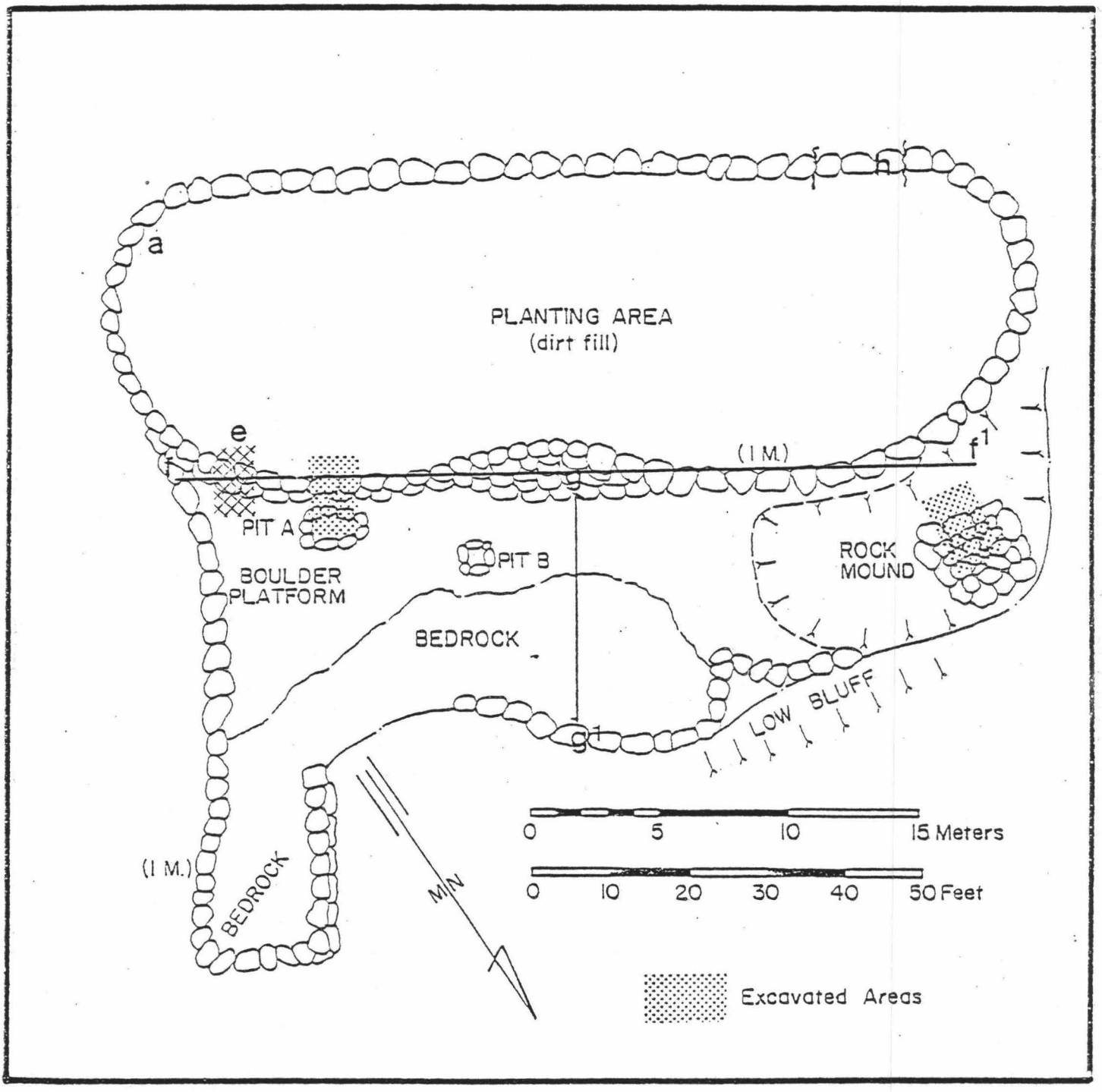


FIGURE 6 Site 50-10-37-6654 Plan View

ARCH Figure with additions by Beggerly

SAI Fe. T-12 Stepped Platform Complex
ARCH Platform Site 50-10-37-6653

SAI addresses this feature on pages 9, 16 and 23 Ms. 3-042179.

ARCH addresses this site primarily on pages 14, 22, 23, 25, 49 and 59 of Report 14-138.

The SAI report indicates this feature is a Stepped Platform Complex, probably a heiau; it is a well constructed feature on a ridge overlooking the coast.

The ARCH report describes this site as a double platform constructed on the edge of a bedrock knoll with an adjoining wall enclosure (my emphasis).

> "The higher platform contains a rectangular raised paved area bounded by slab upright facings. A lower platform adjoins this platform to the northeast and it contains a stone lined pit one meter deep. This platform connects with a core filled wall which forms an enclosure to the southeast." (Hammatt 1979, p. 59)
>
> ". . . is the only platform with a well defined rectangular raised paving which appears to have served as the foundation for a small hale." (Hammatt 1979, p. 14)
>
> "As shown in Figure 7 (Area C) a rough boulder paved level contains a small open rock alignment (fireplace) and a rectangular cobble paved platform which is outlined by alligned upright stones (Area B). . . Area D stands 45 centimeters below Area C and is separated from it by a retaining wall surrounding a higher portion of the bluff. Area D is a rough boulder surface containing a stone lined pit 30 centimeters deep and extending to bedrock . . .Connected to the south, a core filled wall partly encloses a level dirt area (Area A) on the same elevation as Area D." (Hammatt 1979, p. 22)
>
> ". . .two trenches were placed within the site. Trench 1 in Area B is 1.5 meters wide and 3 meters long and was excavated into the cobble paving. This trench extended to a

> line of uprights (my emphasis) at the east side of Area B (Figure 7). The upright slabs averaging 60 centimeters high were set in a loose dirt fill above bedrock and extended 60 centimeters upward to the top of the platform level. . . Gently sloping bedrock (my emphasis) with a loose silt mantle was encountered in this trench at a depth of 40-60 centimeters." (Hammatt 1979, p. 25)
>
> "In addition, two 1 meter trenches were placed side by side in Area A. Although the surface consisted of a dark colored organic A horizon, bedrock was encountered (my emphasis) at a depth of less than 10 centimeters with no evidence of cultural activity (my emphasis)."(Hammatt 1979, p. 25).
>
> "With these surpisingly negative results (my emphasis) the rest of the site and its perimeters were carefully examined (my emphasis) for signs of cultural residue, both on the surface and between stone fill. The results were negative (my emphasis). It is of interest that in the case of the trench in Area B, fine textured sediment is present below the rock foundation. The residue of human activity on the platform would be expected to filter downwards through the rocks and mix with this sediment and the environment should be conducive to its preservation. The absence of cultural material (my emphasis) in this case cannot be the result of subsequent erosion but must be because none was deposited (my emphasis)." (Hammatt 1979, p. 25).

During the literature review and field examination of this site on May 2, 1980, several omissions were observed in the ARCH Plan View of the site and serious discrepancies were found between the ARCH report of the research and the actual physical remains at the site, as follows:

1. Within the explanation of the features of the site several features have been mentioned as Area A,B,C,D. These were not labeled on the Plan View but have been labeled in this report for the readers' convenience and are labeled a,b,c,d.

2. Trench 1 was not labeled on the ARCH report but has been added to help

clarify this report.

3. Trench 1 is not illustrated as a 1.5M X 3M trench in relationship to the bar graph as indicated in the ARCH text, page 25.

4. Trench 2 placed in Area A(a) was not noted in the Plan View of the ARCH report but has been added to this report.

5. The site 50-10-37-6653 is reported in the text to be 12 X 8 meters (page 59) however, it is illustrated as a 12 1/2 x 11 meter feature on page 24.

6. A "core filled wall" between point "f" and "f1" was not evident during the examination, however there is an area of disturbed stone that appears that it might have been a wall but certainly is not clearly delineated as illustrated on the plan view.

7. No upright stones were located at point "g".

8. No upright stones were located at point "h".

9. The 45 cm. retaining wall mentioned in the ARCH report was not apparent between point "i" and "i1". There was a slight rise between the two areas of approximately 15 cm. to 20 cm. Dr. Hammatt mentioned that this feature had been removed during excavation.

10. The "Flat Cobble Paving" would be more accurately located on the plan view, if the north corner was swung eastward to point "j".

11. No uprights were apparent at point "k" although mentioned in the text on page 25. Dr. Hammatt stated they had been removed during excavation, however no 60cm. slabs were seen in the vicinity of the site which might have been these stones.

12. An examination of Trench 1 excavation indicated that it still contained from 15 cm. to 25 cm. of unexcavated silt. A brief subsurface examination in one small area (approx. 30 cm. X 30 cm.) yielded an <u>in situ</u> ash lense feature, two artifacts and several specimens of midden, as follows:

SPECIMEN	NUMBER
volcanic glass artifact with three flake scars and a bulb of percussion	1
culturally modified coral artifact (abrader?)	1
mammal bone	1
kukui nut fragment	1
marine shell fragments	
pearl oyster	3
mussell	1
cowry	1
nerita polita	1

13. An examination of Trench 2 excavation indicated that the trench had been excavated approximately 10 cm. below the surrounding surface, however bedrock was not encountered at this level as 15 cm. to 25 cm. of soil still remained within the pit above bedrock. A brief examination of this excavation area in a very small area (approximately 15 cm. x 15 cm.) indicated that the remainder of this soil had not been excavated since it contained an in situ ash lense.

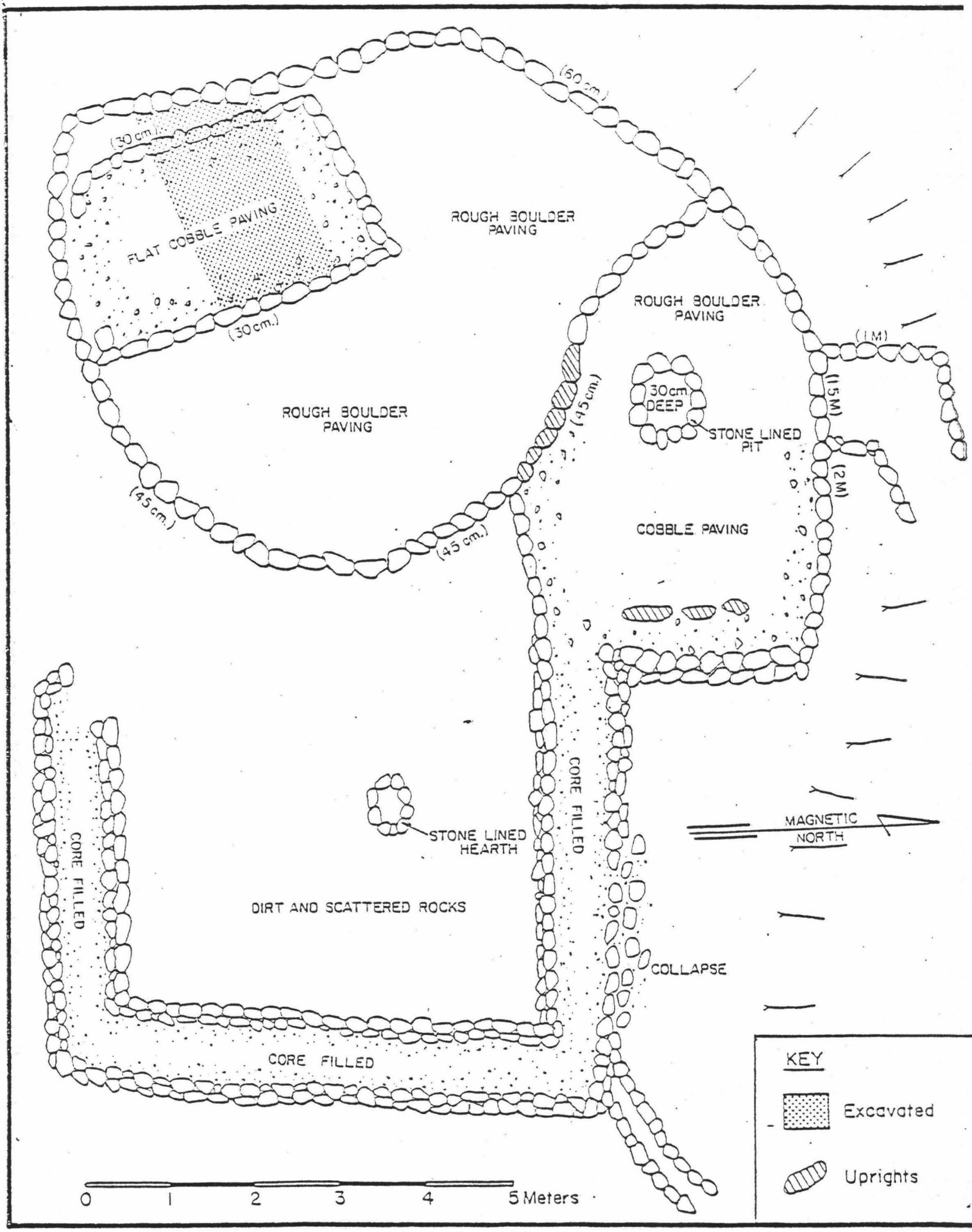


FIGURE 7 Site 50-10-37-6653 Plan View

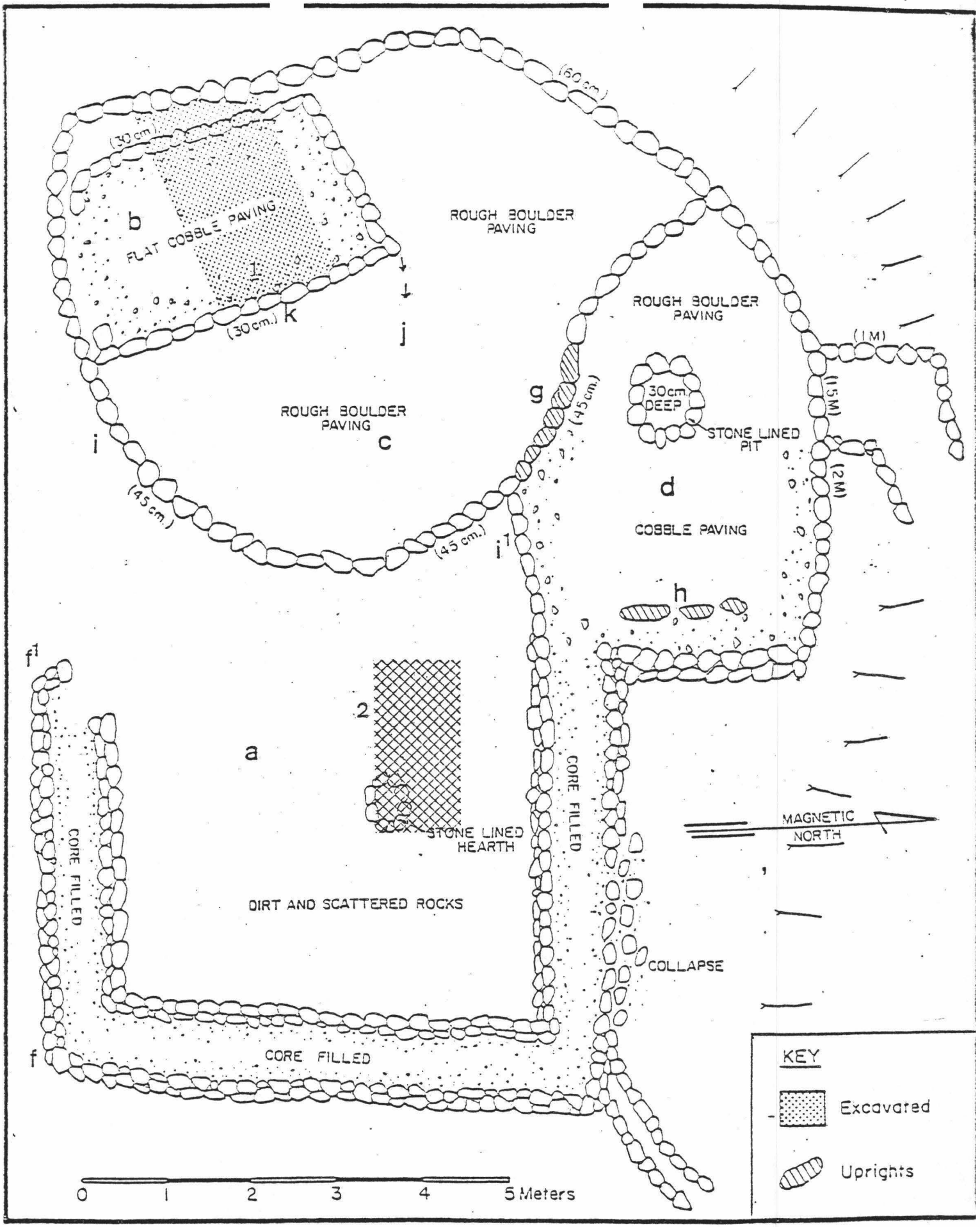


FIGURE 7 Site 50-10-37-6653 Plan View
ARCH Figure with Additions by Beggerly

SAI Fe. P-3 Heiau
ARCH Heiau
Site 50-10-37-6661

SAI addresses this structure primarily on pages 8-10 and 20 of Ms. 3-042179.

ARCH addresses this structure primarily on pages 4, 15-18 and 62 of Report 14-138.

SAI recommends detailed recording and test excavations be conducted on this structure.

ARCH recommends stabilization, vegetation clearing and preservation for this structure and suggests (p. 4) that no further research is needed on this site. ARCH includes a plan view and cross section of the structure on page 17 and a detailed description on page 62.

In my opinion, the plan view and cross section of this site lacks several features that should have been included in the permanent archaeological record of a major religious structure.

Discrepancies in the plan view and cross section are as follows:

1. The alignment marked "a" was not evident on May 2, 1980 during field examination of this structure. There is a depression in this area but no delineated pit was apparent, nor is there a clearly delineated pit at point "d".

2. Feature "b" does not appear to extend past "b1" but rather, appears to merge into the ramp "c".

3. Ramp "c" is not labeled on the plan view but is mentioned in the text (p. 62).

4. A large wall on the eastern side of the platform "e^1" is not indicated on the plan view, but is mentioned in the text.

5. A second wall "e^2" is located at this area but not noted on the plan view nor is it mentioned in the text. This wall may indicate a separate phase of construction of this enclosure.

6. The wall "f^1" does not join the major heiau structure at point "f^2" but rather, continues down slope.

7. The notations "g-m" indicate the height of the walls as explained on page 62, however the height of the walls do not match the bar scale on page 17 cross section.

8. At point "n" there was a break in the southern wall when examined on May 2, 1980, however this is not noted on the plan view.

9. There is a wall on the southern side of the structure from point "o^1" to "o^2" which is mentioned in the text but not clearly indicated on the plan view.

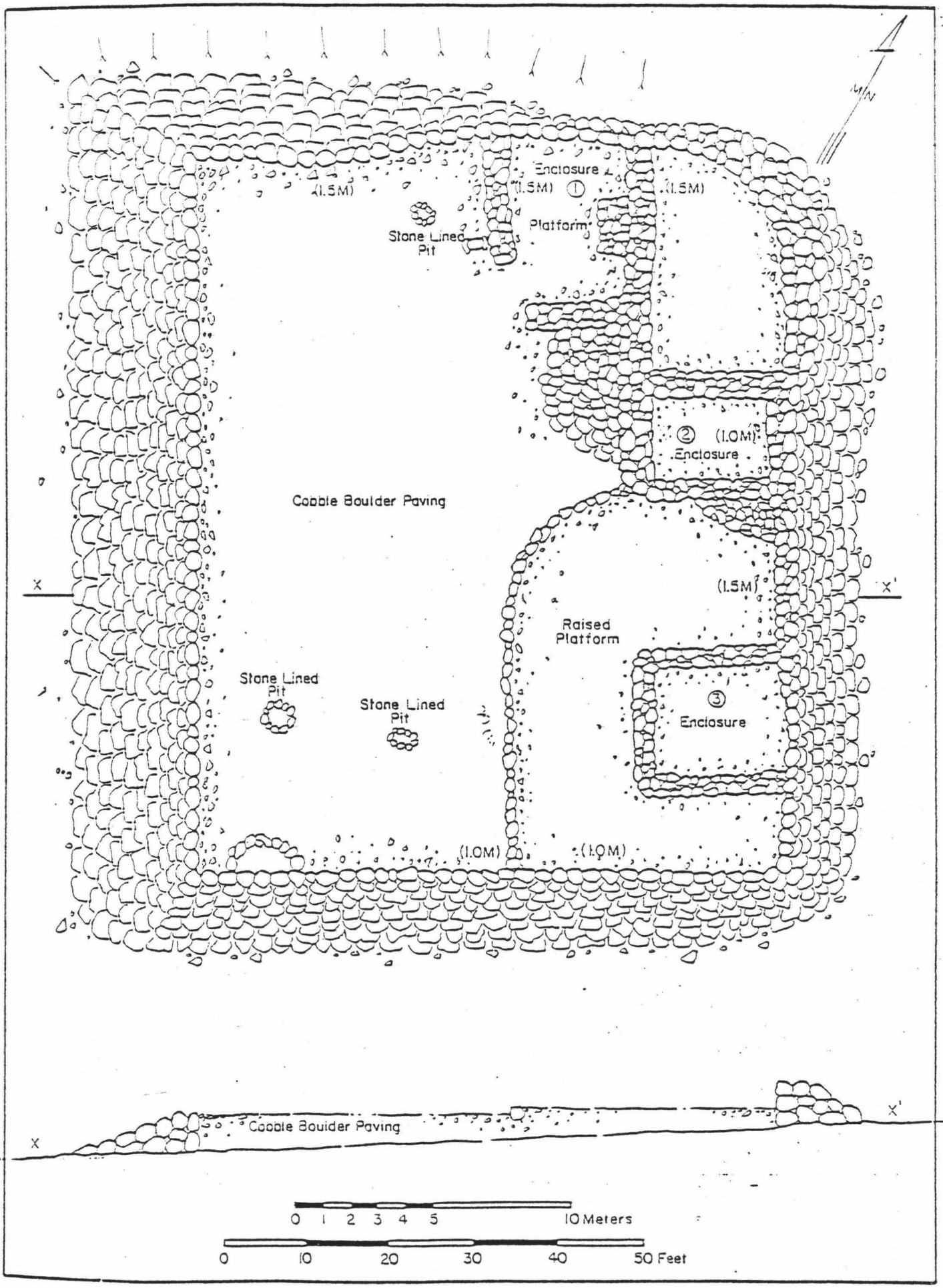


FIGURE 4 Site 50-10-37-6661 Plan and Cross-Section

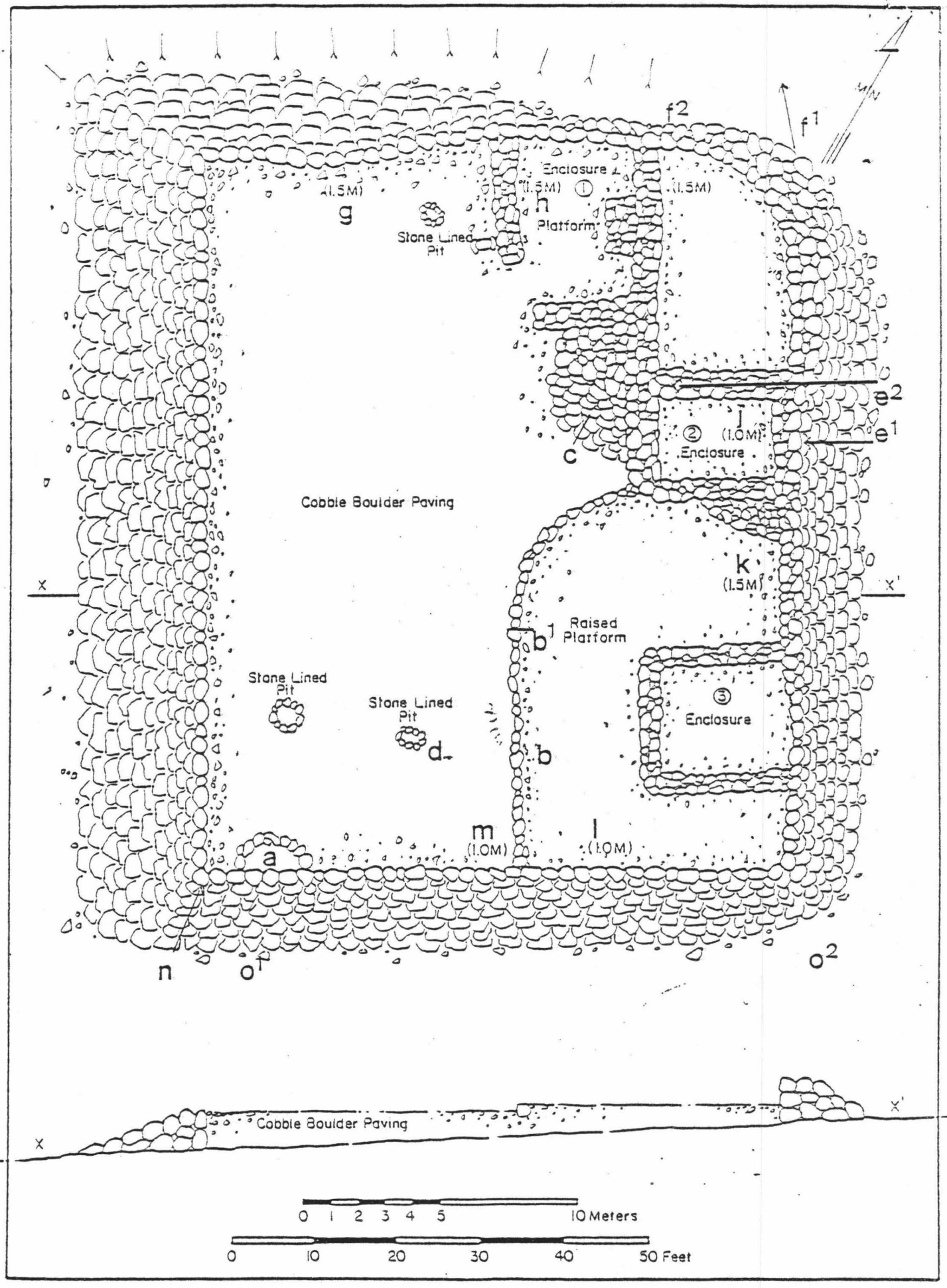


FIGURE 4 Site 50-10-37-6661 Plan and Cross-Section
ARCH Figure with Additions by Beggerly

Evaluation of the Archaeological Research Center Hawaii, Inc. Report 14-138, Based on the Information Contained in the Report as it Reflects the Material Data Extant in the Field.

1. The ARCH report states that a total of 88 archaeological sites occur within the project area (pp. 6, 11). This amount is noted after subtracting 58 features identified by SAI, which ARCH voided.

   Upon examining the list of sites on pages 47-62 (ARCH Report 14-138) it appears that only 65 sites are described. Twenty six percent (26%) of the suggested 88 sites are ignored or not considered. This issue becomes critical when the ARCH data are used by other researchers to determine density of occupation for studies of Hawaiian demographics, environmental carrying capacities, economics, subsistence process, etc.

2. The ARCH report states they have located, described, evaluated and mapped ALL (my emphasis) archaeological remains in the study area, (p. 4).

   During the field examination I observed at least two areas where sites were neither voided nor addressed. In the vicinity of SAI Fe. L-17 and L-18 there are at least three if not four features/sites. ARCH classifies one a stone clearance mound, and voids another one, but does not address, map, describe, or evaluate the other two.

   During the field examination of ARCH Site 50-10-37-6653, I observed a number of features associated with this site to the west of the platform. These features have not been located, mapped, described or evaluated in the ARCH report.

   In the SAI report (Ms. 3-042179, p. 8), a complex of agricultural features and an associated habitation feature is reported for Area O. This complex consists of a number of shallow, circular depressions that might have supported crops of sweet potato and/or wauke. Both of these crops were observed growing in such a system at this elevation between A.D. 1792 and 1794 (Menzies 1920). The ARCH report (p. 56) classifies this complex as a Stone Clearance Mound.

   Of the seven areas visited on May 2, 1980, two areas or 28% of the total sample of seven areas visited, contained cultural features/sites that had not been located, mapped, described or evaluated. If these features had been hidden

EVALUATION

excavated units in these sites.

5. The ARCH Report states, "the purpose of the excavation phase of this project was two fold . . . to recover cultural material of use in establishing the nature and time depth of human occupation . . ."(p. 18). However, they indicate that, "Because of the lack of cultural material in the surface sites it is presently impossible to chronologically relate the occupation of the lava tube sites to them." (p. 7) Yet, they indicate that a, "major value of the results of the excavation reported here is in contributing to chronology of human settlement of the Kona coast. . ." (p. 6).

During the brief examination of the two excavated feature/sites visited during the field inspection (SAI Fe. T-12, ARCH Site 50-10-37-6653 and SAI Fe. C-4, ARCH Site 50-10-37-6654) a piece of volcanic glass was retrieved from each of these feature/sites by Dr. Rosendahl. If these feature/sites had been excavated to bedrock,as stated in the ARCH report, then these specimens might have been recovered under controlled scientific excavation, thus allowing their use to correlate the occupation of the lava tube sites to the surface structures.

Because these specimens were retrieved under adverse conditions, and because time limitations prevented recording of provenience and associated deposition data at the time the specimens were extracted, these volcanic glass specimens can only give us a hint that the structures, or in the case of T-12/6653, the stratum underlying the structure were being utilized around A. D. 1600. The specimens further make us aware that important archaeological information has been lost due to the manner in which the archaeological research on these structures was conducted. They also tend to negate Hammatt's statement that a,"major value of the results of the excavation reported here is in contributing to the chronology of human settlement of the Kona coast." (p. 6.)

Based on the above, it is my opinion that ARCH did not conduct their research in such a manner as to adequately retrieve data to answer questions that they consider of 'major value' to archaeological research.

6. In addressing the excavation of Site 50-10-37-6654 (SAI Fe. C-4) the ARCH report states, "A one meter wide trench was placed from the front of the platform 1.5 meters to the mauka side of the larger of the two pits and was excavated to bedrock (my emphasis) at a depth of 45 centimeters . . . No cultural material was uncovered (my

under heavy vegetation, this error factor might be easily explained. However, in the case of these particular unrecorded features, the ARCH crew were within a few feet of the features/sites while they were working on Sites 50-10-37-6609 and 6553. The features/sites that were not addressed were not hidden by heavy vegetation on May 2, 1980.

Based upon the above discrepancies, it is my opinion, that the location, description, evaluation and mapping phase of the ARCH research was not of appropriate intensity or precise enough to adequately identify the resources contained in the research area.

3. The ARCH report states, that "all"(my emphasis) surface structures with "any"(my emphasis) likelihood of containing burials have been tested for human skeleton remains (p. 4). All sites "likely"(my emphasis) to contain human burials have been excavated to determine presence or absence (p. 5).

   In my opinion, the Stepped Platform (SAI Fe. C-1, ARCH Site 50-10-37-6656) is likely to contain human skeletal remains. ARCH did not test this structure for the possibility of burials nor did they produce a permanent plan view record of the structure. Their cursory description of the site (pp. 14, 60) does not address an associated feature attached on the northwest corner of the platform nor a feature located on the surface of the upper tier on the northern end of the platform.

   Based on the discrepancies noted above, it is my opinion that this site was not adequately addressed by the ARCH research regarding the presence/absence of skeletal material, nor was it accurately described or evaluated for clearance prior to destruction.

4. The ARCH report states, "Although the other excavations were of interest in documenting construction techniques, the only substantial archaeological content in terms of stratified culture bearing deposits were found in three (3) of the four (4) lava tubes." (p. 6).

   Although one may argue that the word "substantial" is a subjective term and can be quantified only in the perception of the user, in my opinion both excavated feature/sites that I observed (SAI Fe. T-12, ARCH site 50-10-37-6653 and SAI Fe. C-4, ARCH Site 50-10-37-6654) contained evidence of cultural material and had research potential. Whether they contained "stratified culture bearing deposits" is a matter of conjecture since excavation profiles were not furnished by ARCH for their

been located in situ, the research conducted on a portion of the unit should, at the least, recognize this archaeological issue.

The size of a habitation structure also becomes important when considering that much archaeological research, both in Hawaii and internationally utilizes the size of the habitation unit as an indicator to answer questions regarding rank, status and social complexity, etc.

Although the issue of accurate records of research will be addressed later, it should be noted that the material remains observed during the field investigation indicated that the records compiled by ARCH for this site were erroneous.

7. In addressing the excavation of Site 50-10-37-6653 the ARCH report states, "Two trenches were placed within the site. Trench 1 in Area B is 1.5 meters wide and 3 meters long and was excavated into the cobble paving. . . In addition two 1 meter trenches were placed side by side in Area A. . .bedrock was encountered at a depth of less than 10 centimeters with no evidence of cultural activity (my emphasis)".

The ARCH report further states, "With these surprisingly negative results the rest of the site and its perimeter were carefully examined (my emphasis) for signs of cultural residue, both on the surface and between stone fill. The results were negative. It is of interest that in the case of the trench in Area B, fine textured sediment is present below the rock foundation. The residue of human activity on the platform would be expected to filter downwards through the rocks and mix with this sediment and the environment should be conducive to its preservation. The absence of cultural material (my emphasis) in this case cannot be the result of subsequent erosion but must be because none was deposited." (Hammatt 1979, p. 25)

This statement is difficult to reconcile with the actual situation. An examination during the field investigation, of Trench 1 demonstrated the soil matrix of this trench to be very black, greasy and laced with charcoal. This type of deposit obviously indicates cultural modification of the soil. Further examination of this trench indicated that it had not been excavated to bedrock as 15 cm. - 25 cm. of unexcavated silt remained in the trench. This deposit included an in situ ash lense which indicated the soil had not been disturbed, several pieces of midden, and two artifacts (see page 22 this report).

emphasis) either in the platform and pit fill or underneath" (p. 22).

During the field examination of this feature/site the Pit A excavation trench was located by members of the investigation team and was verified by Dr. Hammatt to be the area researched by ARCH personnel. As stated above (p. 15), this trench yielded cultural material when examined by Dr. Rosendahl, the pit was not exposed to bedrock, and artifactual 'cultural material' was present on the surface of the feature/site. It is unknown if the 20-30 cm. of soil tested on May 2, 1980 represented undisturbed deposit or if it was backfill from previous excavations, since no in situ features or lenses were encountered during the May 2, 1980 testing. However, even if it was backfill it should not have contained midden and datable volcanic glass specimens because the ARCH report states that "all sediment excavated was sifted through 1/8 inch mesh screen and after discarding unmodified rock was bagged by 10 centimeter level for laboratory analysis of bone, shell and other midden residue." (Hammatt 1979, p. 10)

Additionally, the size of the 'planting area' reported by ARCH when measured during the field examination was observed to be of a different configuration and to be less than 1/2 the size reported in the ARCH report. Thus we have an error factor of 100% in the plan view drawing of this feature/site. Further, although this area was designated a 'planting area' no criteria for such a designation was stated nor was the area tested; even though it contained from 20-30 cm. of soil. This deposit might have yielded information to prove or disprove this functional classification.

Based on the above, it is my opinion that the research conducted on Site 50-10-37-6654 by ARCH did not record the site, in size or configuration, accurately. Excavations conducted did not adequately test the structure to determine its function, nor were the records of the excavations accurate in presenting the research. Additionally, several features associated spatially with the site were completely ignored, even though they were identified in previous research by SAI personnel and the data was available to the ARCH research team.

The relationship of associated features becomes of major importance in considering that much of the early historic data suggests that Hawaiian settlement patterns reflected a complex of structures for each housing unit. Few of these units have been located in archaeological context, thus when it appears that such a unit may have

from most archaeologists' viewpoint, they are of the utmost importance. For many decades, much of Old World and New World archaeology has been centered around research regarding the development of agriculture; its processes and effects on mankind, his physical and mental development and how this phenomenon affected his government, religion, environment, social structure, language, dispersion, warfare, etc.

In Hawaii, the beginning of agriculture, its evolution and its effect on the early Hawaiians is considered by most archaeologists to be a major research topic. Although, I might quote many researchers' remarks on this subject, I have chosen the following primarily because the research data was readily available, the statements are generally accepted as valid statements, and they succinctly address the issue:

> "It is assumed that agriculture was part of early Hawaiian subsistence, but no swidden or irrigation fields have yet been dated prior to A.D. 1200s. . .The location of early agricultural features remains a research priority"(my emphasis) (Tuggle, 1979)

> "As in New Zealand, the hypothetical relations between such agricultural intensification and the social system - in Hawaii especially the rise of powerful chiefdoms- continues to be a research topic of major concern."(my emphasis) (Kirch, 1979)

> "It is through the construction of similar subsistence-settlement systems to the one recognized at Halawa Valley that viable understanding of the economic development of the Hawaiian Islands can be attained. And it is not until an understanding of the economic system (my emphasis) is attained that social, political and religious systems in the Hawaiian Islands can be initially constructed." (Riley, 1973)

> "Now all this information about field walls, and taro terraces may seem somewhat overwhelming, and indeed it would be if it were simply amassed to no purpose,(my emphasis) however, several Hawaiian archaeologists are now looking for trends which run through the data on a broad scale in order to raise hypotheses about Hawaiian cultural development." (Bellwood, 1979)

Examination of ARCH excavation Trench 2, also indicated that the excavation had not been completed to bedrock as reported. Again, 15 cm. to 25 cm. of soil still remained in the excavation unit. An in situ ash lense was present, indicating that the research had been erroneously reported.

In addition, neither the size nor the configuration of the site was accurately recorded on the plan view.

Based on the above, it is my opinion that the research conducted on Site 50-10-37-6653 by ARCH did not record the site accurately regarding size or configuration. Excavation was not accurately recorded and did not reflect the actual physical data. The statement that the site and its perimeter were carefully examined and the results were negative, is an unacceptable statement in light of the extant cultural remains. Indications of cultural remains are within one to two inches of the surface of each of the excavated pits. Greasy black charcoal laden soil is on the surface of Trench 1. It is difficult to understand how the ARCH archaeologists could have overlooked such a deposit.

8. From a general rather than site specific point of view, one of the most serious inadequacies of the ARCH research in my opinion, is their lack of consideration of the research project resources and its relationship to the Kona Field System. This system was delimited as including those lands which lie within a rectangle defined as follows when determined to be eligible for listing on the National Register of Historic Places by the Keeper of the National Register:

	LATITUDE		LONGITUDE
NW	19°42'15" N	/	156°00'27" W
NE	19 42 16 N	/	155 56 27 W
SE	19 22 20 N	/	155 50 10 W
SW	19 21 32 N	/	155 54 18 W

The project site lies wholly within this rectangle. As such, all the features/sites included in the project area are considered by the Advisory Council on Historic Preservation to be part of the Kona Field System, this includes the agricultural features, the habitation features, the religious structures and all historic cultural phenomena.

Although agricultural systems and features are often viewed by the layman as having no importance to history,

10. The greatest inadequacy in the ARCH report, in my opinion, is the reporting of the data present at the project site. Science and particularly archaeological research, due to its destructive natures, is cumulative. Each successive bit of research must of necessity, be based on research already accomplished. The profession accepts that different conclusions may be drawn from a given set of data. However, it is an implicit assumption that the researcher has recorded the data recovered during his project as accurately as possible. In my opinion, no such effort is apparent in the ARCH report. Several sites visited during the field inspection demonstrated the inadequacy of the research

9. It is a generally accepted belief that archaeological research is conducted with the goal of gaining knowledge and insight from the data recovered. Hammatt (1979) indicates that his research has accomplished this goal, he states:

> a "major value of the results of the excavation reported here is in contributing to chronology of human settlement of the Kona coast and in developing a tentative predictive framework for locating sites in this region with excavation potential." (p. 6,7)

He further suggests that his research is of value to others, in that they can use it as a predictive framework for locating sites with excavation potential in dry land areas of the Kona coast.

> "The negative results in terms of cultural midden and artifactual material in the surface sites especially the probable habitation platforms may be indicative of a general pattern. This pattern may only apply to habitation sites associated with dry land agriculture in the transition zone above the coastal strip. One can postulate that these sites were used only for temporary shelter during field maintenance and harvesting." (p. 7)

In my opinion, both of these statements should be discounted by the fact that they are based on erroneous or improperly reported data.

a. The two habitation sites that were investigated during the field inspection were not without evidence of cultural data which Hammatt indicates is his criteria for determining that these sites represent "temporary shelter during field maintenance and harvesting." (1979, p.6)

b. Secondly, some information may have been gained regarding the chronology of human utilization of the cave sites. However, if the percentage of error for that research was as high as that observed for the surface sites, then I question that the information gained from the cave sites is of "major value" to archaeology.

EVALUATION, REVIEW, COMMENTS AND RECOMMENDATIONS REGARDING ARCHAEOLOGICAL RESEARCH CONDUCTED AT KEAHOLE AGRICULTURAL PARK KALAOA-O'OMA, KONA, HAWAII

BY

ARCHAEOLOGICAL RESEARCH CENTER HAWAII, INC.

SOH Contract #10419 ARCH 14-122 II

TMK: 7-3-10:33 por.

Patricia Beggerly

August 20, 1980

N-20

INTRODUCTION

Following is a review and evaluation of archaeological research conducted by Archaeological Research Center Hawaii, Inc. at Keahole Agricultural Park Kalaoa-O'oma, Kona, Hawaii (SOH Contract #10419 - ARCH 14-122II). These evaluations, comments and recommendations are based on a review of the Final Report Document and an archaeological field inspection of the project area and three of the sites; 50-10-27-262, 50-10-27-6420, and 50-10-27-6421. The field inspection was conducted by Mrs. Patricia Beggerly, staff archaeologist, Historic Preservation Program and Mr. Guy Nagai, Department of Agriculture on August 6, 1980.

The Scope of Work for this research included a reconnaissance of a portion of TMK: 7-3-10:33 located to the north of the Phase I and Phase II park development which may be planned for park expansion in the future, and a second task which included the archaeological salvage of eleven sites (50-10-27-262, 6417, 6418, 6419, 6420, 6421, 6422, 6423, 6434, 6436, and 6437). All of the eleven sites were expected to be directly impacted by Phase II park development with the exception of 50-10-27-262 and 50-10-27-6418.

This report has been organized into four sections. The first section deals with the evaluation and review of the reconnaissance portion of the contract and sets forth recommendations for revisions to the Final Report. The second section reviews and comments on technical discrepancies in the Final Report document. Section Three is an evaluation and review of the general research orientation of the report and Section Four sets forth general research comments and recommendations.

EVALUATION AND REVIEW
RECONNAISSANCE TASK I

The Scope of Work, Exhibit A, Contract 10419 states that the Consultant's efforts shall be concentrated on locating, photographing, sketching and identifying the cultural features within the study area. It is further stated that sites and site concentrations shall be mapped. That a photo file will be prepared of cultural resources. Additionally the Consultant was charged with the responsibility of providing specific recommendations concerning particular sites. In a more general sense the Consultant was also charged to provide recommendations regarding areas that contained a minimum of sites, thus allowing for development of the area with minimal impact to cultural resources.

The Final Report of this research was to include:

1. A description of features, sites, site complexes and/or general areas of cultural patterning along with the probable function of each archaeological unit and its possible significance.

2. Information regarding the condition of all archaeological resources encountered during the reconnaissance.

3. Black and white photographs (3" x 5" minimum size) of each feature, site, site complex and/or area of cultural patterning described.

4. A reproducible map of the study area with cultural resources noted thereon.

5. Recommendations concerning particular archaeological sites or areas, in the event that further research is considered necessary to mitigate any adverse effects which might result from proposed development of the area; and general recommendations on potential locations within the subject area which may be suitable for the siting of the proposed agricultural park which would minimize any impact upon significant archaeological sites.

Many of the tasks have not been accomplished and therefore we recommend that the Final Report be revised to include:

1. A written description of features, sites, site complexes and/or general areas of cultural patterning along with the probable function of each archaeological unit and its possible significance. This description should include photographs and sketches of each unit.

2. A written description of the physical condition of all archaeological resources.

3. Black and white glossy photographs (3" x 5" minimum size) of each feature, site, site complex and/or area of cultural patterning described. Attendant information regarding feature, site, site complex or general archaeological area; their field number and provenience; the date photographed; and the name of the photographer should be indicated on labels firmly attached to the back of the print.

4. A reproducible map of the study area with cultural resources noted thereon. The resources should be noted in such a manner as to allow the reader to cross reference the archaeological unit with the written and graphic descriptions included in the Final Report. All measurements will be metric and bar graphs on each map will include both metric and English (U.S. - inches, feet) measurements.

5. Recommendations concerning particular archaeological sites or areas in the event that further research is considered necessary to mitigate any adverse effects which might result from proposed development of the area; and general recommendations on potential locations within the subject area which may be suitable for the siting of the proposed agricultural park which would minimize any impact upon significant archaeological sites.

6. Accompanying the Final Report should be a photographic file of color slides along with a master list which sets forth information regarding features, sites, site complexes or general archaeological area; their field number and provenience; the date photographed; and the name of the photographer. The number on the master list should be correlated with a number on the color slide for ease in identifying the archaeological unit represented. Additionally, the

negatives for the black and white glossy photographs mentioned in Item 3 should be included with the photographic file.

EVALUATION AND REVIEW
SALVAGE/TESTING TASK II
TECHNICAL DISCREPANCIES IN
FINAL REPORT

A number of technical discrepancies were noted during the review and evaluation of the ARCH Final Report. We recommend the report be revised to correct these discrepancies.

Site 50-10-27-26Z
Page 9 Paragraph 4 Line 14

Location of C-14 sample stated as being illustrated at Station 7, Figure 5 is not so indicated on this figure, nor is it indicated on the plan view of the South Tube, Figure 6. Text is unclear regarding archaeological associations of dated specimens.

Page 9

The "Refuge" wall which blocks the South and West Tubes is described in detail in this section, however the substantial wall blocking the North Tube is not mentioned.

Page 10 Paragraph 1 Line 5

The text mentions poles set up vertically to support slabs forming the "refuge" wall but does not mention poles set horizontally which are presently apparent near the West/South Tube entrance. These poles are indicated in Rosendahl sketch reproduced in Ching 1971 (p. 103) also, but orientation is not noted.

Page 14 Paragraph 3 Line 3

Station 6 (Figure 6) is mentioned as an area which requires preventive measures during park development, however Figure 6 does not depict Station 6.

Page 20

This figure contains several "AR" numbers and notation of location of several artifacts, however it is not possible to determine the type of artifact or provenience because the Master Artifact Catalog does not contain a cross reference between AR number and Accession Number. We recommend that either the artifact catalogue or figures be modified to reflect

this information.

The text (pp. 9, 10, 13, 19, 21) cites the presence of a "refuge" wall. We recommend this notation also be placed on Figure 4.

The text implies that a permanent datum was established within the perimeter of the site from which other measurements were calculated. We recommend this datum be indicated on Figure 4.

The figure indicates a "previous" trench was located in the northeast section of the sink, however this trench is not discussed in the text. If information is available regarding this excavation, we recommend it be included in the text.

Because the figures may be used during construction of the agricultural park we request that figures include both metric and English (U.S. inches/feet) measurements on the bar scales.

Page 22

Because the figure may be used during construction of the agricultural park we request that figures include both metric and English (U.S. inches/feet) measurements on the bar scales.

It is recommended that a map be included with the Final Report which illustrates the entire site and indicates the relationship of each tube with the sink in Site 50-10-27-262. This map should illustrate the full length of each tube and side chambers, depict the sections which were illustrated as Figures 6, 7 and 8, including mapping stations and show major cultural features in each area. The scale of the map should not be less than the scale of Figure 6 and should include a bar scale with both metric and English (U.S. inches/feet) measurements. The tubes, side chambers and sink should all be illustrated in the same scale.

A brief analysis of the four figures (4, 6, 7, 8) appear to indicate that the South or West tubes overlie each other which is not indicated in the text or on the figures. This may be the actual orientation of the tubes or it may be due to incorrect compass readings caused by the presence of iron deposits in the tubes. Since Davis experienced an inconsistent 16° variance in compass readings during the surface survey of this area, we recommend that the tube mapping coordinates be checked with a transit and that corrections be made as applicable.

Page 25 Paragraph 1 Line 3

The text describes features located in reference to Station 4, however this station is not indicated on Figure 6. We recommend that Station 6 and all other stations be included on all plan views since they are used as reference points in the text.

Page 25 Paragraph 1 Line 5

A boulder wall with entryway is mentioned in the text but the entryway is not illustrated on Figure 6. Is this the same feature on Rosendahl sketch as Feature F (Ching 1971) which is indicated as an area of 'final defense'?

Page 25 Paragraph 2 Line 1

Stations 6 and 7 are mentioned in the text but not included on Figure 6. Additionally, SE 14 (an unexplained designation) is noted in the text but not included in Figure 6, however SE 13 is noted on the plan view but not mentioned in the text.

Page 25 Paragraph 2 Line 5 and Paragraph 4 Line 1

Again a Station (7) is used as a reference point to describe a feature but is not included on the Figure (6).

Page 31 Paragraph 1 Line 11

It is stated in the report that petroglyphs which extend 12 meters are located on the East wall of the tube. It was our observation that these petroglyphs are on the West side of the tube as illustrated in Figure 8 Page 30.

Page 35 Paragraph 2, 3 (Trenches 10 & 12)

The contract scope of work states that horizontal and vertical (profile) graphic records shall be furnished of all excavated or dismantled units. No vertical records have been included in the Final Report for Trenches 10 or 12, nor does the text indicate whether a full meter was excavated to a depth of 40cm. in Trench 10. A small fireplace is noted in the text in Trench 12 but the text is unclear whether this feature is associated with the upper stratum of "well sorted cobble paving" or with the lower cobble and boulder paving.

Page 34 Paragraph 1 Line 4

The report indicates only 1 adze was recovered from Trench 1, however the Master Artifact List indicates ACC. # 2 and 3 are both adzes and were both recovered from Trench 1 Platform.

SITE 50-10-27-6418
Page 38 Paragraph 4 Lines 1 and 2

The text notes that petroglyphs are present on the east (mauka) portion of the sink on the overhang, however they are not so indicated on Figure 10.

Page 39

No information is given in the text regarding two excavations placed in the central portion of the sink (TR 50-51) Figure 10.

Trench 15 is not indicated on B-B1 cross section (Figure 10) yet the transect crosses this unit.

Page 41 Paragraph 3

A two meter excavated trench, T-1 is indicated in the text but not labeled on Figure 10.

Page 41

Excavation units are mentioned as being placed beneath the petroglyphs, however it is not stated which TR numbers are included.

The contract scope of work indicates that vertical (profile) graphic records will be furnished for all excavated units. These figures are missing for units TR 3, 4, 6, 7, 15, 26, and 51.

SITE 50-10-27-6418B
Page 53

Two trenches were excavated at this site, the report includes a vertical graphic reference for Trench 1 only (Figure 16).

Site 50-10-27-6422
Pages 56-58

A portion of the text is missing between 56-58. The text on page 58 begins in the middle of a sentence, the remainder of which is not included on the preceeding page of text, page 56. The contract scope of work indicates that vertical and horizontal graphic records will be furnished for each excavated or dismantled units. The report does not contain vertical (profile) records for either of the ahu or for Trench 1.

Site 50-10-27-6421
Page 59

There is a small square with no label located at entrance to mauka tube on this figure which is not mentioned in the text, is this an excavation unit?

Page 59 Figure 18

The test trench located on the northern tube wall near Platform 4 is not described in the text nor is a vertical graphic record provided for this unit.

Page 60 Paragraphs 2 and 3

Throughout the text the designations mauka and makai are used to direct the reader to specific areas of the site. These designations are not labeled on all the figures and thus are confusing.

Paragraph 2 Line 1 states that a lava tube extends makai from the sink and continues makai yet in paragraph 3 the text states that you descend into the mauka tube from the makai side of the sink. This entrance area is illustrated on the east side of the sink whereas the entrance to the makai tube is on the west side of the sink. Should not the word makai in paragraph 3 Line 1 be changed to mauka?

Page 61

No vertical graphic record is included in the Final Report of the 50 cm. deep excavation unit placed on Platform 1.

Page 62

The cross section A-A1 is shown on the Plan View (Figure 19)

as being within the "hearth" area, however the hearth is not indicated on the cross section.

Page 63 Paragraph 3 Line 10

A number of artifacts found on or within the matrix of this feature (Figure 20) are labeled on the figure, however two finished bone fishhooks are mentioned in the text but not labeled on the figure. Additionally, the text does not mention (nor is Figure 20 labeled accordingly) other artifactual items found associated with this feature and noted in the Master Artifact Catalog which would allow the reader to independently evaluate the functional designation of this feature as a 'craft activities' area. An analysis of the Master Artifact Catalog indicates that in addition to two finished bone fishhooks (p. 63), a complete adze (p. 63), gourd fragments (p. 64),cut bone (p. 64), worked bone (p. 64) at least nine other artifacts were associated with this feature (Platform 3) as follows:

ACCESSION NUMBER MASTER ARTIFACT CATALOG	DESCRIPTION
92	File - coral
93	Fishhook blank - bone
94	Fishhook blank - bone
98	Fishhook blank - bone
99	File - coral
100	Fishhook bone detritus
111	File - coral
112	File - urchin
206	File - wana

Page 65 Paragraph 3 Line 5

The text indicates that Platform 4 had two layers of organic matting; a grass matting without lauhala and a grass matting with lauhala. When this information is included in the cross section (Figure 21) both layers are designated grass layer with lauhala and the graphic representation of the two different units is illustrated with the same graphic designation.

Page 65 Paragraph 3 Line 14

Rope artifact mentioned in the text is not designated on the Plan View (Platform 4) unless this is "woven ti leaf" labeled on Figure 22.

Page 65 Paragraph 4 Line 4

Fireplows (ACC. 122, 125, 208) mentioned in Master Artifact Catalog are not located on the figure (Figure 21).

Page 67

The small square (approx. 25 cm. square) located in the northwest corner of Trench 2 (Figure 22) is not labeled nor are the symbols.

Site 50-10-27-6420
Page 71 Paragraph 3 Line 1

Two trenches of unstated size are noted as having been excavated in the East Platform B. The Figure (23) for this site however designates only a "Platform Upper Level" and indicates two excavation units were placed in this platform. A third test trench was placed in the west paved area (Line 8) however Figure 23 does not indicate this excavation.

No vertical (profile) graphic records are furnished for any of the three excavation units.

SITE 50-10-27-6423

Page 72 Paragraph 3 Line 12

A second upright boulder alignment is mentioned in the text as associated with Feature 3 but is not illustrated on Figure 24.

The ahu in Feature C Figure 24 should be labeled.

Page 74 Paragraph 4

It is mentioned in the text that several areas were tested by removal of stones or excavated with trowels to determine the presence of cultural material. These tested areas should be indicated on Figure 24.

Site 50-10-27-6417
Page 76 Feature B

The text indicates that this feature was dismantled. No vertical graphic record is furnished of this feature.

Page 79 Paragraph 2

A fifty centimeter trench was excavated in Feature D, however location of the trench is not indicated in either Figure 25 or 26 and no vertical or horizontal graphic record is included for this excavation unit.

Page 78

The area in the center of the East wall of Feature D was removed from this feature, however no vertical graphic record of this dismantled unit is included in the report.

A dashed line is illustrated in the southwest corner of Feature D. No label is associated with this dashed line and no vertical graphic or written record is furnished of this area if it was excavated or dismantled.

Page 79 Paragraph 4 Feature F

This feature was dismantled but no vertical graphic record is furnished in the report.

Page 80 Paragraph 2

The text states that two low mounds were dismantled within this site, the area where the mounds were located is not indicated on the Figure nor is a vertical or horizontal graphic record included with the report.

Site 50-10-27-6419
Page 83 Paragraph 2 Line 1

A cave shelter is mentioned in the text, illustrated and labeled on Figure 28 but designated as small bubble on Figure 27.

Page 83 Paragraph 3 Line 1

Two ahu are mentioned in the text, one of these near Davis' Feature E is illustrated on Figure 28, the second one is not included on this figure.

Page 83 Paragraph 4

This small platform is illustrated but not labeled on Figure 27.

Pages 83 and 84

Four trenches were excavated (including unnumbered trench in makai platform) however the report does not include a vertical graphic record of any of these excavation units.

Two ahu and two cupboards were dismantled however none of these were recorded in vertical graphics in this report.

Page 85

The following ahu were dismantled but neither vertical nor horizontal graphic records were included in the report

Site 50-10-27-6434A	Site 50-10-27-6434L
6434C	6436
6434D	6437
6434k	6434H (dismantled & excavated)

Pages 88-91

Units of weight need to be added to the Midden Tables.

Pages 102-110

The Master Artifact Catalog needs a key to explain BPS and BS. Also units of length, width, thickness and weight need to be added as headings or explained in a key.

EVALUATION AND REVIEW
GENERAL RESEARCH

SITE 50-10-27-262

Prior to conducting the field inspection on August 6, 1980, I was requested to examine carefully the physical data associated with the North Tube Platform, the information from which was used to date the petroglyphs. The person stated that the report contained erroneous information, that the base rocks of the platform rested upon sediment and were not generally touching bedrock as indicated in the Final Report. They concluded from the data they had observed, that the sediments underlying the platform stones predated the platform and therefore might be useful in determining the date of the petroglyphs.

The ARCH document reports an entirely different view of the archaeological data, as follows:

> "At the base of the rock fill . . . was a 10 cm. thick . . . deposit of . . . sediment which was deposited after filtering through the platform fill. This sediment was around the base of the rocks, but . . . was not underlying them. This means that the silt filtered down from the platform surface and, therefore, postdates the construction of the platform and is contemporaneous with the use of the platform." (my emphasis)
>
> "The bulk of the cultural material was contained within . . . the deposit. . . at the base of the platform fill. This deposit was . . . associated with the platform above."
>
> Hammatt (1980:32-34)

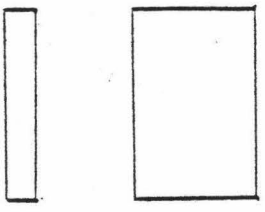
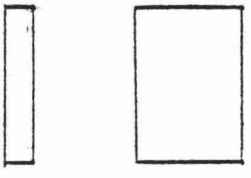
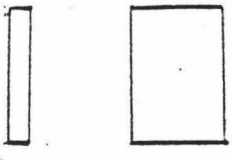
During the field inspection of this site, five stones believed to be associated with the platform in the vicinity of trenches 5, 7 and 9 were removed and the underlying area was examined to determine if sediment was present below the stones. Of the five stones removed, none were resting on bedrock, but rather were overlying a 3-6 cm. (1-2 1/2") layer of sediment.

The presence of the sediment underlying the stones indicates that the platform was constructed upon a previously

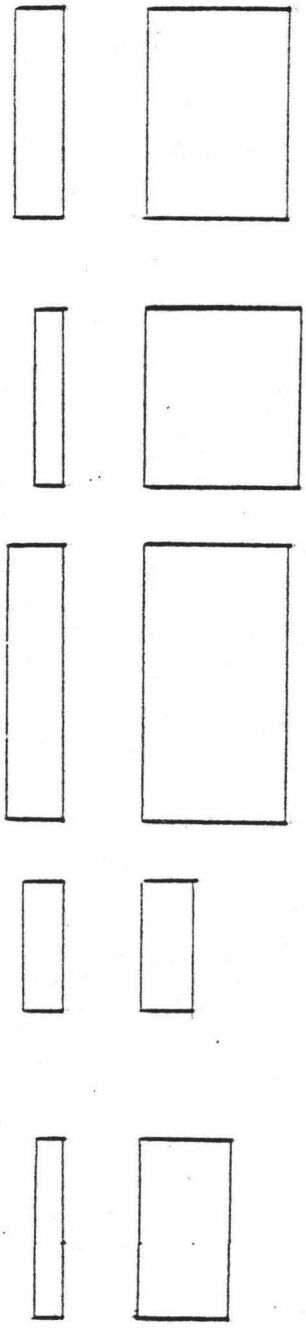
deposited and possibly utilized surface which may have been dateable. This might have still been accomplished, since several pieces of basaltic glass were recovered from this platform if the consultant had conformed to the scope of work which states:

> "All artifacts, fragments and unworked pieces of basaltic glass will be collected from all excavations, with triangulation measurements taken of their location within the excavated unit of all specimens found in situ." (p. 6)

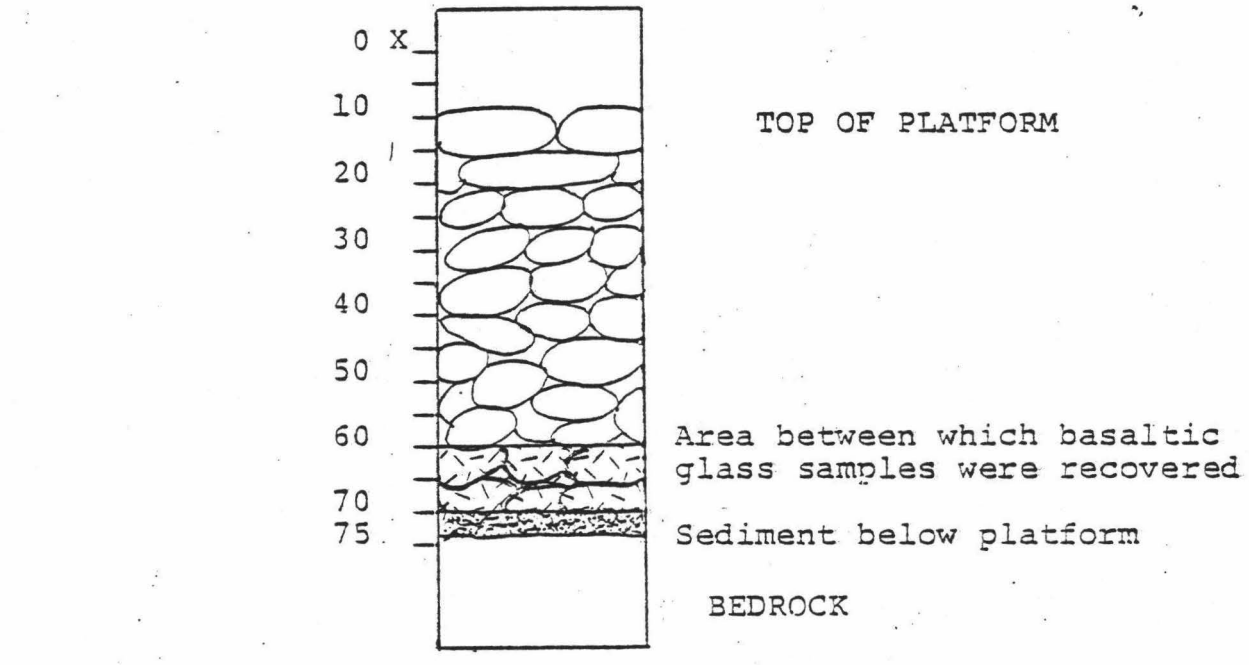
However, the basaltic glass was not recovered in situ with triangulations measurements taken during excavation from the unconsolidated cave sediment, therefore only gross measurements are known for the specimens; which trench they were recovered from and a 10 cm. range for the depth measurements. A number of specimens were recovered from this platform, as indicated below. Note: Acc. No. 183 has not been included in this list because a (?) is included in the Master Artifact Catalog associated with this number. Acc. No. 179 has been excluded because it was originally extracted from a different source than the other specimens.

Acc. No.	cm.BPS Level	Length cm.	Width cm.	Thick cm.	Graphic Size (approx.)
177	60-70	2.45	1.48	.33	
178	60-70	1.82	1.32	.43	
180	60-70	1.83	1.27	.21	

Acc. No.	cm.BPS Level	Length cm.	Width cm.	Thick cm.	Graphic Size
181	60-70	2.76	1.83	.58	
182	60-70	2.37	1.96	.28	
184	60-70	3.45	1.78	.76	
185	60-70	1.74	.66	.43	
186	60-70	2.30	1.19	.33	



As suggested in the report (p. 3) this site offered a unique potential, an opportunity to establish a lower limiting date for petroglyphs. . . a relatively rare opportunity. Although a cluster of dates associated with the platform has been gained, archaeologically there is room to question the data since the bedrock under the platform as indicated on page 30 was 74 cm. below the datum and the dateable samples were removed from somewhere between 60-70 cm. below this datum. Therefore as much as 14 cm. of sediment could have remained under the sample and as little as 4 cm., as illustrated below:



Schematic (not to scale)

Site 50-10-27-6421

The research conducted on this site has been addressed primarily in the Recommendation Section of this review, however a few comments will be added here also.

A number of research projects have been centered around the data collected from work shop areas. These projects deal not only with work activity centers in Hawaii but have addressed data gathered from around the world. The projects used this data to solve anthropological problems regarding spatial patterning, settlement patterns, social differentiation, enculturation of the young, etc. Additionally, entire theoretical schools in Anthropology have been concerned with the evolution of society and how technology might be linked with this evolution. Work shop areas are viewed then as significant archaeological resources that can help answer problems within the context of a great many research proposals.

Hammatt (1980) has identified Platforms 2 and 3 of this site as work shop areas. However the information has been reported in such a way as to limit its usefulness to archaeologists who may wish to use the data in their studies of human behavior. For example: The report states (p. 63) that wood shavings were deposited on Platform 2. The Master Artifact Catalog further informs us that 8 pieces of wood chips (ACC. # 204) were located 80-90 (cm?) BPS but does not indicate if this is the same "wood sample" indicated as CR #5 (p.62) or "cut wood" (p.62) nor does it discuss other cultural material associated with the wood (chip? shavings? cut wood? adze shavings?). We cannot even determine if they are associated with two more pieces of wood "adze shavings" located at 10-25 (cm?)BPS ACC. #202.

In regard to Platform 4 Hammatt (1980:68) states, "Clearly, this platform is quite distinct from the other two platform features (2 and 3) in this chamber. He identifies this platform as a 'sleeping platform' based on primarily two observations, as follows:

> "a partially decomposed fragment of fine lauhala matting indicating that this feature served as a sleeping platform." (p. 65)

> "In Platform 4 artifacts associated with craft activity are represented by only three pieces, a hammerstone, a basalt scoria abrader and a fragment of worked bone." (p. 68)

We would suggest that the presence of a lauhala mat on

Platform 4 does not necessarily indicate the area served as a sleeping platform since mats are, and were, used for a number of other functions than sleeping. We also noted that Figure 21 indicates an additional "craft activity artifact" a coral abrader (AR 201). Also, a number of modified pandanus keys (AC #s 172,205,207,211a, and 211b) were associated with this platform in different strata. They are not mentioned in the text nor is any explanation given for their presence in a "sleeping platform". We would suggest that they might represent paint brushes used to decorate tapa - a craft activity. An alternative explanation regarding this feature might be that in Stratum III the fireplow fragment (ACC # 122, 208) might have been the raw material from which charcoal was removed to be painted on tapa by using the pandanus keys (ACC. #s 205, 207, 211a, 211b). Stratum II might represent an entirely different activity taking place on this same feature, especially since completely different artifacts are associated with this Stratum; a hammerstone (ACC 27),a coral abrader (ACC 28) and two fireplows (ACC 125, 126). Stratum I might indicate an even further change in the use of the feature since now we have three definite "craft activity artifacts" associated in the same stratum, an Opihi scraper (AR 101) in close horizontal association with cut bone (AR 102) and a lava abrader (AR 202).

Site 50-10-27-6420

Page 71 of the report states that this site does not match the description by Davis (1977:29) which was written at the time of the original survey of the area by ARCH. Davis described the site as containing two large chambers connecting through to other sinks mauka and makai. Because of the discrepancy between the two reports, Mr. Davis and Mr. Bordner, archaeologists who had worked on this site in 1977, were contacted and asked if they could recall this site. Mr. Bordner did recall the site and stated that he had entered a large bubble and tube which extended from the area marked "A" on the ARCH Plan View Figure 23. He also stated that he had followed the tube for some distance toward site 50-10-27-262 and that he had observed archaeological features within the bubble and tube. He further stated that the entrance was very small and difficult to locate but that if ARCH would furnish him with a photo of the sink showing the area near "A" that he would attempt to identify the opening for them. He also suggested that it was possible that subsequent to the research reported in 1979 that additional blocks of basalt may have broken from the sink rim and blocked the entrance.

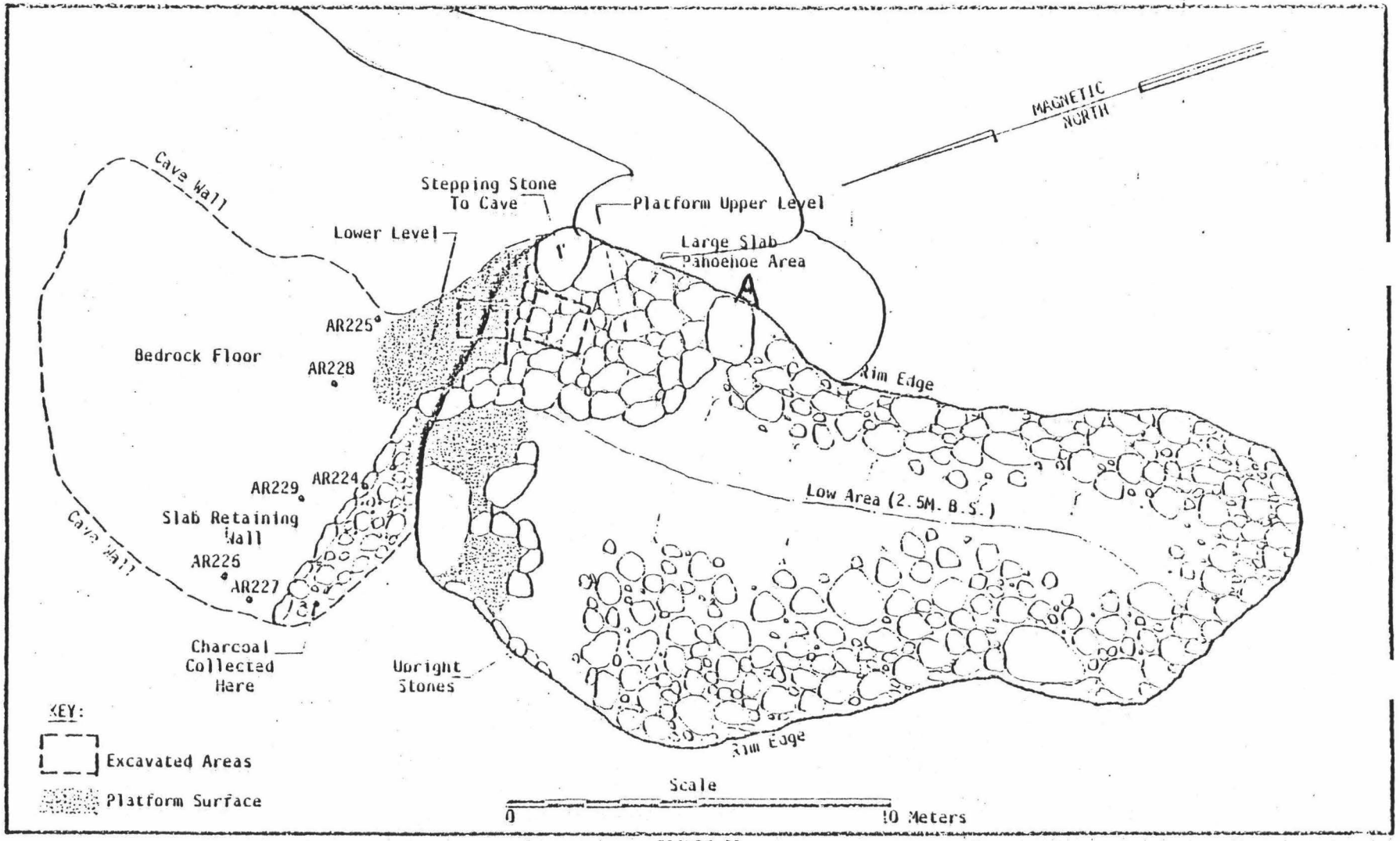


FIGURE 23
PLAN VIEW OF SINK AREA, SITE 50-10-27-6420

COMMENTS AND RECOMMENDATIONS
GENERAL RESEARCH

1. Page 7 Paragraph 4 of the Final Report indicates that all excavated trenches were backfilled and site surfaces were restored approximately to their original appearance. In Site 50-10-27-262 the North Tube Platform was left as a jumbled mass of stone. The excavation trench located by Station 3 in Site 50-10-27-6421 was left open and not sealed or backfilled, Platforms 3 and 4 were not restored to their approximate original appearance. We have also received two reports that open excavation trenches are present in Site 50-10-27-6418(B?). We recommend that the Consultant seal all excavated surfaces with 3 mil. plastic film and backfill units to restore the surface of the ground as nearly as possible to its original condition, as noted in the Scope of Work (p. 9).

2. We recommend that the Reconnaissance Task I portion of the Final Report be revised to reflect recommendations noted in this report, Evaluation and Review, Reconnaissance Task I section.

3. We recommend that the Final Report be amended to reflect recommendations and corrections addressed in this report in the Evaluation and Review, Salvage/Testing Task II Technical Discrepancies in Final Report section.

4. We recommend the Final Report be revised to address issues and recommendations set forth in the Evaluation and Review, General Research section of this report.

5. Page 14 Paragraph 4 of the report states that 'relic hunting is not in itself wrong'. This statement should be conditioned with the provisions of Chapter 6E Hawaii Revised Statutes.

6. The Contract Scope of Work clearly states that the sites will be mapped (pp. 5, 8). From an archaeological point of view it is as important to know what areas of a natural feature ancient people chose not to use and to modify as it is to know what areas they utilized. From a safety and preservation standpoint, it is impossible for the State to prevent collapse of lava tubes containing valuable cultural resources, as recommended by the Consultant, if the location of the tubes are not known. Since the Final Report contains maps that illustrate only portions of the sites,

we recommend that these maps be completed to reflect the entire site (natural feature) including the unmodified portions of the tubes. Additionally, it is our opinion that the mauka portion of the tube of Site 50-10-27-6421 does show evidence of use past Station 3 (p. 69). This evidence includes stone alignments and organic deposits. The Final Report should be amended to reflect further investigation of this area.

7. It is our recommendation that further investigation of Site 50-10-27-6420 be undertaken to determine if the tubes and bubble mentioned by Davis and Bordner still exist and to record any features present in these natural features. If additional archaeological material is located further salvage research shall be coordinated with the Historic Preservation Office prior to physical manipulation of the data.

8. The Contract Scope of Work (pp. 1, 8) indicates that the data collected shall be analyzed. The intent of the Contracting Agency was for the material to be analyzed as an essential part of the research. The Consultant has avoided analysis in some instances by making statements saying that it can be done, as follows:

   a. "This material can be dated and/or further identified at leisure now that it has been retrieved from the ground." (Hammatt 1980:13)

   b. The Consultant lists the vegetable materials retrieved and suggests that they, "thus have great potential for more detailed study of their function and the material utilized in their making." (Hammatt 1980:94)

   c. The Consultant lists the stone artifacts from the sites and states, "a variety of stone artifacts are represented in the assemblage." (Hammatt 1980:95)

   d. The Consultant lists but does not analyze the historic artifacts found within the sites.

   e. The Consultant states that an unusually modified goat bone and its context and association in the site, "has significance for future research." (Hammatt 1980:95)

   f. The Consultant suggests that a cache of ten nearly identical two piece bone fishhooks which can be assembled point to corresponding shank which were in close association to a basaltic glass core, two coral abraders and a large rectangular piece of bone, "may provide answers

> to questions directed at determining whether personal stylistic preference, social pressure on style or practicality was the primary determinant of form of the artifact." (Hammatt 1980:96)

It is recommended, since a portion of the cost of the research was to include an analysis of the data, that instead of the Consultant suggesting that now they have retrieved the data someone else should do the analysis, that the analysis of the data should be included in the Final Report.

9. The Contract Scope of Work states that black and white prints and negatives along with color slides and master list of photos are to be submitted to the Contracting Agency along with all field notes, field maps, sketches, maps too large for incorporation into the Final Report, all artifactual material and all materials generated by the research with the exception of midden material which will be stored by the Consultant, these materials shall accompany the Final Report and are considered to be an integral part of the Final Report. It is recommended that these materials and documents be requested per contract provisions and that payments be withheld, if possible, until such time as the materials are received, since the Consultant has stated his intention of retaining portions of this material at his place of business in Lawai, Kauai (p. 17).

10. In the Cave Sites - Sequence and Patterns section of the Final Report (pp. 99-100) several conclusions have been offered regarding this research which need modification, as follows:

    a. Hammatt (1980:99) states that, "this occupation involved small family groups who engaged in fishing and shellfish gathering. . .". The statement that the group utilizing the cave was a family is conjecture or at least an untested hypothesis and should be stated as such.

    b. The report (Hammatt 1980:100) contains the statement that the modification of Cave 50-10-27-262 from a habitation cave to a place of refuge was accomplished by a 'consenting communal effort' is conjecture or at least an untested hypothesis and should be stated as such.

    c. The statement that the refuge cave 50-10-27-262 was built hurriedly in response to an outside threat is conjecture or at least an untested

hypothesis and should be stated as such.

11. We concur with the Consultant's recommendation that Sites 50-10-27-262 and 50-10-27-6418 need to be preserved and that measures be taken to prevent the lava tubes associated with these sites from being collapsed during development of the agriculture park.

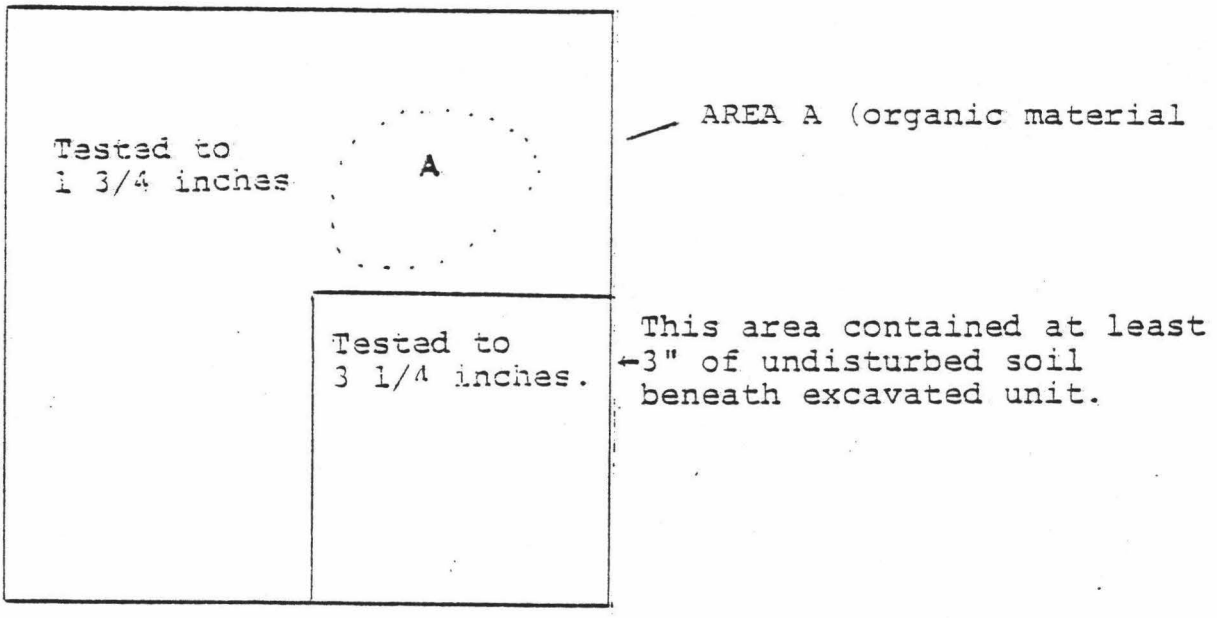
In regard to the method of preservation (p. 15) we would prefer to remain uncommitted on this item until such time as a conference can be held between engineering personnel, a representative from the State Historic Preservation Program, a representative from ARCH and personnel from the Department of Agriculture.

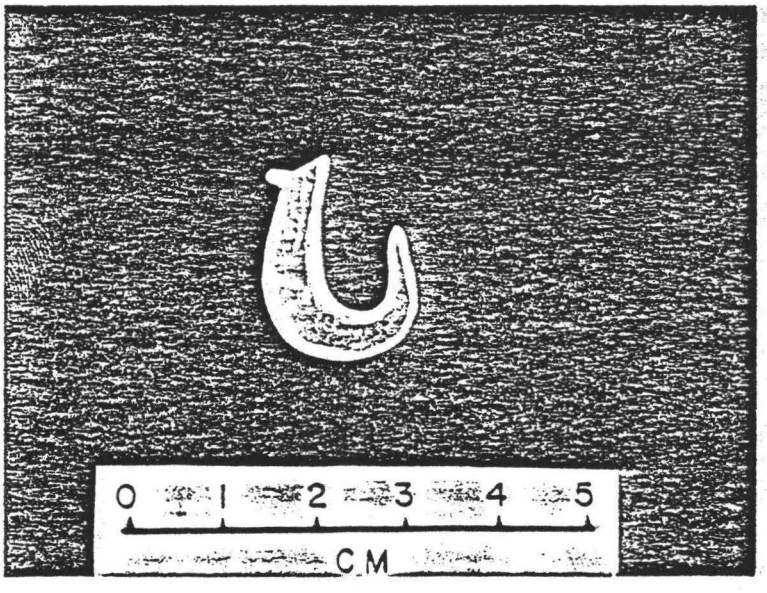
We do not concur with the Consultant's recommendation that Site 50-10-27-6421 has been sufficiently "salvaged in accordance with its potential for yielding information." We believe this site, and the significant data it contains would be adversely affected by park development, for the following reasons:

a. Several areas of undisturbed and untested deposits still remain beyond Station 3 of Figure 18.(Hammatt 1980:59)

b. The Consultant only briefly tested a large floor containing sediment (approx. 12' x 15') with an excavation unit of approximately 19" square. (50 cm.). A 9" square on the Southeast portion of this 19" unit was excavated to approximately 3 1/4"(10 cm.) deep,the remainder of the unit was excavated to a depth of only 1 3/4"(5 cm.) At least 3 inches (7 cm.) of untested deposit lay beneath the deeper excavated portion of the unit. A brief light dusting of Area A (see figure below) revealed <u>in situ</u> organic material.

Additional artifactual material was located lying directly west (approx. 4') from this excavation unit. The material included a 1 piece knobbed shell fishhook (photo attached)





FISHHOOK SITE 50-10-27-6421 - Surface

c. The Scope of Work states that a minimum of fifty percent (50%) of the cultural deposits of each habitation area shall be excavated unless testing demonstrates that a smaller sampling yields an equal amount of archaeological knowledge (p. 5). It further states, that where major deviations from the Scope are necessary it is required that the Contracting Agency be notified in writing prior to deviation from the Scope of Work and that the Contracting Agency be in concurrence with the deviation prior to it being executed (p. 1). To our knowledge no such notification was received by the Contracting Agency.

If the illustrated portion of the Site 50-10-27-6421 (Figure 18) is considered to be the "habitation area," completely overlooking the fact that the lava tube extends at least 100 meters past Station 3 and that an additional makai tube is approximately 100M X 5M. The total habitation area might be considered to be as follows:

Sink	7 x 8M	56^2
Mauka Tube	10 x 24M	240^2
Figure 18 portion only		296 square meters

Within this area the Consultant has excavated or dismantled approximately:

					Square meters
Trench in sink	1	x	1	M =	1
Platform # 2	2	x	3	M =	6
Platform # 3	2	x	3	M =	6
Platform # 4	2	x	3	M =	6
Unnumbered TT	1	x	1	M =	1
TT near Sta. 3	.50	x	.50	M =	.50
					20.5 sq. Meters

The total excavated or dismantled units are 20.5 square meters, clearly not 50% of the defined habitation area of 296 square meters in the sink and illustrated as the habitation area portion of the mauka tube (Figure 18).

If however, one reasons that only those portions of a site likely to yield archaeological data need to be addressed, then the areas within the lava tube which contain soil deposits must be considered as significant areas of study. As noted above, an

approximately 4 x 5 M (20 square meters) of sediment is present in the vicinity of Station 3. This area receives a moderate amount of light and would be an area suitable for craft activities and artifactual material is known to exist in the deposit. The Consultant tested an area 50 cm. square or 1/40th (2.5%)of the area to a depth of 5 cm. and an area 25 square centimeters to a depth of 10 cm. leaving approx. 7 cm. untested in the excavation unit. This is not a 50% sample of the sediment.

The low percentage of salvage associated with this site is of particular importance when considered in the context of its importance in relation to the refuge cave Site 50-10-27-262. Ching (1971:99) states that refuge caves like Site 262 were attractive to local chiefs for a number of reasons because they provided:

1. A place where a chief and/or his family could hide during periods of unrest caused by war or threat of war.

2. A place in which a chief could hide if defeated in war. Defeated chiefs were usually hunted down and killed.

3. A place to hide a person of high rank who was felt to be a threat to the ruling chief in times of unrest.

4. A place to hide a person of high rank who was thought to be a threat to a new ruling chief.

5. A place to hide a chieftess of high rank for safe-keeping purposes, i.e., undesirable suiters, etc.

He further states that a similar refuge cave (900) located between Anaehoomalu and Kiholo Bays, North Kona, was disguised by being located in a complex of dwelling caves. It appears that this pattern again is present within the proposed agricultural park complex. We therefore suggest that Site 50-10-27-6421 represents an habitation site possibly used by Hawaiians associated with the general population rather than by alii. Because very little data is available regarding the life style and settlement patterns of Hawaiians below the alii class, this cave site may yield significant information regarding research problems

centered around cultural change processes, settlement patterns, economic activities etc. associated with the Hawaiian population.

It is therefore our opinion, that the degree of salvage at Site 50-10-27-6421 has not been sufficient to mitigate the adverse effects of destroying the site. We therefore recommend that the Site be preserved or that further research be conducted within this site and that such further research be coordinated with the State Historic Preservation Office prior to physical manipulation of the resource.

REFERENCES CITED

CHING, FRANCIS K. W.

1971 The Archaeology of South Kohala & North Kona Department of Land and Natural Resources, Division of State Parks

DAVIS, BERTELL D.

1977 Archaeological Survey of the Proposed Agricultural Park at Ke-ahole, North Kona, Hawai'i Island. ARCH Project 14-122

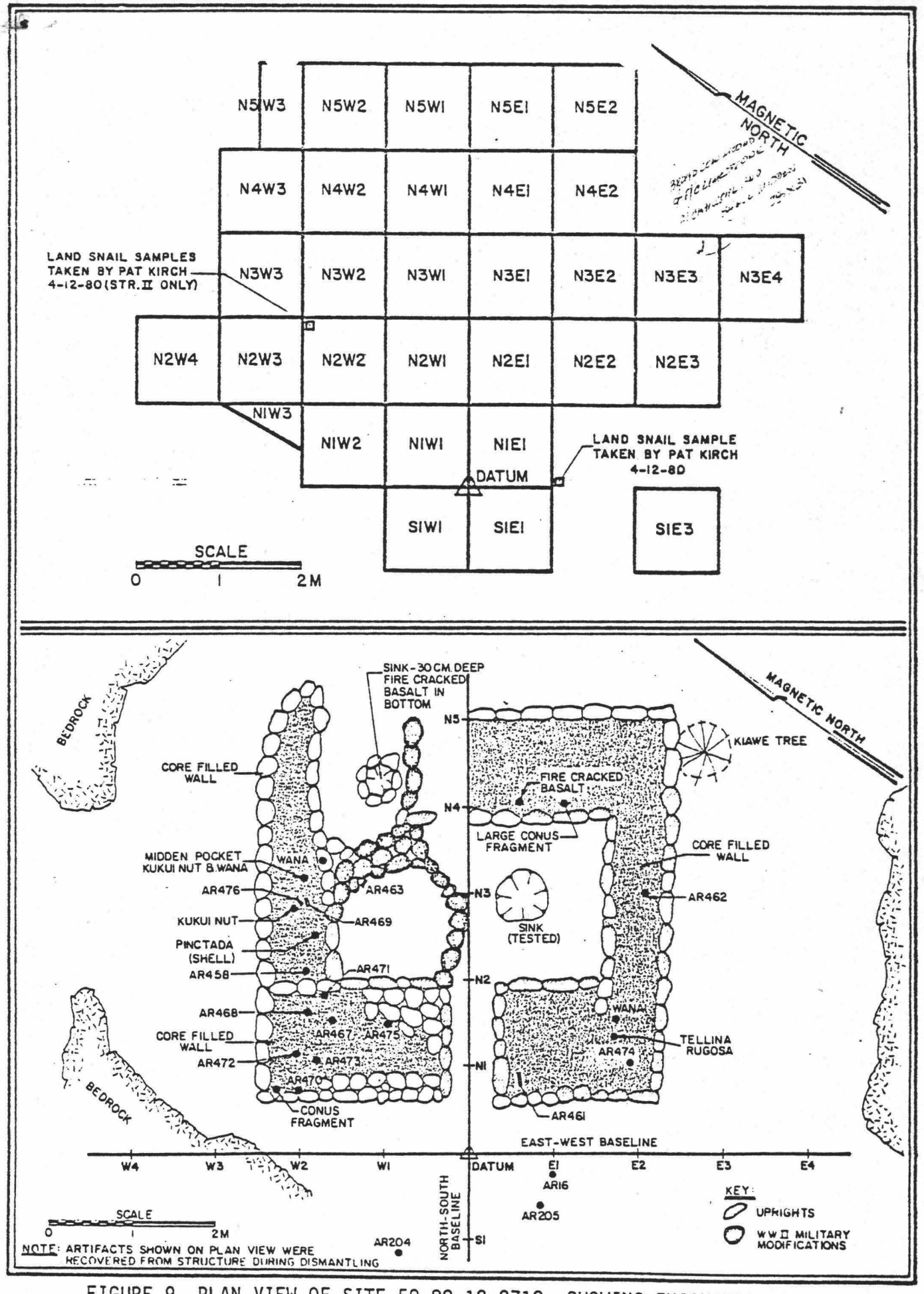


FIGURE 9 PLAN VIEW OF SITE 50-80-12-2712, SHOWING EXCAVATION GRID.

N-21

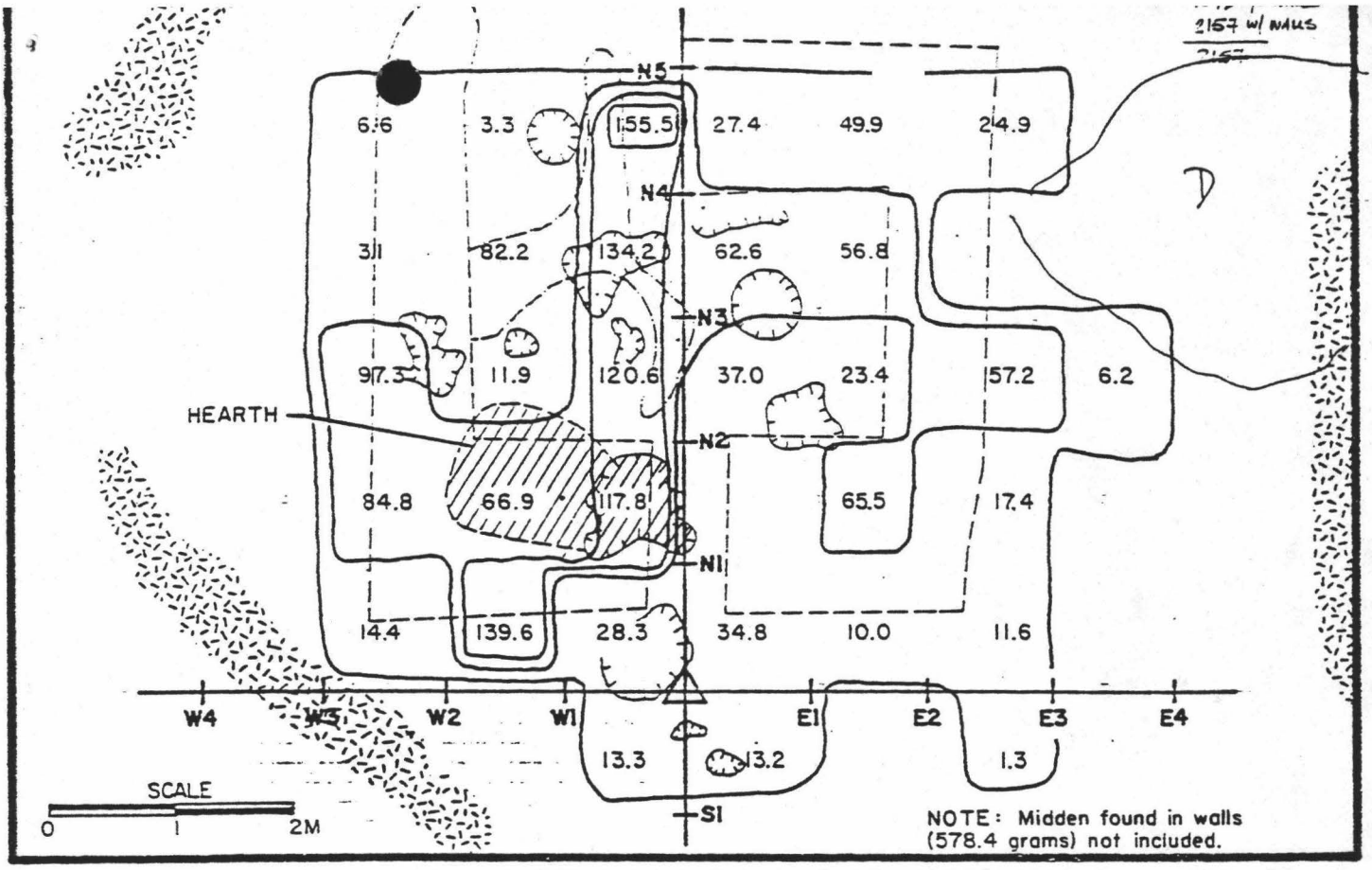


FIGURE 10 DENSITY CONTOURS(50 GRAM INTERVALS) OF MIDDEN WEIGHT, STRATUM I SITE 50-80-12-2712.

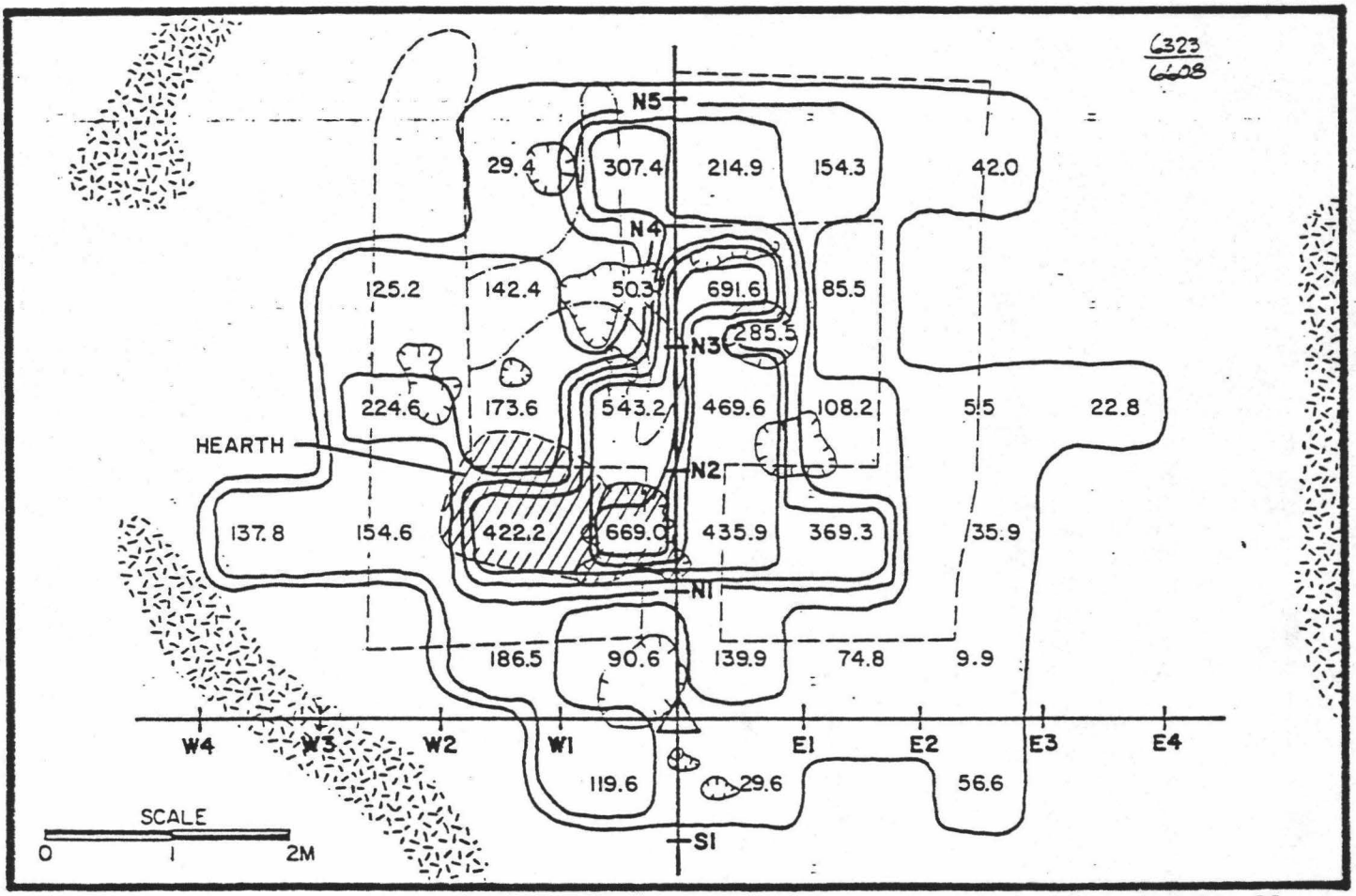


FIGURE 11 DENSITY CONTOURS(100 GRAM INTERVALS) OF MIDDEN WEIGHT, STRATUM II SITE 50-80-12-2712.

CI = ca. 575

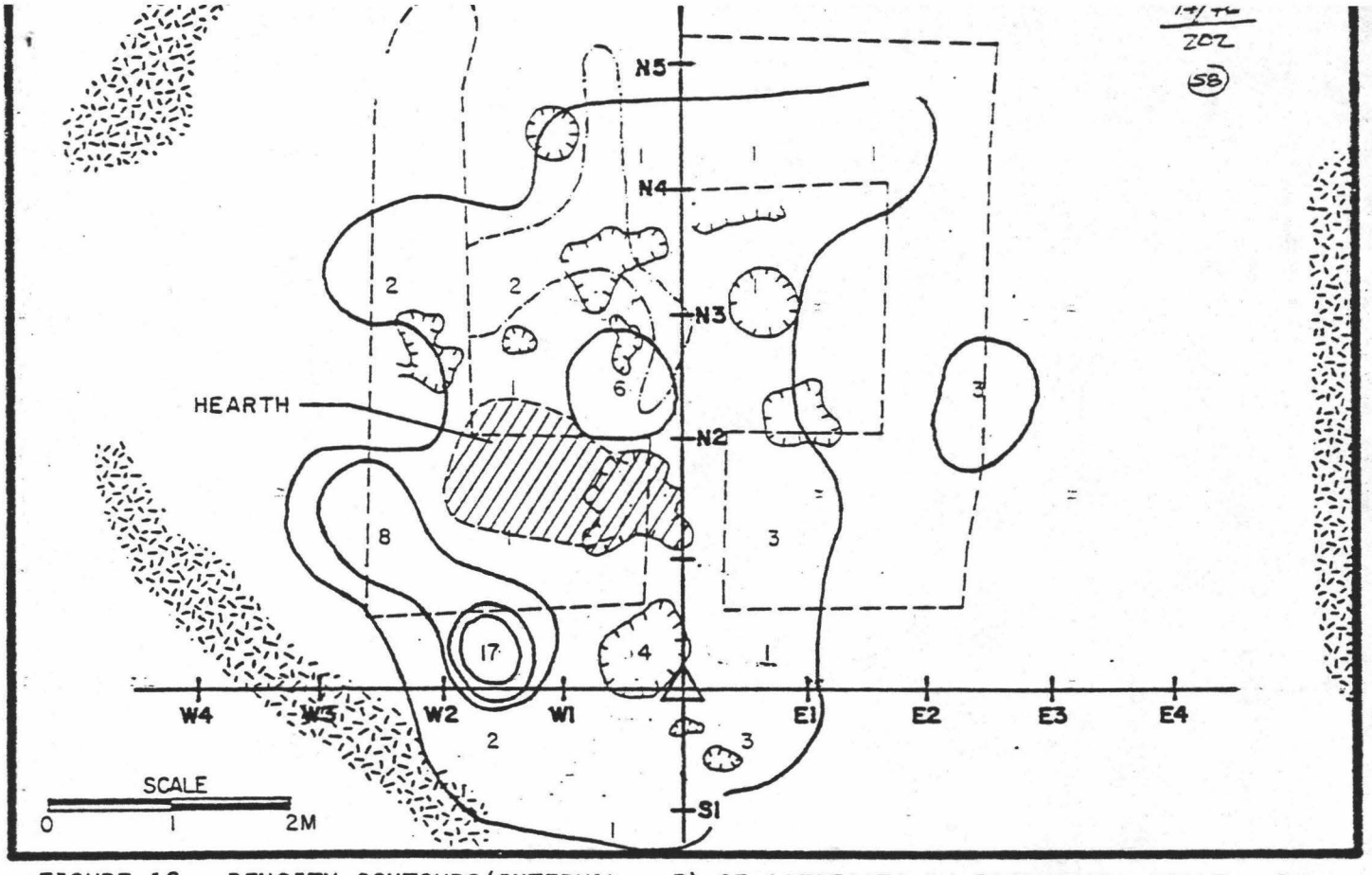


FIGURE 12 DENSITY CONTOURS(INTERVAL - 5) OF ARTIFACTS BY FREQUENCY, STRATUM I
SITE 50-80-12-2712

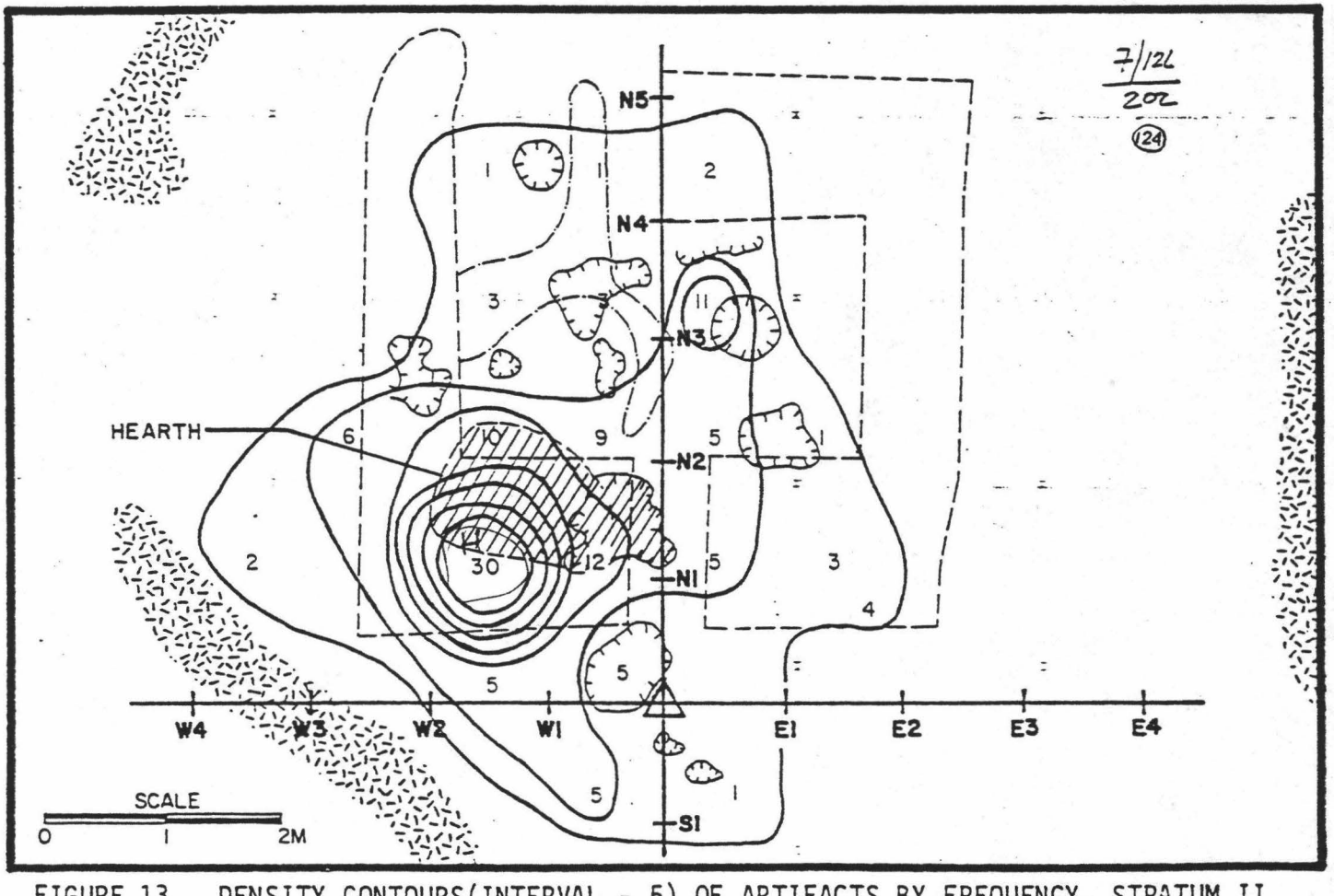
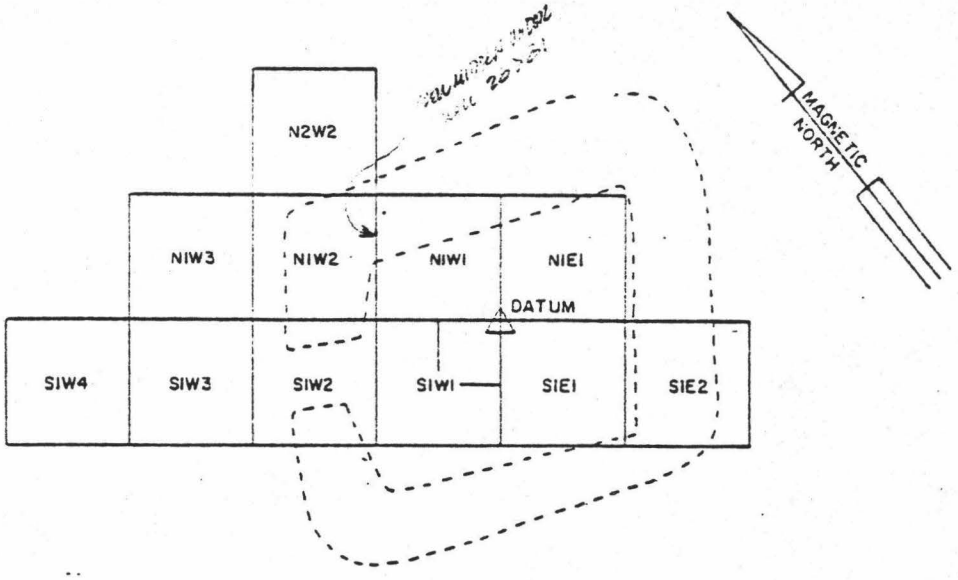


FIGURE 13 DENSITY CONTOURS(INTERVAL - 5) OF ARTIFACTS BY FREQUENCY, STRATUM II
SITE 50-80-12-2712



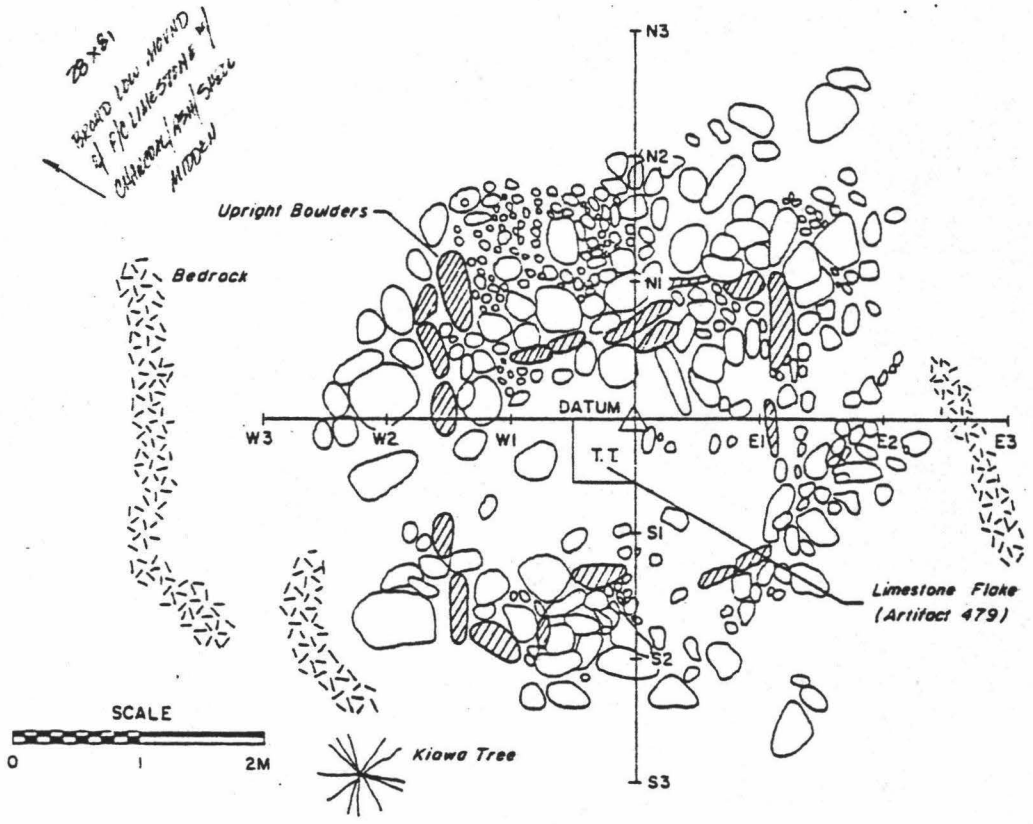


FIGURE 19 PLAN VIEW OF SITE 50-80-12-2730, SHOWING EXCAVATION GRID.

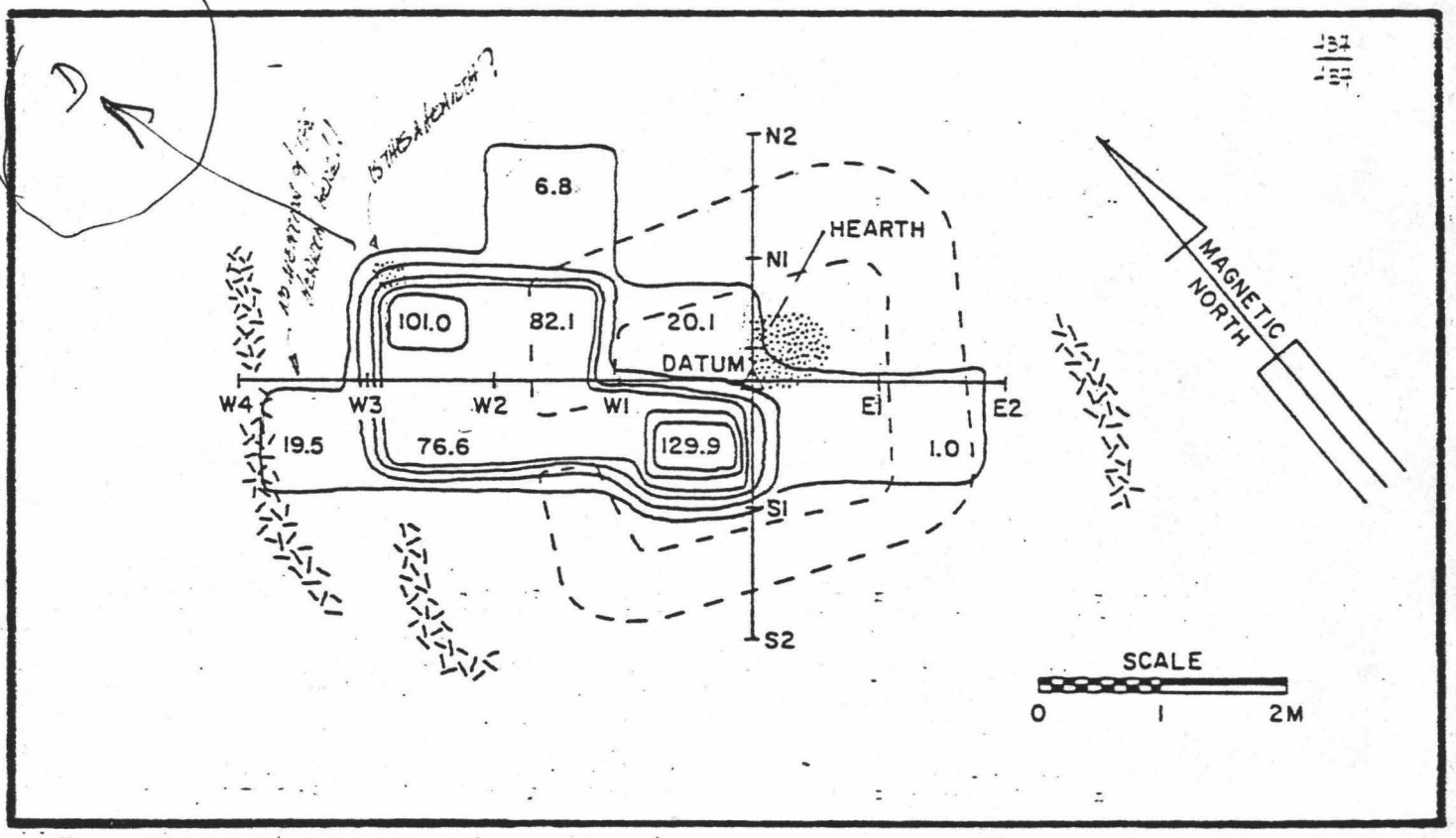


FIGURE 20 DENSITY CONTOURS (25 GRAM INTERVAL) OF MIDDEN WEIGHT, STRATUM I
SITE 50-80-12- 2730.

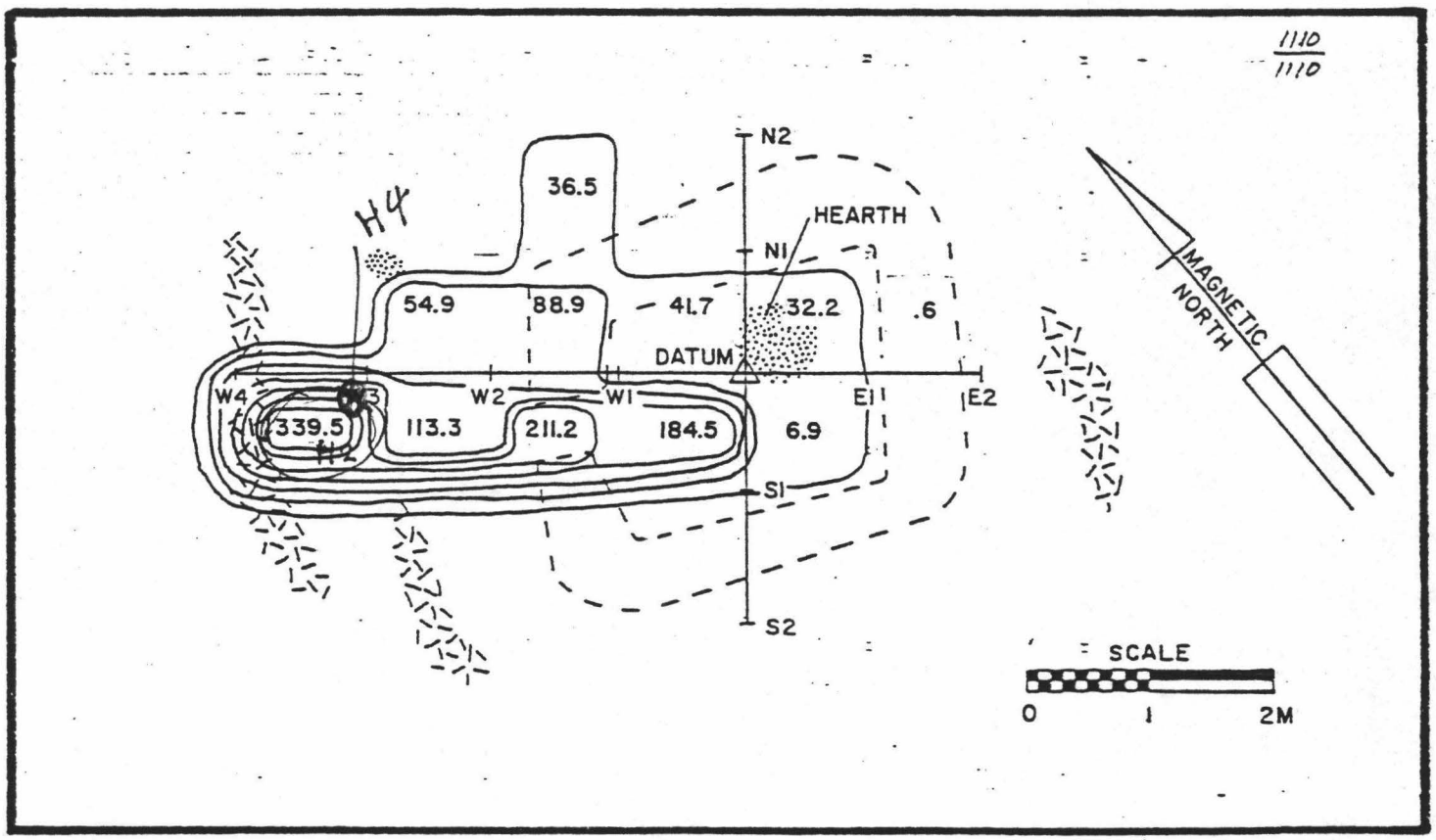


FIGURE 21 DENSITY CONTOURS (50 GRAM INTERVAL) OF MIDDEN WEIGHT, STRATUM II
SITE 50-80-12- 2730.

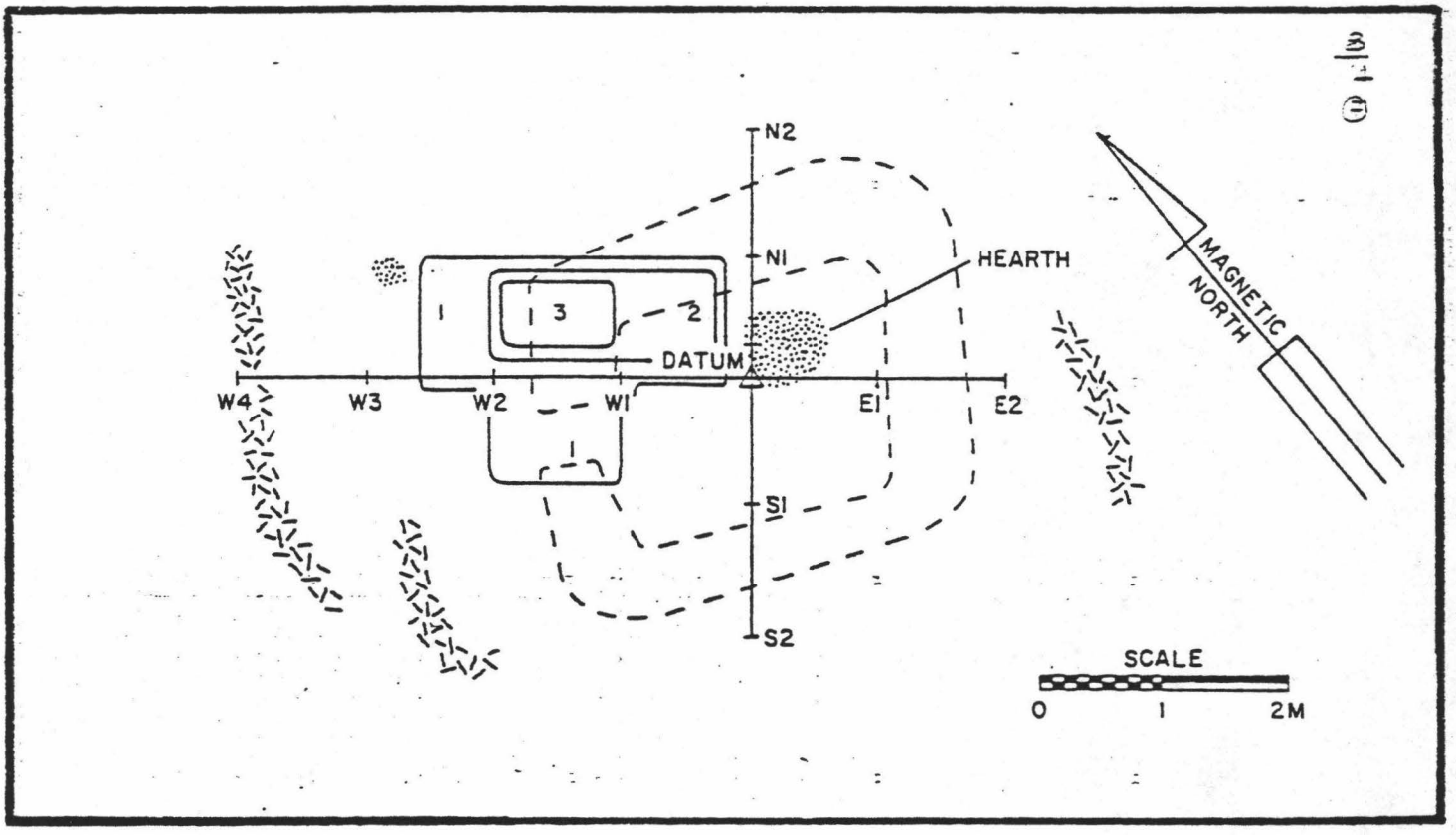


FIGURE 22 DENSITY CONTOURS (INTERVAL-1)OF ARTIFACTS BY FREQUENCY, STRATUM I, SITE 50-80-12- 2730.

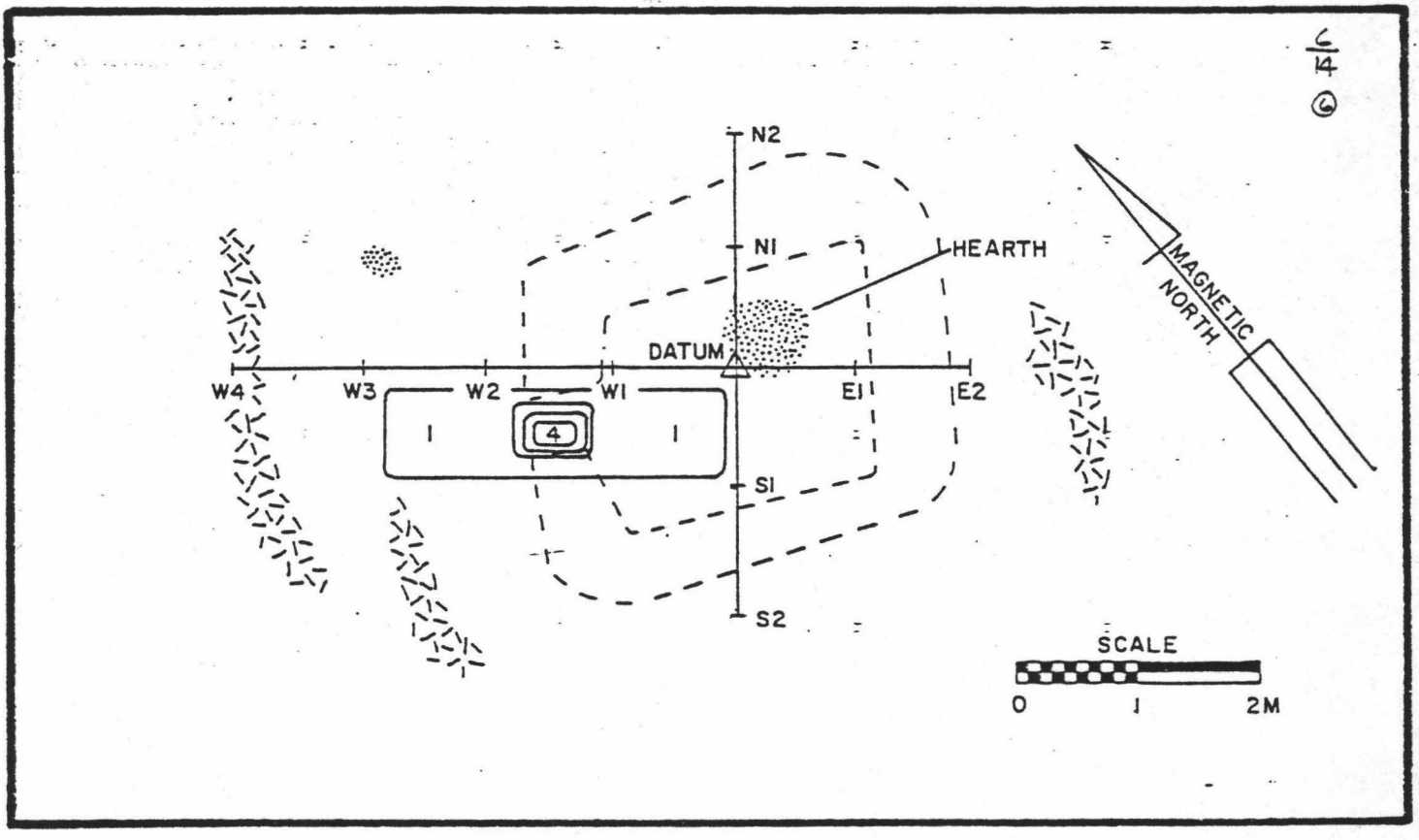
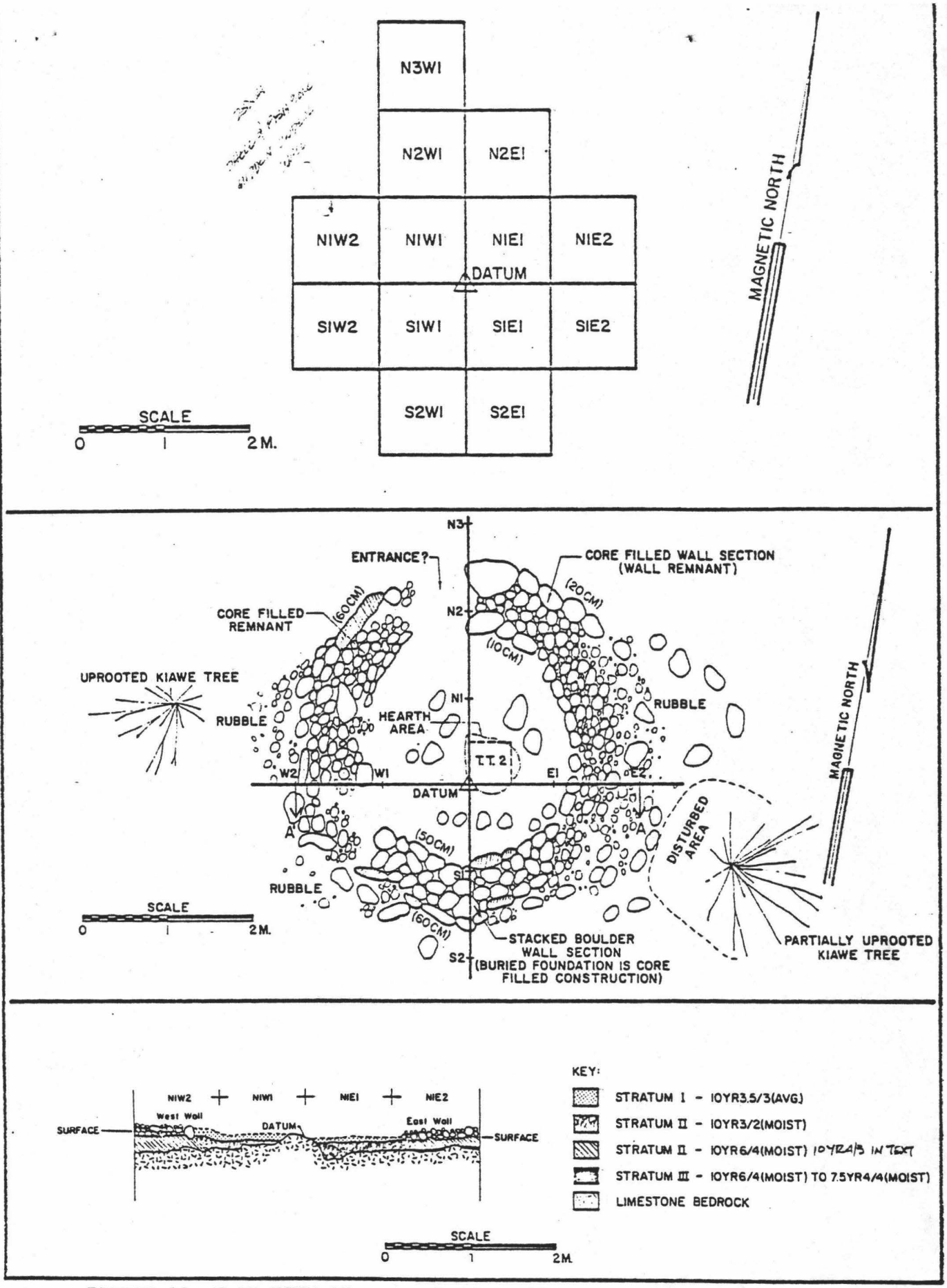


FIGURE 23 DENSITY CONTOURS (INTERVAL-1) OF ARTIFACTS BY FREQUENCY, STRATUM II SITE 50-80-12-2730.



SCALE TOO SMALL
DATUM
CAN BARELY SEE STRATA

FIGURE 24 PLAN VIEW OF SITE 50-80-12-2731, SHOWING EXCAVATION GRID AND CROSS SECTION.

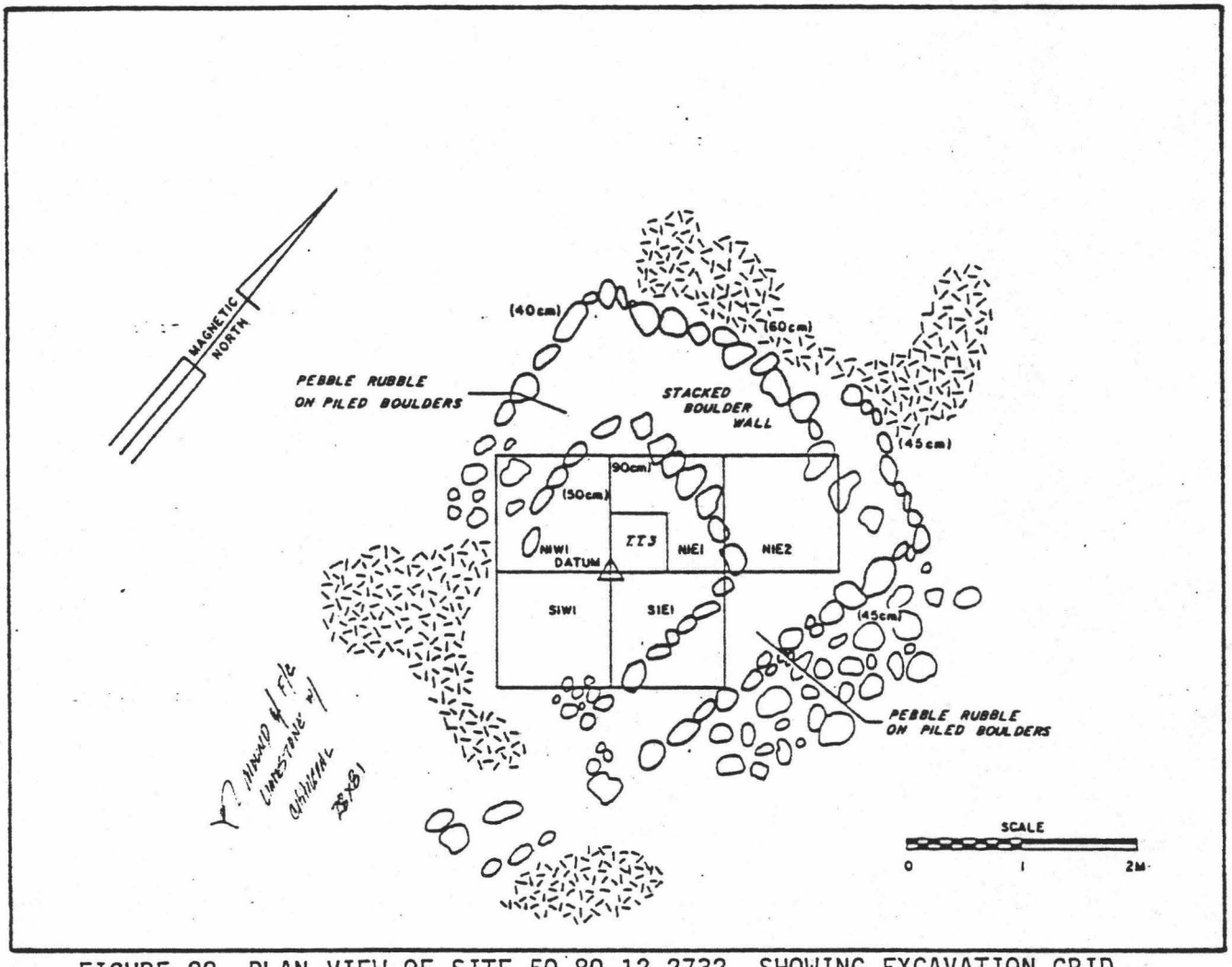


FIGURE 29 PLAN VIEW OF SITE 50-80-12-2732, SHOWING EXCAVATION GRID.

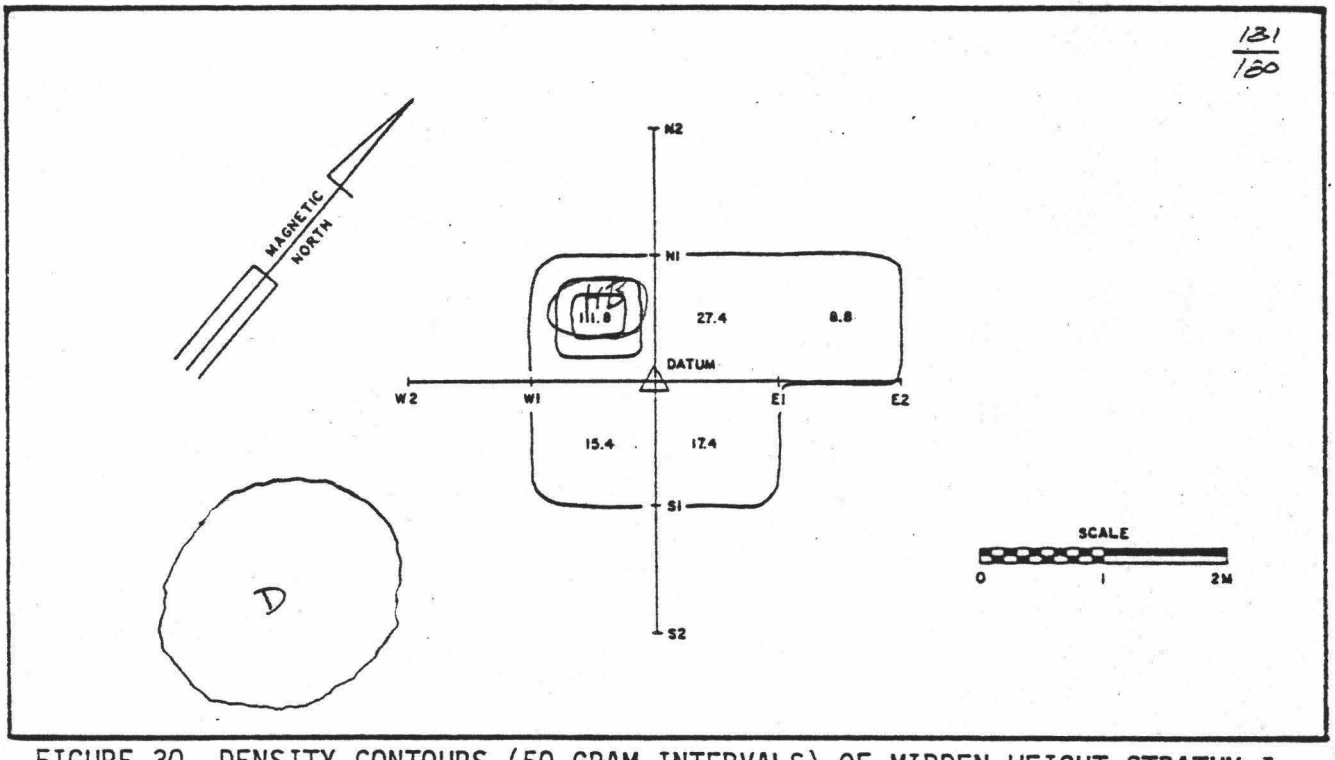


FIGURE 30 DENSITY CONTOURS (50 GRAM INTERVALS) OF MIDDEN WEIGHT STRATUM I, SITE 50-80-12-2732.

CI = ca. 554

NO BIRD POINT TO SCALE

I - Formal Petition

WALTER P. THOMPSON, INC.
ENGINEERS AND SURVEYORS
P.O. BOX 3351 • HONOLULU, HAWAII 96

(FORMAL PETITION)

July 2, 1981

Mr. Michael McElroy, Director
Department of Land Utilization
City and County of Honolulu
Honolulu, Hawaii 96813

Attn: Mr. Henry Eng
Branch Chief

Dear Mr. McElroy:

Transmitted herewith is our application and supporting material for a Conditional Use Permit and State Special Use Permit for an area of the Campbell Industrial Park to be used as a disposal site for the dredged coral from the Barber's Point Deep Draft Harbor.

The owners respectfully request your immediate attention to this matter.

Very truly yours,

WALTER P. THOMPSON, INC.

James R. Thompson

James R. Thompson

JRT/hf

Enclosures

1) Filing Fees
2) Application
3) Supplemental Narrative
4) Portion of EIS
5) Reproducible sepias

Department of Land Utilization

Application Form

Additional data, drawing/plan, and fee requirements are listed on a separate sheet titled "Instructions for Filing." PLEASE ASK FOR THESE INSTRUCTIONS. The specified materials and fees must accompany this form or the application is considered incomplete.

(Check one or more as appropriate. You are encouraged to consult with the Central Coordinating Agency if you have questions. Phone: 523-4254.)

___ Cluster Development
X Conditional Use Permit
___ Historic, Cultural, Scenic District
_____
(Indicate district)
___ Park Dedication
___ Plan Review Use
___ Planned Development
___ Shoreline Setback Variance
___ Site Development Plan
___ Special Design District
_____
(Indicate district)
___ Special Management Area Permit
X Special Permit
X State Special Use Permit
___ Subdivision
___ Zone Change: From_____ To_____
___ Waiver

Recorded Fee Owner

Name : Estate of James Campbell
Mailing Address : 92% Fort Street Mall, Honolulu, Hawaii 96813
Phone No.: 536-1961
Signature _____

Authorized Agent

Name : Walter P. Thompson, Inc.
Mailing Address : P. O. Box 3351, Honolulu, Hawaii 96801
Phone No.: 536-2705
Signature _____

Property Information

Street Address/Location of Property End of Malakole Road, Ewa, Oahu
Tax Map Key(s) 9-1-14: 2, 9-1-15: 1 Lot Area 177.338acs.
Present Use of Property/Building Portion coral quarry, portion vacant

Project Proposal

Briefly describe the proposed activity or project. To secure a Conditional use and State special Use permit for the stockpiling of coral to be dredged from the Barber's Point Deep Draft Harbor.

Department Use Only

Date Application Accepted 4/4/91
Accepted by (Initials) _____
Date of Public Hearing _____
Fee Received $_____

State Land Use _____
DLUM/DP _____
Zoning _____
Setbacks _____

___ Approved.
___ Approved with conditions indicated below.
___ Denied for reason(s) given below.

THIS COPY, WHEN SIGNED BELOW, IS NOTIFICATION OF THE ACTION TAKEN.

_____ _____ _____
Signature *Title* *Date*

STATE SPECIAL PERMIT APPLICATION ✓

SUPPLEMENTAL INFORMATION

A. The use is not contrary to the Land Use Law and Regulations. The use sought is in accord with the permitted uses for agricultural lands.

B. The area under consideration is in an unimproved section of the Campbell Industrial Park. The closest residential area is .60 of a mile away and the closest industrial area is 300 feet away. A natural buffer of vegetation will provide any necessary barriers of the site from public view.

C. Since the site is not near any public facilities and there are no plans for any type of improvements, no burden will be placed on public agencies.

D. There have been no unusual conditions, trends or needs which have arisen since the district boundaries and regulations were established.

E. Use of the land for strict agricultural purposes is not economically feasible due to the shallow or non-existent layer of soil on the site. Preparation costs would be an obvious drawback to production of a soil based crop.

Although zoned for agriculture, the land provides both for the owners and the public a better return from the extraction of coral for concrete products. The use of the land for a coral stockpile will provide the same benefits.

CONDITIONAL USE PERMIT

SUPPLEMENTAL INFORMATION

Section of the Comprehensive Zoning Code which provides for the proposed conditional use.

Section 21-401 (c) (5) Extractive Industries

The site to be encompassed by Disposal Areas I and II has been in use for many years as the coral quarry operations for Cyprus Hawaiian Cement. At present there is no vegetation covering the ground in the area. Surrounding this site to the north, south and east is a thick barrier of keawe trees and haole koa bushes. Behind this lies fields of sugar cane. The nearest residential area is approximately .60 of a mile to the northeast.

The site of Disposal Area III is an existing keawe grove. After clearing of the site, a barrier of trees surrounding the area will act as a visual and pollution buffer to surrounding industrial businesses. The closest distance to a work area will be approximately 300 feet.

All of the disposal sites are located away from the everyday activity of the Campbell Industrial Park. The land has never been agriculturally productive. Since all of the revenue created in the area has come from the use of coral and the use sought is that of a coral stockpile for future use by the cement industry, there is no economic loss by the proposed use of the area.

July 15, 1981

HAND DELIVER

Department of Land Utilization
City and County of Honolulu
Municipal Building
650 S. King Street
Honolulu, HI 96813

Attn: Mr. Edmund Young

Subject: STOCKPILE PERMIT APPLICATION
BARBERS POINT HARBOR

Gentlemen:

The following responds to the required written information forming a part of our application for a State Special Permit (Agricultural District) under Chapter 205, HRS (Part B):

1) The use of the area for stockpiling of the coral dredged from the proposed Barbers Point deep water harbor is consistent with the Land Use Law and Regulations in that the State Land Use Commission has rezoned the harbor project lands from Agriculture to Urban. In the application for this land use zoning change, information was submitted indicating that the dredged coral would be stockpiled on lands classified as Agriculture lying outside of the Urban zoned lands.

2) The stockpile is located on lands not presently used for agriculture, is surrounded by lands currently in use for industrial properties. Furthermore, the lands upon which the coral will be stored is master planned for industrial purposes as indicated on the interim DLUM's and is consistent with the City and County's General Plan.

3) The stockpile will not require any improvements or services by public agencies.

4) There have been no unusual conditions, trends or needs since the land use district boundaries and regulations were established.

5) The land upon which the coral will be stored is unsuited for any agricultural purpose due to lack of soil, water, or forage grasses. There are no utilities or improvements serving the property.

Department of Land Utilization
Attn: Mr. Edmund Young

July

6) There is no need for sewage disposal faci
for the coral stockpile.

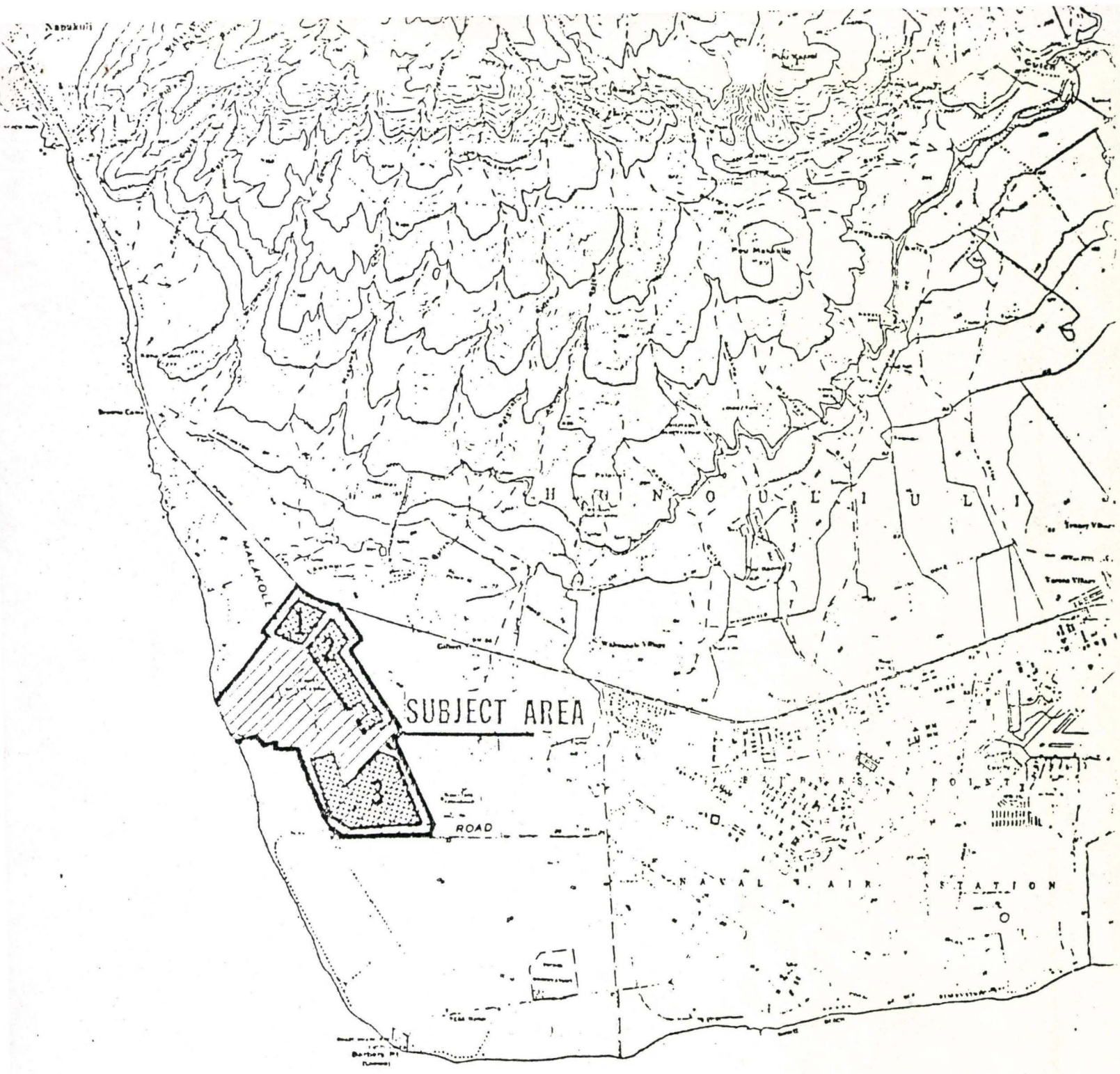
All drawings and plans have been previously submitte
the appropriate fees have been paid with our filing
initial application.

Should you have any further questions, please feel f

Sincerely,

O. K. Stender
Chief Executive Office

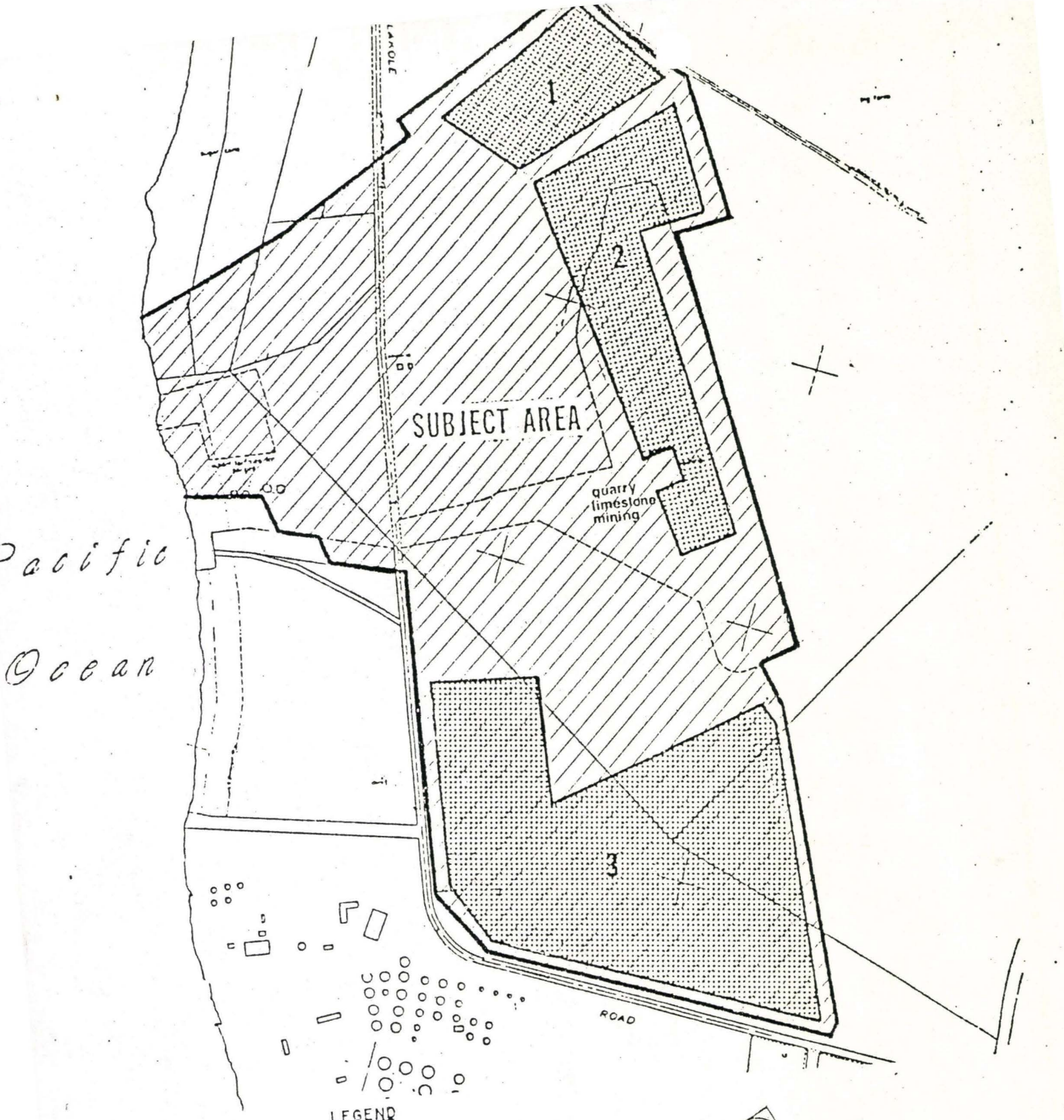
OKS:kt



SCALE 1" = 4000'

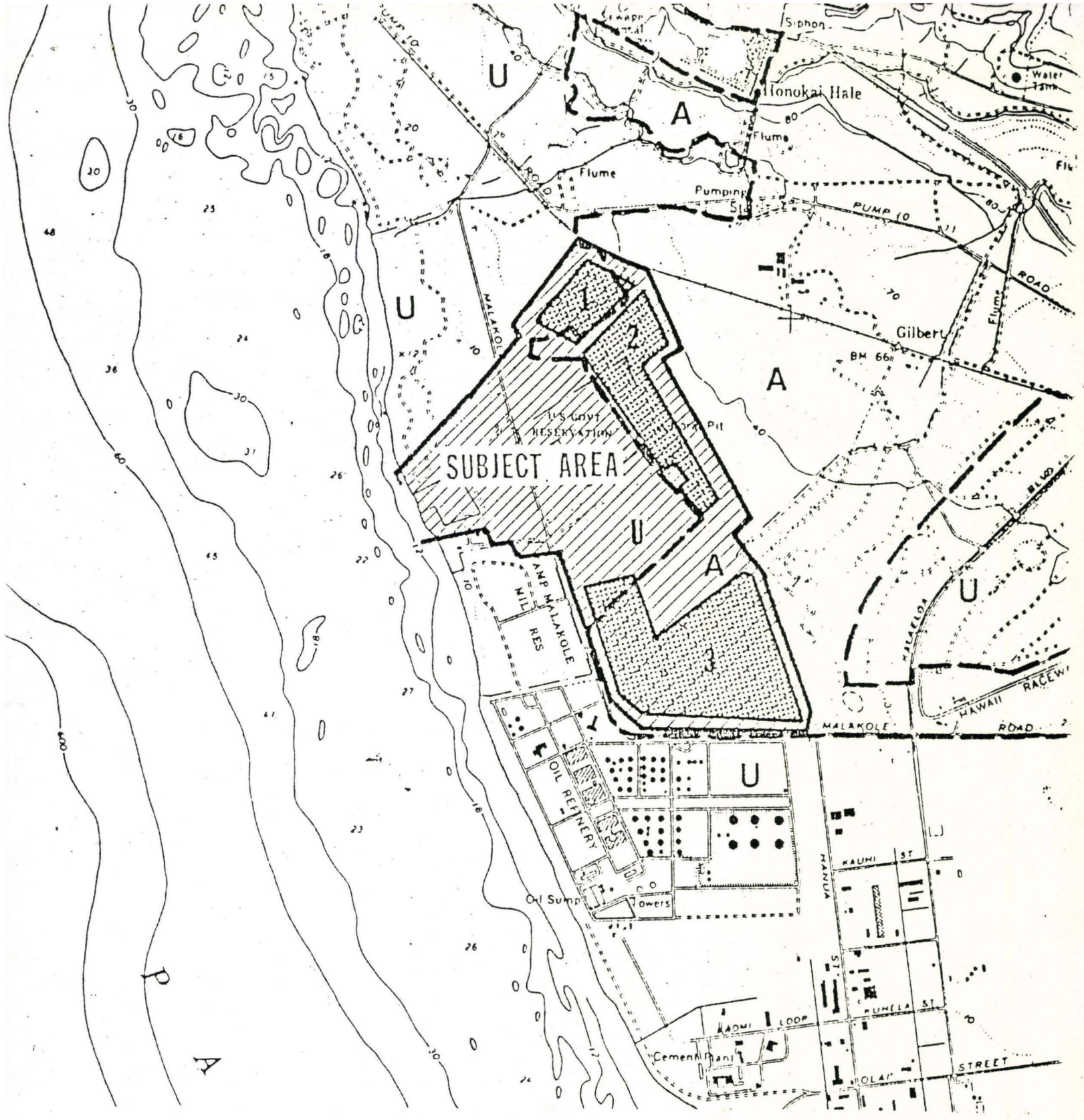
N

LOCATION MAP



EXISTING LAND USE MAP

DATA: DEPT. OF GENERAL PLANNING
DECEMBER 1976



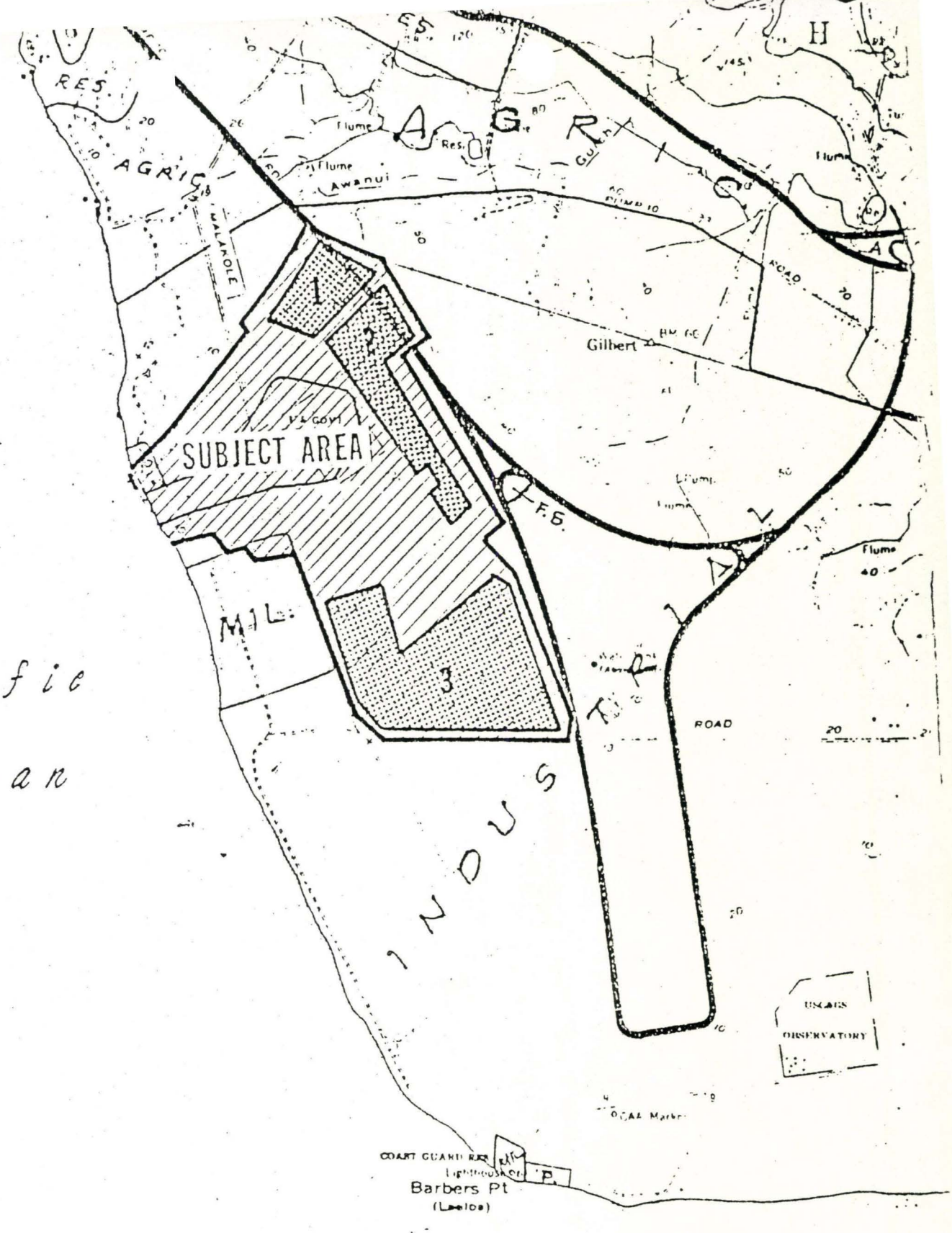
LEGEND

A - Agricultural
C - Conservation
U - Urban

N

STATE LAND USE

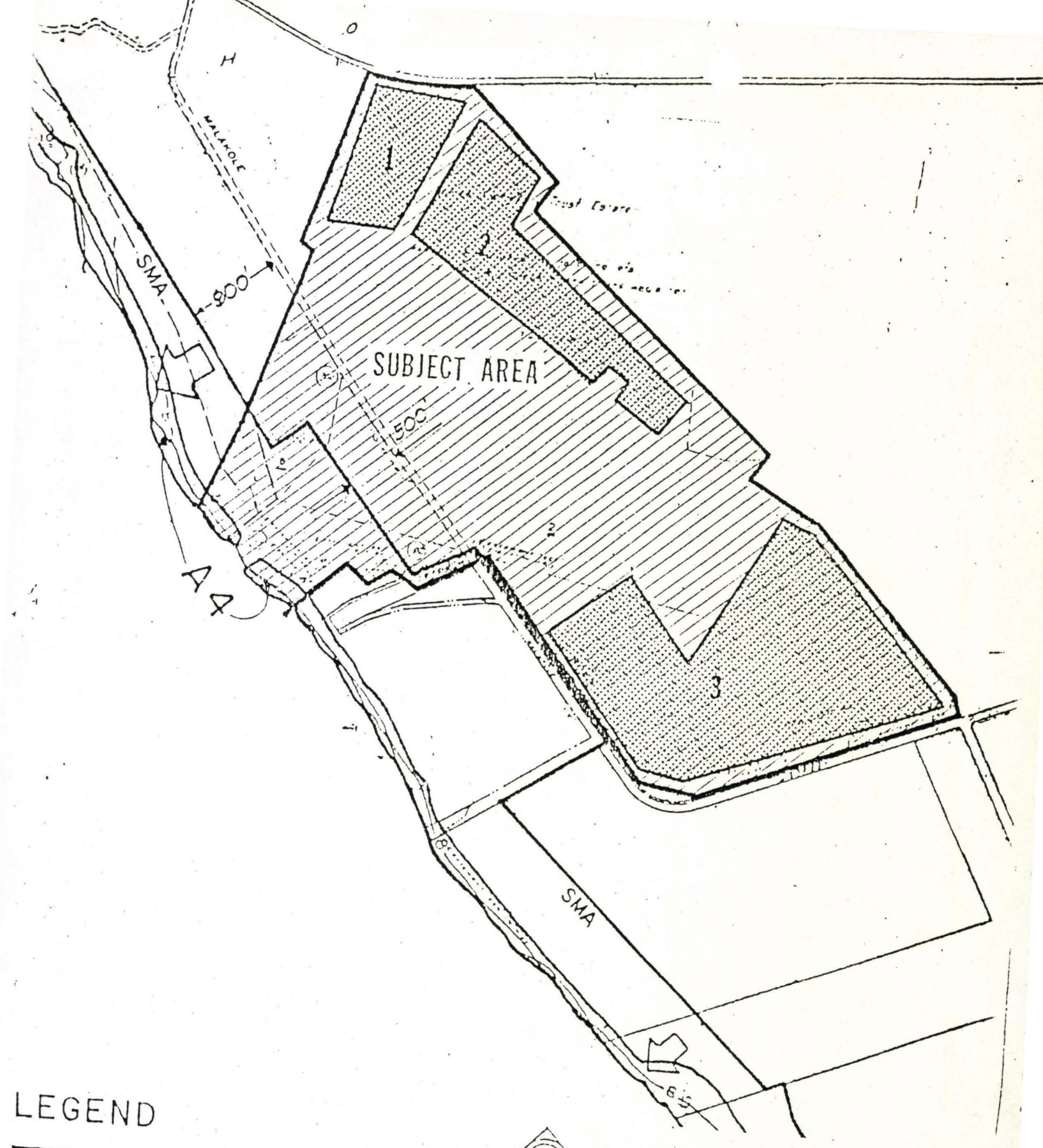
SCALE 1" = 2000'

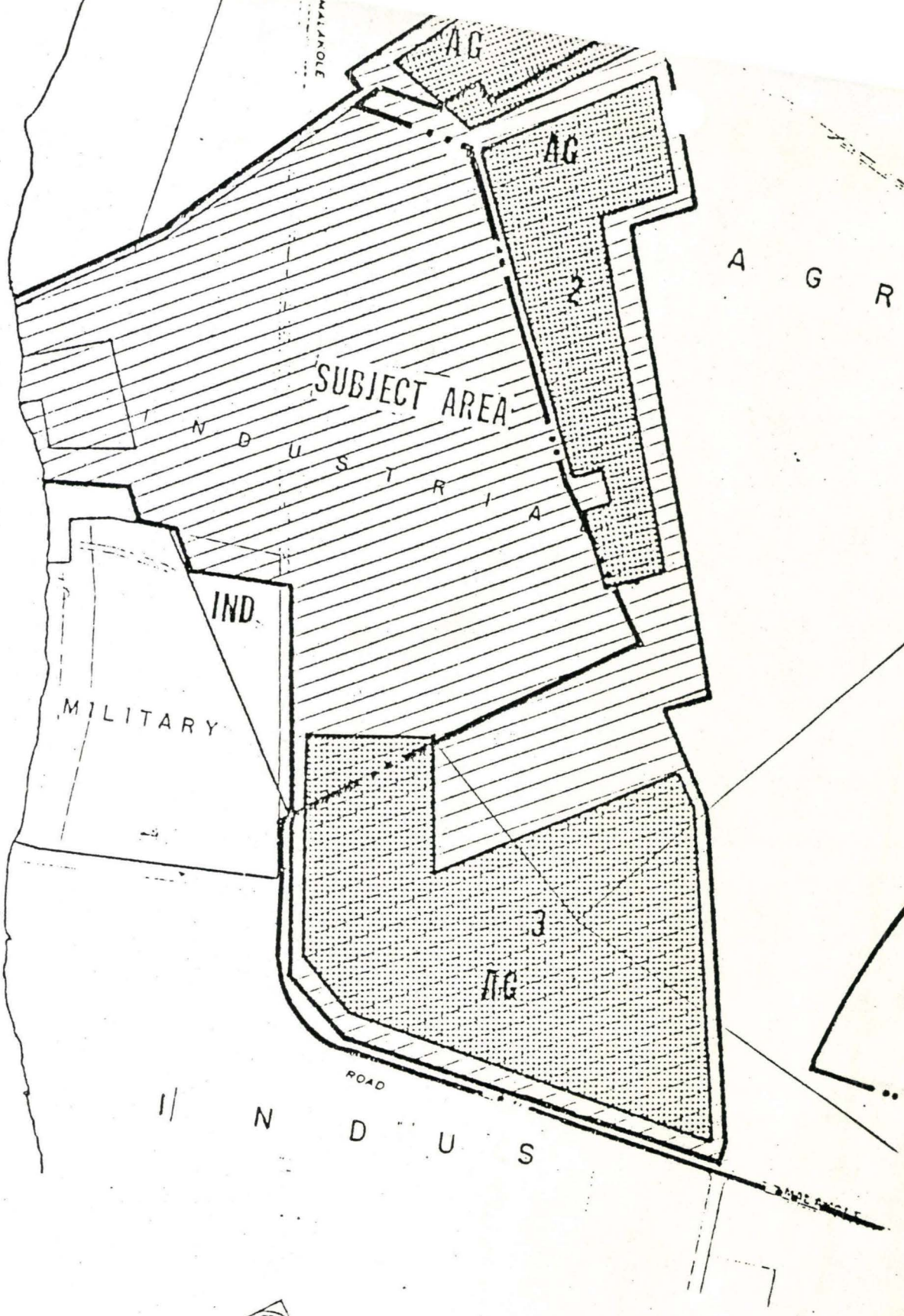


SCALE 1" = 2084'

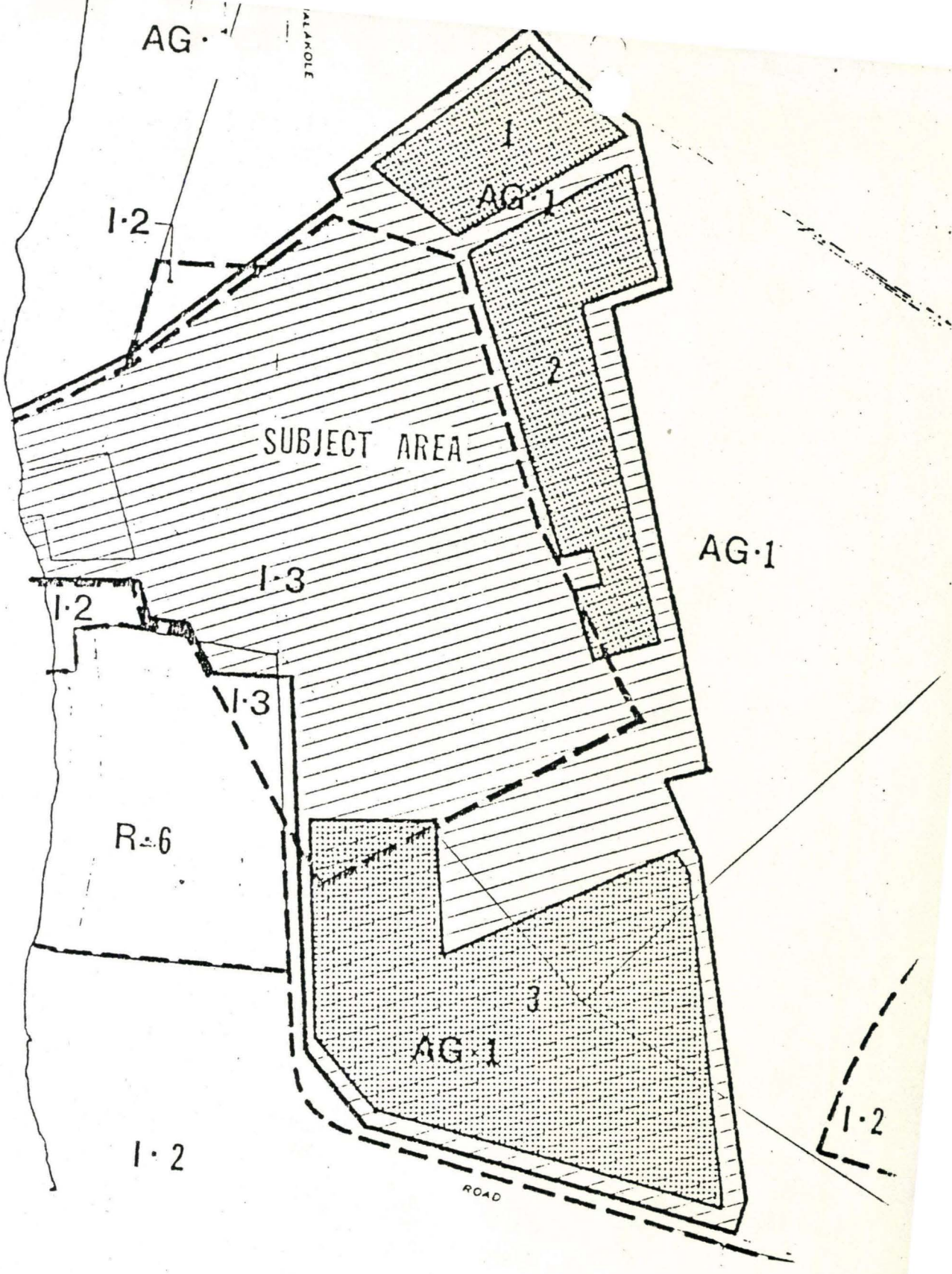
N

INTERIM ZONING CONTROL


SUBJECT AREA
SMA
SMA
900'
500'
A4
1
2
3
LEGEND
SMA BOUNDARY LINE
N
1600
800
0
1600
SCALE IN FEET



PROPOSED
DEVELOPMENT
PLAN


AG·1
I·2
1
AG·1
2
SUBJECT AREA
AG·1
I·3
I·2
I·3
R-6
3
AG·1
I·2
I·2
ROAD
N
1000
500
0
1000
SCALE IN FEET

ZONING MAP