

Supplemental Draft Environmental Impact Statement

MILITARY TRAINING ACTIVITIES AT MĀKUA MILITARY RESERVATION, HAWAI‘I

Volume 4 – Appendices I-K



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Prepared for:

25th Infantry Division and US Army, Hawai‘i

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APPENDIX I

PROGRAMMATIC AGREEMENTS

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Introduction

The following mo‘olelo (story) is a forward to the Programmatic Agreement (PA). The Ukanipō Heiau Advisory Council ‘O Wahipana O Mākua as well as other residents of the community requested that this mo‘olelo be included with the PA as it is the basis of their purpose for the protection of Mākua.

A Mo'olelo

The land of Kane, O Wahi pana O Makua, sacred land of our Parents lives!

Kane is the life giver, the leading god of Wai'anae of old. He is the creator whose spiritual presence encircles the land from heaven to earth, from mountain into the sea. E ho'oulu ana i kini o ke akua, ka lehu o ke akua, ka mano o ke akua. (Invoke we now, the forty thousand gods, the four hundred thousand gods, the four thousand gods.) When one speaks of Kane, it springs life -

Kane'ilio, the protector and guardian

Kaneana, the womb of creation

Kane'aki, the healer

Kaneikapualena, the life giving sun -

While there are thousands of life giving forces of Kane within the moku of Wai'anae, we share these few.

La'ila'i, progenitor of the Kanaka Maoli came from Po to exist in the land of Makua, land of plenty, ensuring that her children would grow strong.

Ukanipo was dedicated to the sounds of birthing, announcing the passage into life.

Makua symbolizes the circle of life. It became and continues to be the home and kula'iwi, ancestral burial ground, of our people. For thousands of years this is the home of the Kanaka Maoli.

This is only a shadow of the mo'olelo the story of our Kupuka'aina the children of this land. The life of our people exists in the care of the 'aina. Our story must be told.

A Vison Statement

We all have a unique and historic opportunity to enhance the recognition and perpetuation of the culture indigenous to the Hawaiian islands, existing nowhere else in the world. Kane i ka wai ola, *the water of Kane lives*, and so does his people. Today we live intimately connected with the land, sea, kupuna (ancestors), and akua (gods). Makua is a cultural and spiritual 'aina where traditional cultural and spiritual customs, beliefs, and practices of the Hawaiian people must take firm root and flourish. We continue our work for the restoration and return of our sacred 'aina of Kane to the Kanaka Maoli, and the Hawaiian Kingdom.

*Me he alo ala o ka wai
Ka makolu o ka wai apo lani
Ka walu o na lani ka Ao no a
Ka lapa ka 'ena ku moku.*

"As if the flow of water,
From triple streams of heavenly showers,
So the sacred Ao of the eight heavens,
Whose flames have scorched the land.

*A hiki mai ke aloha
A e pono mai ana
Ke kaheka kai kapu a Kane
Ka mole ke aa o ka 'Aina*

Should our hearts love be restored,
And "our rights" be ours once more,
Then will our loved shoals of Kane,
Be the firm foundation of the Land."

- written by Queen Liliuokalani

**PROGRAMMATIC AGREEMENT
AMONG THE 25TH INFANTRY DIVISION (LIGHT) AND THE UNITED STATES ARMY
HAWAII, THE UKANIPO HEIAU ADVISORY COUNCIL O WAHIPANA O MAKUA, AND
THE HAWAII STATE HISTORIC PRESERVATION OFFICER, FOR SECTION 106
RESPONSIBILITIES FOR THE ABORIGINAL HAWAIIAN USE OF UKANIPO HEIAU
COMPLEX AT MAKUA MILITARY RESERVATION**

WHEREAS, the 25th Infantry Division (Light) and United States Army, Hawaii (Installation) currently controls the Makua Military Reservation (MMR); and

WHEREAS, the Installation has determined that the Ukanipo Heiau Complex, as a part of O Wahipana O Makua (sacred lands), is covered by the American Indian Religious Freedom Act (P.L. 95-341; 42 USC §1996) and the Installation has recognized the Ukanipo Heiau Advisory Council O Wahipana O Makua, as *na kupu`o ka`aina O Wai`anae* and *na po`e kanaka hawai`i* (aboriginal Hawaiians), as agents for implementation of religious access under that Act; and

WHEREAS, the Installation has determined that the aboriginal Hawaiian use of the Ukanipo Heiau Complex may have an effect upon this property that has been included in the U.S. National Register of Historic Places, and has consulted with the Advisory Council on Historic Preservation (ACHP) and the Hawaii State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800 implementing Section 106 of the National Historic Preservation Act (16 USC. §470f), and Army Regulation 200-4 (AR 200-4); and

WHEREAS, the Installation proposes to administer its Section 106 responsibilities for the Ukanipo Heiau Complex (Figure 1) at MMR, authorized by the National Historic Preservation Act of 1966, as amended (16 USC § 470); and

WHEREAS, the Council as well as other aboriginal Hawaiian groups have been consulted on the drafting of this Programmatic Agreement and have assisted in its development; and

NOW, THEREFORE, the Installation, the SHPO, and the Council agree that the Ukanipo Heiau Complex shall be administered in accordance with the following stipulations to satisfy the Installation's Section 106 responsibility for all individual aspects of the preservation of that site.

Stipulations

The Installation acknowledges that the lands of the MMR lie within O Wahipana O Makua which aboriginal Hawaiians believe are sacred lands identified as a place of creation for *na kupu`o ka`aina O Wai`anae* and *na po`e kanaka hawai`i*, or aboriginal Hawaiians. Furthermore, the Installation acknowledges that *na kupu`o ka`aina O Wai`anae* and *na po`e kanaka hawai`i* have a long history of caring for areas of the MMR and associated lands outside of the MMR boundaries. Finally, the Installation acknowledges that *na kupu`o ka`aina O Wai`anae* and *na po`e kanaka hawai`i* have spiritual, traditional, and cultural interests in the entire MMR.

The terms defined in Appendix A are applicable throughout this Agreement.

1. **The Installation, the SHPO, and the Council** agree to work together in good faith on all aspects of

the preservation of the Ukanipo Heiau Complex. All parties will participate in all actions regarding the preservation of the Ukanipo Heiau Complex, while some parties will take the lead in certain of those actions, as described herein.

2. **The Installation Commander** shall be responsible for ensuring that specific measures are carried out. These measures include, but are not necessarily limited to, the following:

a. Recognition of the Council as stewards of the Ukanipo Heiau Complex.

(1) With the execution of this Agreement, the Installation Commander shall recognize the Council as stewards of the Ukanipo Heiau Complex. The Installation shall ensure that the Council has the opportunity to review all documents and undertakings carried out in accordance with this Agreement.

(2) The Installation shall delegate responsibility and authority to the Council as stewards for aspects of maintenance of the site area, control of site access and site protocols, methods to be used for site rehabilitation, design of site landscaping plan and development of consultation procedures for the Ukanipo Heiau Complex issues. These responsibilities shall be delegated in consultation with the Council and will be described in detail below and in the Site Management Plan.

(3) The Installation shall retain responsibility for certain aspects of the preservation and maintenance of the Ukanipo Heiau Complex, including, but not limited to, the following:

- (a) Some aspects of site maintenance
- (b) Removal and disposal of unexploded ordnance
- (c) Aid in the removal and disposal of dead trees and other debris
- (d) Determination of physical boundaries of the Ukanipo Heiau Complex

The Installation shall carry out these responsibilities in consultation with the Council. Retained responsibilities will be described in detail herein in Stipulation 2(d) and in the Site Management Plan.

b. Site Access. The Installation shall guarantee the Council reasonable access to the Ukanipo Heiau Complex through the gate along Farrington Highway and the MMR Range Operations Office. Reasonable access will be based on military activities, site safety and timely notification of the request to enter to the DPW, Environmental Conservation/Cultural Resources Office. The MMR Range Operations Office will provide a registration log for personnel entering the site.

c. Site Management Plan. The Installation shall develop a Site Management Plan (SMP) for the Ukanipo Heiau Complex within twelve months of executing this Agreement.

(1) The SMP shall be based on recommendations from the Council and shall contain, but not be limited to, the standards and subject matter outlined in Appendix B. The Installation shall ensure that the SMP is developed in consultation with the Council and the SHPO .

(2) The Installation shall provide all maps, survey reports, aerial photographs and other survey documentation to the Council that are necessary for consultation on the development of the SMP.

(3) The Installation shall provide a complete draft of the SMP to the SHPO, and the Council for review and concurrence. Disagreements or questions about the draft SMP will be resolved through consultation among the parties.

(4) Upon acceptance of the SMP by the SHPO, and the Council, the Installation shall finalize and implement it in cooperation with the State of Hawai'i and the Council to satisfy the requirements of 36 CFR Part 800.

(5) The Installation shall prepare an annual report on the implementation of the SMP by the Installation, and provide a copy to the SHPO, and the Council for review, comment, and consultation as needed.

d. Site Maintenance. The Installation shall ensure that the initial maintenance and site preparation of the Ukanipo Heiau Complex is in accordance with the landscaping and site stabilization plans contained in the SMP. These responsibilities will include but not be limited to the following:

(1) The Installation shall provide personnel and/or volunteers to aid the Council in the removal of dead trees and unwanted vegetation from the site area. The exact method of removal shall be covered in the site management plan and shall follow cultural protocols.

(2) The Installation, through the Army Natural Resources Center of the Environmental Division, Directorate of Public Works, shall provide technical advice to the Council regarding appropriate native and Polynesian introduced species that are suitable to the environment surrounding the Ukanipo Heiau Complex. They shall also provide advice to minimize and reverse erosional processes that have begun to impact O Wahipana O Makua.

(3) The Installation shall provide personnel and/or volunteers to work with Council members to ensure that the stone structures within the Ukanipo Heiau Site Complex are stabilized, so that future wall collapse will be unlikely.

(4) The Installation shall provide fencing materials once access boundaries has been determined. The Installation shall provide personnel and/or volunteers to help Council members erect an appropriate fence along the boundaries.

(5) The Installation, through the Directorate of Public Works, and in consultation with the Council, shall provide a permanent potable water source for use at the Ukanipo Heiau Complex and toilet facilities during rehabilitation of the heiau.

(6) The Installation shall keep regularly accessed site areas free of grass through the existing range grass cutting contract.

(7) The Installation Safety Office shall serve as final arbiter for all safety issues.

e. Archeological Surveys. The Installation shall, as the opportunity arises and subject to the availability of funds, clear additional areas of MMR associated with the Ukanipo Site Complex of ordnance and survey the areas for related archaeological sites after consultation with the Council. The survey shall be done in a manner consistent with the *Secretary of the Interior's Standards and Guidelines for Identification* (48 FR 44720-23) and taking into account the National Park Service publication *The Archaeological Survey: Methods and Uses* (1978; Government Printing Office stock # 024-016-00091). The Installation shall evaluate properties identified through the survey in accordance with 36 CFR Part 800. If the survey results in the identification of properties that are eligible for inclusion in the National Register for Historic Places, the Installation shall comply with 36 CFR Part 800.

f. Reports. The Installation shall provide all draft and final reports resulting from actions pursuant to this Agreement to the SHPO and the Council for comments and files. The Installation shall ensure that all such reports are responsive to contemporary professional standards.

3. **The Ukanipo Heiau Advisory Council O Wahipana O Makua** shall be responsible for ensuring specific measures are carried out. These measures include, but are not necessarily limited to the following:

a. Recognition of the Council as stewards of the Ukanipo Heiau Complex.

(1) With the execution of this Agreement, the Council shall assume responsibilities as stewards of the Ukanipo Heiau Complex. The Council shall review all documents and undertakings carried out in accordance with this Agreement.

(2) The Council shall be responsible for aspects of maintenance of the site area, control of site access and all cultural protocols, methods to be used for site rehabilitation and design of a site-landscaping plan for the Ukanipo Heiau Complex. These responsibilities shall be described in detail below and in the SMP.

(3) The Council shall act as stewards of the Ukanipo Heiau Site for the length of this Agreement and sign a curatorship agreement with State of Hawai'i. This shall include the following responsibilities:

- (a) Maintain the landscaping
- (b) Maintain the erosion control features
- (c) Monitor effects of use of the site
- (d) Develop interpretive and educational programs
- (e) Implement access and cultural protocols

(4) The Council shall assist in the development of consultation procedures to be followed for all aspects of the preservation of the Ukanipo Heiau Complex.

b. Site Access. The Council shall develop and implement cultural protocols for reasonable access to the Ukanipo Heiau Complex by interested individuals. Reasonable access will be based on military activities, site safety and timely notification of the request to enter to the DPW, Environmental Conservation/Cultural Resources Office. The Council shall insure that individuals visiting the Ukanipo Heiau Complex, under the auspices of the Council, will check in at the Makua Military Reservation Office before entering the site.

c. Site Management Plan.

(1) The Council shall provide goals and objectives to be used in the development of the SMP. Such goals and objectives will address but not be limited to the following issues – erosion control, landscaping, access, cultural protocols, management, interpretation, and educational use.

(2) The Council shall consult with the Installation on the development of the SMP. When the SMP is finalized, the Council shall assist in the implementation of the SMP as the responsibilities are outlined within the SMP.

(3) The Council shall provide information on the Council's implementation of the SMP to the Installation for inclusion in the Installation's annual report.

d. Site Maintenance. The Council, along with the Installation, shall ensure that the Ukanipo Heiau Complex is maintained in accordance with the landscaping and site stabilization plans contained in the SMP. These responsibilities will include but not be limited to the following:

(1) The Council shall, with personnel and/or volunteer assistance from the Installation, remove dead trees and unwanted vegetation from the site area.

(2) The Council shall, with the help of personnel from the Natural Resources Section of the Directorate of Public Works, introduce and foster appropriate native and Polynesian introduced species that are suitable to the environment surrounding the Ukanipo Heiau Complex, and minimize and reverse erosional processes that have begun to impact O Wahipana O Makua.

(3) The Council shall, with personnel and/or volunteer assistance from the Installation, stabilize the stone structures within the Ukanipo Heiau Site Complex so that future wall collapse will be unlikely.

(4) The Council shall, with personnel and/or volunteer assistance from the Installation, erect an appropriate fence along the boundaries. The Installation shall also provide the fencing material as noted in stipulation 2(d)(4).

4. **The Hawai'i State Historic Preservation Officer** shall be responsible for ensuring that specific measures are carried out. As part of the established responsibilities of the SHPO, these measures include, but are not necessarily limited to the following:

a. Serve in a technical assistance capacity on all aspects of the preservation of the Ukanipo Heiau Complex and associated sites.

b. Act as a conduit for other Hawai'i State agencies that may need to participate in any capacity in the preservation of the Ukanipo Heiau Complex and associated sites.

c. Provide project oversight through document review and Section 106 consultation.

d. Attend meetings and fulfill a review capacity.

5. All parties to this Agreement shall consult annually to review implementation of its terms and determine whether any revisions are needed. Any necessary revision will be made in accordance with 36 CFR Part 800.

6. Any party to this Agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR Part 800 to consider such amendment.

7. Any party to the Agreement may terminate it by providing thirty (30) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that could avoid termination. In the event of termination, the Installation will comply with 36 CFR Part 800 with regard to individual undertakings covered by this Agreement.

8. Dispute Resolutions under this Agreement shall include, but not be limited to the following:

a. Should any signatory to this Agreement object to any action carried out or proposed by the Installation with respect to implementation of this Agreement, the Installation Commander shall consult with the objecting party to resolve the objection. If the objection cannot be resolved through consultation, the Installation shall forward, by certified mail, all documentation relevant to the dispute to the Advisory Council on Historic Preservation. Within 30 calendar days after receipt of all pertinent documentation, the ACHP shall exercise one of the following options:

(1) Advise the Installation that the ACHP concurs in the Installation's proposed final decision, whereupon the Installation will respond to the objection accordingly.

(2) Provide the Installation with recommendation, which the Installation shall take into account in reaching a final decision regarding its response to the objection; or

(3) Notify the Installation that the ACHP will comment pursuant to 36 CFR Part 800, and proceed to comment, the resulting comment shall be taken into account by the Installation in accordance with 36 CFR Part 800 and Section 110 of the National Historic Preservation Act of 1966, as amended.

b. Should the ACHP not exercise on the above options within 30 days after receipt of all pertinent documentation, the Installation shall assume that the ACHP has concurred with its proposed response to the objection.

c. The Installation shall take into account any ACHP recommendation or comment provided in accordance with this stipulation with reference only to the subject of the objection; the Installation responsibility to carry out all actions under this Agreement that are not subject of the objection shall remain unchanged.

d. Should any objection pertaining to this Agreement be raised at any time by a member of the public, the Installation shall notify the parties to this Agreement and take the objection into account. Consultation shall be completed following concurrence by the parties to this Agreement.

9. This Agreement shall take effect on the date it is signed by the last signatory and shall remain in effect in perpetuity or until such time as it expires per the termination procedures found in Stipulation 7.

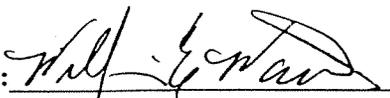
10. The stipulations of this Agreement are subject to the provisions of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs the Installation's ability to implement the stipulations of this Agreement, the Installation will consult in accordance with the amendment and termination procedures found at Stipulations 6 and 7 of this Agreement.

11. The Installation Commander shall ensure that the terms of this Agreement apply to all tenants and tenant activities on the installation. The Installation shall inform tenants of any restrictions or responsibilities placed on them under this Agreement and the SMP.

12. In the event the Installation does not carry out the terms of this Agreement, the Installation will comply with 36 CFR Part 800 with regard to individual undertakings covered by this Programmatic Agreement.

Execution of this Programmatic Agreement by the Installation, the Hawai'i State Historic Preservation Officer, the Advisory Council on Historic Preservation and the Ukanipo Heiau Advisory Council O Wahipana O Makua and implementation of its terms, is evidence that the Installation has afforded the Council an opportunity to comment on the preservation of Ukanipo Heiau Complex and its effects on historic properties, and that the Installation has taken into account the effects of the undertaking on historic properties.

25th INFANTRY DIVISION (LIGHT) AND UNITED STATES ARMY HAWAII

By:  Date: 10/12/00

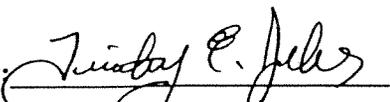
William E. Ward
Major General, U. S. Army
Commanding General

UKANIPO HEIAU ADVISORY COUNCIL O WAHIPANA O MAKUA

By:  Date: 10/12/00

Nalani Tavares
Community Liaison

HAWAII STATE HISTORIC PRESERVATION OFFICER

By:  Date: 10/12/00

Timothy Johns
State Historic Preservation Officer

APPENDIX A

DEFINITION OF TERMS

ACHP	Advisory Council on Historic Preservation
Agreement	The present Programmatic Agreement
Council	<i>Ukanipo Heiau Advisory Council O Wahipana O Makua</i>
CFR	Code of Federal Regulations, the rules made by federal agencies to implement federal laws, as directed by Congress.
<i>heiau</i>	A traditional Hawaiian place for religious worship, spiritual, and cultural practices.
ICRMP	Integrated Cultural Resource Management Plan
Installation	The 25 th Infantry Division Light and United States Army, Hawai'i
Installation Commander	Commanding General of the 25 th Infantry Division Light and United States Army, Hawaii
<i>Kanaka maoli</i>	
<i>mana'o</i>	Extremely, strongly, held belief.
<i>na kupu 'o ka`aina O Wai`anae</i>	Offshoots of the land of Wai`anae
<i>na po `e kanaka hawai'i</i>	Aboriginal Hawaiians
MMR	Makua Military Reservation
O Wahipana O Makua	Sacred lands, identified as the place of creation for <i>na kupu 'o ka`aina O Wai`anae</i>
P.L	Public law
Preservation	To keep alive or existing. Part of the purpose of the National Historic Preservation Act of 1966 states that "the historical and cultural foundations of the Nation should be preserved as a living part of our

community life . . .” [16 U.S.C. 470(1)(b)(2)]

SHPO

State Historic Preservation Officer

SMP

Site Management Plan

USC

United States Code consists of the laws passed by Congress

APPENDIX B

STANDARDS AND GUIDELINES FOR THE DEVELOPMENT OF A SITE MANAGEMENT PLAN FOR THE UKANIPO HEIAU COMPLEX

The Site Management Plan (SMP) for the Ukanipo Heiau Complex shall be prepared in accordance with the following guidelines.

1. The SMP will be prepared by or under the supervision of an individual who meets the professional standards for an archaeologist in the *Secretary of the Interior's Professional Qualifications Standards* (48 FR 44738-9) and Department of the Army Regulation 200-4.
2. The SMP will be prepared with reference to the *Secretary of the Interior's Standards and Guidelines for Preservation Planning* (48 FR 44716-20), and the Makua Chapter in the ICRMP for the Oahu Training Ranges (1998).
3. The essential purpose of the SMP will be to establish processes for integrating the preservation and aboriginal cultural use of the Ukanipo Heiau Complex with the mission and purpose of the Installation and its Makua Military Reservation in a manner appropriate to the nature of the historic properties involved, the nature of the Makua Military Reservation, and the nature of the Installation's mission, programs, and planning processes.
4. The SMP will include the following:
 - A. Goals and Objectives
 - B. Historic Property Description
 - C. Land Uses, Potential Threats, and Regulated Activities
 - D. Recognition of Aboriginal Hawaiian Cultural Practices
 - E. Management Strategy
 - F. Compliance Requirements
 - G. Bibliography

APPENDIX C

Aboriginal Hawaiian groups and individuals represented on the Ukanipo Heiau Advisory Council O Wahipana O Makua include, but are not limited to the following:

Kupu `o ka `aina O Wai`anae

Ka Ohana Aila

Sharon Akana

Phyllis "Coochie" Cayan

Clarence DeLude

Glen Kila

Ka Ohana Maia Kapuwailani

Malama Makua

Ka Ohana Mole

Ka Ohana Poe

Ka Ohana Rodrigues

The above referenced individuals and groups have been consulted and agree with the Programmatic Agreement. However, our *mana`o* is unified in opposition to continued military use of *O Wahipana O Makua* which includes Makua, Kahanahaiki, and Koi`ahi Valleys.

PROGRAMMATIC AGREEMENT (PA)

AMONG

THE 25th INFANTRY DIVISION (LIGHT) AND THE UNITED STATES ARMY, HAWAII (25th ID(L) & USARHAW), THE HAWAII STATE HISTORIC PRESERVATION OFFICE, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
FOR SECTION 106 RESPONSIBILITIES FOR ROUTINE MILITARY TRAINING AT MAKUA MILITARY RESERVATION, OAHU ISLAND, HAWAII

WHEREAS the 25th ID(L) & USARHAW has a mission to operate and maintain training areas and ranges in the State of Hawaii in support of the training mission of 25th Infantry Division (Light); and

WHEREAS the 25th ID(L) & USARHAW has determined that training at Makua Military Reservation (MMR) may have an effect upon properties included in or eligible for inclusion in the National Register of Historic Places and has consulted with the Hawaii State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (the Council) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16U.S.C. 470f) and Army Regulation 200-4; and

WHEREAS a 1998 Cultural Resources Management Report for U.S. Army Training Ranges and Areas, Island of Oahu, Hawaii has been developed providing recommendations to mitigate the effects of routine training on cultural resources at MMR; and

WHEREAS the definitions given in Appendices A-H are applicable throughout this Programmatic Agreement.

NOW THEREFORE, the 25th ID(L) & USARHAW, the SHPO, the Office of Hawaiian Affairs (OHA) as concurring party, and the Council agree that the installation's Section 106 compliance responsibilities for routine training activities at MMR will be fulfilled by adherence with the following stipulations:

1. The 25th ID(L) & USARHAW (Installation) promises to train in accordance with the routine training scenarios which are summarized in Appendix A. If this routine training scenario and the stipulations outlined below are followed, Section 106 consultation responsibilities for this training will have been fulfilled.

2. The Installation shall ensure that historic properties on the training lands at MMR shall be identified, evaluated and treated in accordance with the items attached hereto as Appendices B-H.

a. Identification of Historic Properties

(1) To meet its identification and evaluation responsibilities for historic properties, the Installation, in consultation with the Hawaii SHPO, shall follow the five-year schedule outlined in Appendix C, with reference to the survey priority acreage table attached as Appendix D, and the survey priority area map attached as Appendix E.

(a) All lands that are presently used for maneuver and training fall under Priorities 0 - 1 (Appendix E). Lands that are not currently used for maneuvers, but serve as management areas, fall under Priority Areas 2 - 7. Area 0 has undergone archaeological reconnaissance survey that has identified all surface historic properties; however, more subsurface testing is needed to determine site size before surveys are complete. Other incomplete surveys have been undertaken in portions of Areas 2-7.

(b) At present 36 historic properties are known at MMR (Appendices B and F). These tend to reflect remnants of the settlement patterns of Makua and Kahanahaiki which had dryland agricultural sites on the lower valley floor, in Ko'iahi gulch, and in the upper valley; habitations were scattered in these areas with more concentrated habitation areas near the shore. Larger religious structures were also found near the shore (Appendix H).

(2) Establishment of a database of existing historic, prehistoric, ethnohistoric, landscape and environmental data to provide a context within which to identify and evaluate historic properties and to develop projections about the distribution and nature of historic properties that may exist at MMR. Projections about the distribution and nature of historic properties will be undertaken by the CRM Office at the Installation. These projections will be included in the annual report as outlined in Stipulation 17.

(3) Prepare two GIS maps of MMR. The first map will indicate the locations of all historic properties that have been identified and the specific buffer zones set up around the sites. The second map will indicate Archaeologically Sensitive Areas (ASA's) which will include site locations and site buffer zones as polygons.

(4) Provide the Hawaii SHPO, the Installation Range Officer, bona fide researchers, and representatives of the aboriginal Hawaiian community with copies of both maps. Provide other Installation personnel, including fire fighters and MMR Range control, and members of the interested public with copies of the ASA map and a summary of historic properties.

(5) Area 0 shall have a surface archaeological survey completed in calendar year 2000 prior to resumption of training activities and subsurface testing to complete the survey will be done in accordance with the schedule in Appendix C. This survey will be done in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. Findings in report format will be submitted to the Hawaii SHPO for review and comment, prior to the report's finalization.

(6) Observation areas on hills and exit hiking routes on ridges and the Kealia trail shall undergo a complete archaeological survey prior to any resumption of training activities in those areas. This survey will be done in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. Findings in report format will be submitted to the Hawaii SHPO for review and comment, prior to the report's finalization.

(7) A separate survey for Traditional Cultural Places at MMR will be undertaken in calendar year 2000. The Office of Hawaiian Affairs and aboriginal Hawaiian organization and groups with an interest in MMR will be consulted in accordance with Stipulation 9. A draft report of this survey will be provided to the Hawaii SHPO, OHA, and the aboriginal Hawaiian organization and groups for review and comment.

(8) Traditional pedestrian survey will not occur in Areas 2-7, unless the maneuver or firing areas are expanded or if some other reason necessitates survey, because of the high potential hazard from unexploded ordnance. Rather, other methods such as, but not limited to, satellite imagery resolution will be utilized to locate potential areas for cultural resources.

(9) Range target areas will remain in locations that do not impact historic properties.

b. Evaluation of Sites for Determinations of Eligibility. The Installation, in consultation with the Hawaii SHPO, OHA and aboriginal Hawaiian groups and organizations shall evaluate historic properties at

MMR for their eligibility for the National Register of Historic Places and prepare nomination forms for those sites determined to be eligible in accordance with AR 200-4(3.2) b and 36 CFR Part 61.

c. Treatment of Historic Properties.

(1) The Installation has as its policy the preservation of all historic sites. If a property cannot be avoided after all compliance and consultation efforts are followed, only then will archaeological data recovery measures be considered.

(2) Site protection measures will be developed and implemented in cooperation and in consultation with the Hawaii SHPO, OHA, and aboriginal Hawaiian organizations, groups, families and individuals. This shall include the establishment of buffer zones around sites. The Installation will ensure that historic property boundaries within the training area are clearly marked or flagged off.

(3) The Installation will provide all relevant offices at the Installation, including fire fighting personnel and range personnel, copies of the protective measures with a summary on guidance regarding their treatment.

(4) Should data recovery of a site be needed, data recovery plans will be developed in consultation with the Hawaii SHPO, OHA and aboriginal Hawaiian organizations and groups.

d. Monitoring of sites will be done in accordance with Appendix G. Monitoring will be done on a quarterly basis by the Installation Cultural Resources Manager (CRM).

3. Certain routine activities at MMR are considered to have "no historic properties affected determinations" under Section 106 consultation procedures. These are:

a. Areas that have been previously landscaped may be maintained by basic landscaping maintenance such as tree trimming and grass cutting.

b. Areas that have been previously paved such as roads, parking areas, and paths may be repaved or resurfaced provided heavy equipment is restricted to previously disturbed areas.

c. Maintenance and repair to pre-existing military facilities that are not historically significant, including buildings, water, sewer, telephone, gas and electric utilities.

4. Proposed construction, expansion of ranges, changes in training activities and the removal of unexploded ordnance to clear an area for a new use are considered new undertakings and will require additional Section 106 consultation and review. Accordingly, the installation will consult with the Hawaii SHPO, the Council, OHA, aboriginal Hawaiian organizations and groups, and other interested parties on such undertakings following Section 106 and this Programmatic Agreement.

5. The Installation Commander shall ensure that the CRM participates in installation-level planning for projects and activities that may affect historic properties. The Installation Commander shall ensure that the CRM reviews all undertakings that are carried out pursuant to this PA.

6. The CRM will work with the Fire Manager to develop acceptable fire containment/control strategies to suppress wildfires while protecting historic properties. This coordination will take place during fire planning, preparation and pre-season fire protection and fire suppression operations. During actual fire

suppression activities the Fire Incident Commander/Fire Management Officer (IC/FMO) will take all precautions to avoid damage to archaeological sites.

7. In the event that archaeological sites are encountered during any construction or excavation activities, the activity must stop and immediate telephone notification of the discovery, with written back-up, must be provided to the CRM. The CRM will investigate the site and then contact the Hawaii SHPO and the Council in accordance with 36 CFR Part 800.11, OHA and aboriginal Hawaiian organizations and groups.

8. The 25th ID(L) & USARHAW shall ensure that all historic preservation work carried out pursuant to this PA is carried out by or under the direct supervision of a person or persons meeting at a minimum the intent of 36 CFR Part 61, Appendix A and the intent of Section 112 (a)(1)(B) of the National Historic Preservation Act.

9. Native Hawaiian consultation shall proceed as follows:

a. The Office of Hawaiian Affairs (OHA) and Hui Mälama I Na Kūpuna O Hawaii Nei (Hui Malma) will be considered interested parties for purposes of Section 106 consultation and will be afforded an opportunity to comment on all undertakings that require Section 106 review.

a. The Installation Commander shall identify aboriginal Hawaiian organizations, groups, families and individuals that may ascribe traditional religious and cultural importance to historic properties within the installation through the use of oral interviews, public notices and public meetings.

b. The Installation Commander shall consult with such parties, OHA, and Hui Malama to solicit their assistance and advice in identifying properties of traditional religious and cultural importance within the installation, in identifying relevant preservation issues, and in resolving concerns regarding confidentiality of information on historic properties.

c. The Installation Commander shall ensure that the views and recommendations of OHA and other aboriginal Hawaiian organizations regarding (1) the area of potential effect of any undertaking, (2) application of criteria of eligibility for inclusion on the National Register for Historic Places, (3) the effects of the undertaking on religious and cultural properties, and (4) the treatment of affected properties for any undertaking and any proposed mitigation are taken into account in reaching a final decision. The Installation Commander shall report his decision regarding the undertaking to the aboriginal Hawaiian organizations.

10. The installation shall ensure that the terms of this PA apply to all tenants and activities by other services on the installation. The installation shall inform any users of the installation of their responsibilities regarding historic properties and the terms of this PA.

11. If the Installation Commander determines that the Army cannot implement the terms of this PA, or if the SHPO or the Council determines that the PA is not being properly implemented, the Army, the SHPO or the Council may propose to the other parties to this PA that it be terminated.

12. The party proposing to terminate this PA shall so notify all parties to this PA, explaining the reasons for termination and affording them at least thirty days to consult and seek alternatives to termination.

13. Should such consultation fail and the PA be terminated, the Army shall:

a. Consult in accordance with 36 CFR Section 800.13 to develop a new PA; or,

b. Comply with 36 CFR Sections 800.4 through 800.6 with regard to each undertaking.

14. Any party to the PA, or the consulting aboriginal Hawaiian organizations may propose to the Army that the PA be amended, whereupon the parties shall consult to consider such amendment. An amendment to the PA may be made by mutual agreement of the parties in accordance with 36 CFR Section 800.13.

15. This PA shall take effect on the date it is signed by the last signatory and will remain in effect until five years from that date unless terminated pursuant to Stipulation 13 to 15. No extension or modification will be effective unless all signatories have agreed in writing.

16. The 25th ID(L) & USARHAW shall ensure that reports on all activities carried out pursuant to this PA are provided to the SHPO, placed in the Waianae Public Library and, upon request, given to other interested parties;

17. The 25th ID(L) & USARHAW shall provide an annual status report to the SHPO, the Council, OHA, and consulting aboriginal Hawaiian organizations to review implementation of this agreement and to determine whether amendments are needed. If amendments are needed, the parties to this agreement will consult, in accordance with Stipulation 15 of this agreement, to make such revisions.

18. Should the SHPO and/or the Council object within thirty (30) days to any plans or other documents provided by the Army or others for review pursuant to this agreement, or to any actions proposed or initiated by the Army pursuant to this agreement, the Army shall consult with the objecting party to resolve the objection. If the Army determines the objection cannot be resolved, the Army shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation the Council will either:

a. Advise the installation that the Council concurs in the Army's proposed final decision, whereupon the Installation will respond to the objection accordingly.

b. Provide the Army with recommendations, which the Army will take into account in reaching a final decision regarding the dispute, or

c. Notify the Army it will comment pursuant to 36 C.F.R 800.6(b) and proceed to comment.

Any Council comment will be taken into account by the Army in accordance with 36 C.F.R 800.6(c) (2) with reference only to the subject of the dispute. The 25th ID (L) & USARHAW's responsibility to carry out all actions under the PA that are not the subject of the dispute will remain unchanged.

19. The stipulations of this agreement are subject to the provisions of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs the Army's ability to implement the stipulations of this agreement, the Army will consult with the SHPO and the Council in accordance with the amendment procedures outlined at Stipulation 15 of this agreement.

20. This Programmatic Agreement may be executed by duplicate originals.

Execution and implementation of this Programmatic Agreement evidences that 25th ID(L) & USARHAW has satisfied its Section 106 responsibilities for all routine training activities. It does not preclude the need for Section 106 coordination for non-routine undertakings on training lands.

25th INFANTRY DIVISION (LIGHT) & U.S. ARMY, HAWAII
COMMANDING GENERAL

 (Date) 24 Jun 2000

William E. Ward
Major General, U.S. Army
Commanding General

HAWAII STATE HISTORIC PRESERVATION OFFICER

_____ (Date) _____

Timothy Johns
State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION
EXECUTIVE DIRECTOR

 (Date) 9/18/00

John Fowler
Executive Director

OFFICE OF HAWAIIAN AFFAIRS AS INVITED CONCURRING PARTY

_____ (Date) _____

Execution and implementation of this Programmatic Agreement evidences that 25th ID(L) & USARHAW has satisfied its Section 106 responsibilities for all routine training activities. It does not preclude the need for Section 106 coordination for non-routine undertakings on training lands.

25th INFANTRY DIVISION (LIGHT) & U.S. ARMY, HAWAII
COMMANDING GENERAL

 (Date) 24 Jul 2000

William E. Ward
Major General, U.S. Army
Commanding General

HAWAII STATE HISTORIC PRESERVATION OFFICER

 (Date) Aug 9 2000

Timothy Johns
State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION
EXECUTIVE DIRECTOR

_____ (Date) _____

John Fowler
Executive Director

OFFICE OF HAWAIIAN AFFAIRS AS INVITED CONCURRING PARTY

_____ (Date) _____

Appendix A - Training Scenarios at Makua Military Reservation (MMR)
(Subdivided by Battlefield Operating System to categorize differing types of
operations.)

(Source: MAJ Shutt and MAJ Hollis, G3, 25' ID(L))

1. **Intelligence Scenarios** - Military Intelligence (MI) is interested in finding out what an enemy force is doing - essentially who, what, when, where, and why. To this end over the years the MI branch has developed several ways to obtain this information. At MMR, the most likely scenario to be used by Intelligence personnel is the employment of Ground Surveillance Radar (GSR) and other electronic intelligence gathering devices to monitor the status of the "enemy" - a bank of electrically operated targets. The GSR section would set up on a hill, where the Radar Dish could "see" the enemy. Once the targets were lifted and visible, the GSR section would use radios to communicate the fact that the enemy was approaching to the operational unit charged with defending the area. Another use might be for the GSR section to guard key avenues of approach into an area, so that the unit charged with keeping an area secure would not have to post human guards there. If any intruders were present, the GSR section would again alert the operational unit.

2. **Maneuver Scenarios** - This is the largest type of user; indeed this category accounts for most of the units that come to MMR, for it is a maneuver live fire facility. Both Infantry and Aviation units fall into this category. The most frequent users are Infantry. Infantry can operate at squad (9 men), platoon (27-33 men), company (100 men), or battalion (500 men) at MMR. Typically, Infantry units follow a progressive training regimen, building events on others as they get better at the easier ones. To illustrate these missions, they are listed below. All of these missions may be performed at platoon and company level, though at MMR they are usually done by companies and battalions, for the objectives are very large and require a large number of men to attack and overwhelm them.

a. Infantry Company/ Platoon/ Squad Attack

This is the basic scenario that all others build on, and as such, we must spend some time and go into detail. In this scenario, the company usually arrives by surface transportation (usually truck) and occupies the assembly area in the westernmost field near the North Gate where they plan training, receive environmental briefings, prepare equipment, and generally get ready for the training they are to accomplish. Usually, Infantry companies get a three-day block of time to accomplish their training. The first day the leaders receive an environmental briefing, fire safety briefing and walk the ground between their assembly area and their objective to familiarize themselves with the terrain. The officers and range safety personnel direct the location and limitations for weapons, and the sergeants note the terrain and site the weapons. As the leaders walk the ground, they confirm their plan or modify it. Once that is over, the leaders draw blank-ammunition, as well as all signaling devices, and run through the attack with blanks.

Generally, the company moves with 3 platoons of 27 -30 men in trail (following each other), down the valley moving east toward objectives Wolf, Coyote and Deer. Wolf and Coyote are platoon objectives, and the first squad to see the targets on Wolf fires their rifles and machine-guns at the targets. Infantry companies also have a mortar section attached to them, and

the 60mm mortars may fire at 2 targets East of grid line 81 while the lead platoon is moving toward objective Wolf. Once the lead platoon makes contact on objective Wolf, the platoon leader deploys his forces (moves his squads to a position of advantage) and gains fire superiority over the enemy. This means he spreads his men out, and makes sure they can hit every target.

Once he does this, he advances his lead squad of 9 men while the squad behind them over-watches. This is called fire and maneuver. The platoon leader continues to fire and maneuver across the objective until there are no more targets to shoot. At that point he consolidates his men, and reorganizes - that is, he finds out if he still has all his men, if any were hurt, finds out how much ammunition he has, etc., and organizes his forces to defend what he has just taken. At this point, the unit is on Wolf and objective Coyote is directly in front of them. The company commander may elect to move another platoon in front of the one who has just fought, to rest them, or he may elect to go forward with the same platoon. At any rate, the next objective, Coyote, is attacked the same way, except that there is a separate squad sized objective just to the North and East of Coyote which the platoon leader in the lead must decide how to attack. Typically he takes Coyote proper in the same manner we discussed earlier, and then he dispatches a squad down to clear the squad sized objective. Then the platoon leader reports to his company commander that Coyote is secured.

The company commander then readies his men for the final objective, Objective Deer. Deer is a large, company sized U-shaped trenchline that teaches the training tasks: Enter and Clear a Trenchline, Company Deliberate Attack, and the Platoon Attack, Squad Attack, Knock out a Bunker, Enter and Clear a Building, and Conduct an Initial Breach of a Mine/Wire Obstacle, all of which are primary battle drills required of trained platoons and companies. Objective Deer is a large area, requiring at least a company of infantry to clear the trenchline. Once the lead platoon has set up their crew-served machine-guns overmatching the objective, the other two platoons advance to Deer via a creek bed. In rainy times this creek usually has 3-4 feet of water in it.

A minefield and barbed wire obstacle usually protects the westernmost entrance to the objective, and the company commander may use his engineer section to reduce this impediment. Usually, the engineer squad uses a bangalore torpedo to blow up wire and mine obstacles; this is a 10' long tube filled with explosives designed to focus the blast in a cutting line that effectively blows up mines, cuts wire, and allows soldiers to walk right where the torpedo blew up. Engineers attach tubes to one another to gain needed distance, effectively spanning large distances over minefields. Once the Bangalore goes off, the infantrymen who have been behind cover to protect themselves from the explosive effects run through the "breach" in the wire to the trench system. Two men roll into the trench and fire down the length of the trench to kill any enemy in the first legs of the trench. The squads and platoons follow these lead men. As the lead man comes to a turn in the trenchline, his buddies cover him and the unit continues down the trench until they come to the first bunker, or room. The squads use fire teams (4 men) to clear bunkers with hand grenades. The lead man guards the opposite approach and the remaining three men position themselves close to the door in a "stack." The lead man tosses the grenade in, and after the grenade goes off, the three rush the room, pointing their rifles at different pre-arranged places in the room to cover all enemy that might still be in the room. The platoon continues to clear the remainder of the trench in this manner.

Once the two platoons clear both legs of the trench and meet on the Eastern side, the two consolidate together (company consolidation) and prepare for any counterattack. The company

commander may direct the emplacement of Claymore mines (a small but very destructive command detonated anti-personnel mine) in front of the unit, and may also direct that the company anti-armor section arm and emplace their anti-tank missiles to prevent any enemy tank from overrunning the trenchline they just took. Artillery, if used, can fire at this point into the target box in the far eastern point of the valley to suppress the enemy's counterattack. Once the enemy "counterattack" (the electronic targets are raised) occurs and is repelled by the company, the exercise is over and soldiers conduct the After Action Review (a play by play discussion with all participating to enhance learning), and the exercise is ended.

b. Additions/ modifications to the above scenario:

Air Assault: The difference is merely in the method of transportation. A typical Air Assault would have the company boarding helicopters on Schofield (or Marines in Kaneohe) and the helicopters would land on the approved landing zone on MMR just north of the range control buildings. The helicopters would come in two at a time, at most, for the landing zone is fairly small. Also, during an Air Assault, some vehicles are typically rigged for external transport underneath helicopters hung on nylon slings. This is called sling-loading, and howitzers, trucks, ammunition, and water are moved this way. It makes it easier to load and unload, leaving the inside of the helicopter available to haul troops. Additionally, it takes advantage of the load carrying capacity without the limitations of the interior loading space of the helicopter.

c. Aviation: The Aviation Brigade does not currently execute any collective missions at MMR - that is, they work in small elements in support of other attacks. A typical scenario for the aviators is as follows: 3 helicopters fly to MMR - one is an OH - 58 (observation helicopter) and the other two are designated as attack helicopters. The three helicopters are firing 20mm cannons, and 7.62 machine guns in close support of the troops on the ground mentioned in the above maneuver scenario. Typically, the helicopters will fly in from the ocean direction and occupy an aerial battle position (hover in place) close to grid coordinates 803808 (Figure 3) and acquire (find) their target. Once they find the target, they will alternately fire first the left then the right helicopter, and suppress or neutralize the target. The pilots are in communication with the soldiers on the ground at all times via FM radios, and the leaders on the ground tell the pilots when to leave or what to suppress next in support of the ground attack.

d. Fire Support

(1) Shoot in support of a CALFEX: In a Combined Arms Live Fire Exercise usually done at company or battalion level, artillery is an integral part. The artillery section occupies the firing point at the western end of the valley, and the 2-gun section fires at targets within the southern fuel break road in support of the Infantry attacking objectives Wolf, Coyote, Deer, Badger, etc. All of the men (4 per gun) stay at the gun and do not move out of the area.

(2) Artillery Raids; 2- and 3-gun section raids: The purpose of these exercises is to get a field artillery (cannon) piece to a forward area so they can range the enemy. In these

scenarios, a CH-47 helicopter would sling-load one 105mm howitzer and its crew of 4 men into an area, set the howitzer on the ground and unhook. The crew would then disembark and put the gun into action for firing. The artillery pieces would then fire back (live) into the impact area. Rounds are aimed to land in the impact area. This is a timed event and is done with speed and precision. This scenario would also include up to 6 HMMVW vehicles on the ground, with associated ammunition loads in two 5 ton trucks, as a minimum.

(3) **Observer Training:** In this scenario, nothing changes from the above scenarios except the training audience. In the previously mentioned scenarios, the artillery was firing in support of the infantry attacking the trench. Usually in that scenario the company forward observer is calling for the artillery firing, observing the impact of the round, and calling back corrections to the guns so the next rounds can be accurate. Sometimes, the artillery unit would occupy the range without the infantry present, to practice observing, firing, and fire direction control procedures.

e. ADA (Air Defense Artillery)

(1) **Convoy Live Fire Exercise (LFX):** In this scenario the Air Defense Artillery stinger vehicles and command and control vehicles are moving along a road in the training area. At a pre-arranged signal, the leader in the convoy pushes a button on an electronic remote control box that sends a signal to a bank of target lifters that are positioned very close to the road that the vehicles are traveling on. The lifters spring up, bringing e-type silhouette targets with them that look like enemy soldiers holding rifles. This can be accompanied with a signal to a pneumatic machine gun, a simulator that faithfully produces the sound of an enemy machine-gun being fired at you. Once that occurs, the rest of the soldiers in the column of trucks know that their convoy has been ambushed. They dismount their vehicles very quickly, and immediately return fire and overwhelm the enemy with superior firepower. Once the counter-ambush is over, the leaders exit the area.

(2) **Tracking and Engagement:** The ADA section (2 vehicles) sets up and simulates tracking and firing a missile. They do not actually fire any missiles, for the area is too small for that.

(3) **Static 0.50 Caliber Firing:** The ADA section or platoon sets up and fires their .50 caliber machine guns at pop up targets. This is simple static firing – nothing moves.

(4) **React to Contact Drill Training:** This training involves a mounted or dismounted column (men in line) much like the scenario in 1 above (convoy ambush). The only difference is that the section would have an option to return fire dismounted or mounted.

f. Combat Service Support (CSS): Convoy Ambush and LFX – see scenario 1 above.

g. Retransmit (Retrans) and communication platforms. MMR is about 35 miles via the Leeward roads from Schofield Barracks. Normal straight-line FM radios that the

Army uses do not have the power available to reach straight to Schofield Barracks without going through a relay station, which would receive the transmission, amplify it, and pass it on to the receiver. Communications specialists sometimes set up these retrans stations on the high ground north of MMR overlooking Dillingham Airfield. Typically this is done at the Nike site adjacent to the Pahole Natural Area Reserve with permission from the state. The two soldiers that work the retrans station travel to and from the sites using a military vehicle on existing state and federal roads. These signal platform stations are mounted on the vehicle and the sites are located close to roadways for easy access. The soldiers do not conduct off-road maneuvers with the vehicle. The two soldiers are required to sit at the radio relay site.

h. Engineers: All of these scenarios involve blowing up explosives. In the Army, the engineer's jobs are either to build up structures or destroy them, usually by the fastest means - and that usually involves large amounts of Trinitrotoluene (TNT) or plastic explosives (C-4). Since this is dangerous work, it has to be practiced frequently. That practicing is done in accordance with a rigorous training regimen called certification.

(1) Squad Certification: this is the first gate for the engineers - and is essentially the first collective training with explosives that the unit does. You will recall that we earlier talked through an engineer squad working in concert with an infantry company and blowing up a bangalore torpedo. Before they blew up that bangalore with an infantry company close by them, they would have to be certified. Certification training for engineers consists of priming and firing increasingly larger blocks of explosives and detonators correctly and to a time standard. Once the engineer company commander signs off on a training report that says the squad is certified, then that squad is ready to do collective missions as described in the attack scenario above.

(2) Breach a mine/wire obstacle: see attack scenario, above

(3) Conduct a deliberate breach: see attack scenario, above

i. Smoke Generation: Many times during an attack a unit will want to smoke an area between them and the enemy so that the enemy cannot see what they are doing. Chemical units in the Army are used for this purpose. The chemical unit will use either smoke grenades, smoke pots, or smoke generators to lay down a thick base of smoke to attack through. This involves moving a chemical platoon out to the range, and driving 2 -4 HMMVWS to a low area to build the smoke haze. The unit's leaders calculate the best spot for the vehicles by estimating the wind, temperature variables, etc. Then the chemical soldiers either light the smoke pots, or start the smoke generators that burn lightweight oil and produce a white, thick smoke. The smoke then fills the area and dissipates after the attack.

3. Other Training

a. Road marches at Company strength on existing roads and trails through the area: Company-sized (100 men) elements would be traveling in platoon-sized groups, carrying rucksacks. These groups would be separated by 5-10 minutes, transiting the area on

existing roads moving to either another area or moving to an assembly area or attack position as a precursor to an attack. In the past, units have hiked between MMR and Dillingham Military Reservation (DMR) via the top of the northern most ridge at MMR and the Kealia trail, and around Kaena Point.

b. Long Range Surveillance Detachment (LRSD)/Scout Recon Missions: The purpose of the mission is to look at an area and report its viability for use or enemy activity there. These missions are low environmental impact missions. Typically their operations occur inside the firebreak area where soldiers are inserted by fast rope from a helicopter in the vicinity of the range control tower. The men do not venture outside the fire break road. During live-fire coordination meeting, eight weeks prior to the training, the officer in charge (OIC) is briefed on the potential location of any endangered species, using a map. These soldiers normally conduct surveillance missions, requiring them to stay in one position for an extended period of time. This training occurs once or twice a year in teams of four to five soldiers.

APPENDIX B

List of Known Archaeological Sites
Makua Military Reservation

Site	Description	Source
178	Kumuakuopio Heiau	McAllister 1933
179	Fishing Shrine	McAllister 1933
180	Kaahihi Heiau	McAllister 1933
181	Heiau Ukanipo	McAllister 1933
182	Swimming Pool	McAllister 1933
9518	Makua Trail	Rosendahl 1977
9520	Stone Walls and Enclosure	Rosendahl 1977
9521	Terraces	Rosendahl 1977
9522	Terraces and Walls	Rosendahl 1977
9523	Occupation Complex	Rosendahl 1977
9524	Occupation Complex	Rosendahl 1977
9525	Stacked Stone Wall	Rosendahl 1977
9526	Occupation Complex	Rosendahl 1977
9531	Stone Walls and Platforms	Rosendahl 1977
9532	Subsurface Deposit	Rosendahl 1977
9533	Large Platform	Rosendahl 1977
4627	Agricultural Complex	Carlson et al. 1993
4628	Stone Mound and Cupboard	Carlson et al. 1993
4629	Several Stone Mounds	Carlson et al. 1993
4630	Habitation Site	Carlson et al. 1993
4536	Stone Walls and Well	Eble et al. 1993
4537	Complex of 14 Stone Walls	Eble et al. 1993
4538	Enclosure & C-shape	Eble et al. 1993
4539	Small Retaining Wall	Eble et al. 1993
4540	Agricultural/Habitation Site	Eble et al. 1993
4541	Kuleana Plots	Eble et al. 1993
4542	Agricultural/Habitation Site	Eble et al. 1993
4543	Agricultural/Habitation Site	Eble et al. 1993
4544	Agricultural/Habitation Site	Eble et al. 1993
4545	Agricultural/Habitation Site	Eble et al. 1993
4546	Enclosure/Platform	Eble et al. 1993
4547	Agricultural Complex	Eble et al. 1993
5456	Subsurface Habitation Features	Williams and Patolo 1998
5587	Agricultural/Habitation Site	Williams and Patolo 1998
5588	Agricultural/Habitation Site	Williams and Patolo 1998
5589	Agricultural/Habitation Site	Williams and Patolo 1998
5590	Agricultural/Habitation Site	Williams and Patolo 1998

5775	Complex of 72 features in vicinity of Ukanipo Heiau	Cleghorn, et. al. 1999
5776	Complex of 111 features in vicinity of Ukanipo Heiau	Cleghorn, et. al. 1999
5777	Shrine/Upright Stone in vicinity of Ukanipo Heiau	Cleghorn, et. al. 1999
5778	Complex of 10 features in vicinity of Ukanipo Heiau	Cleghorn, et. al. 1999

APPENDIX C

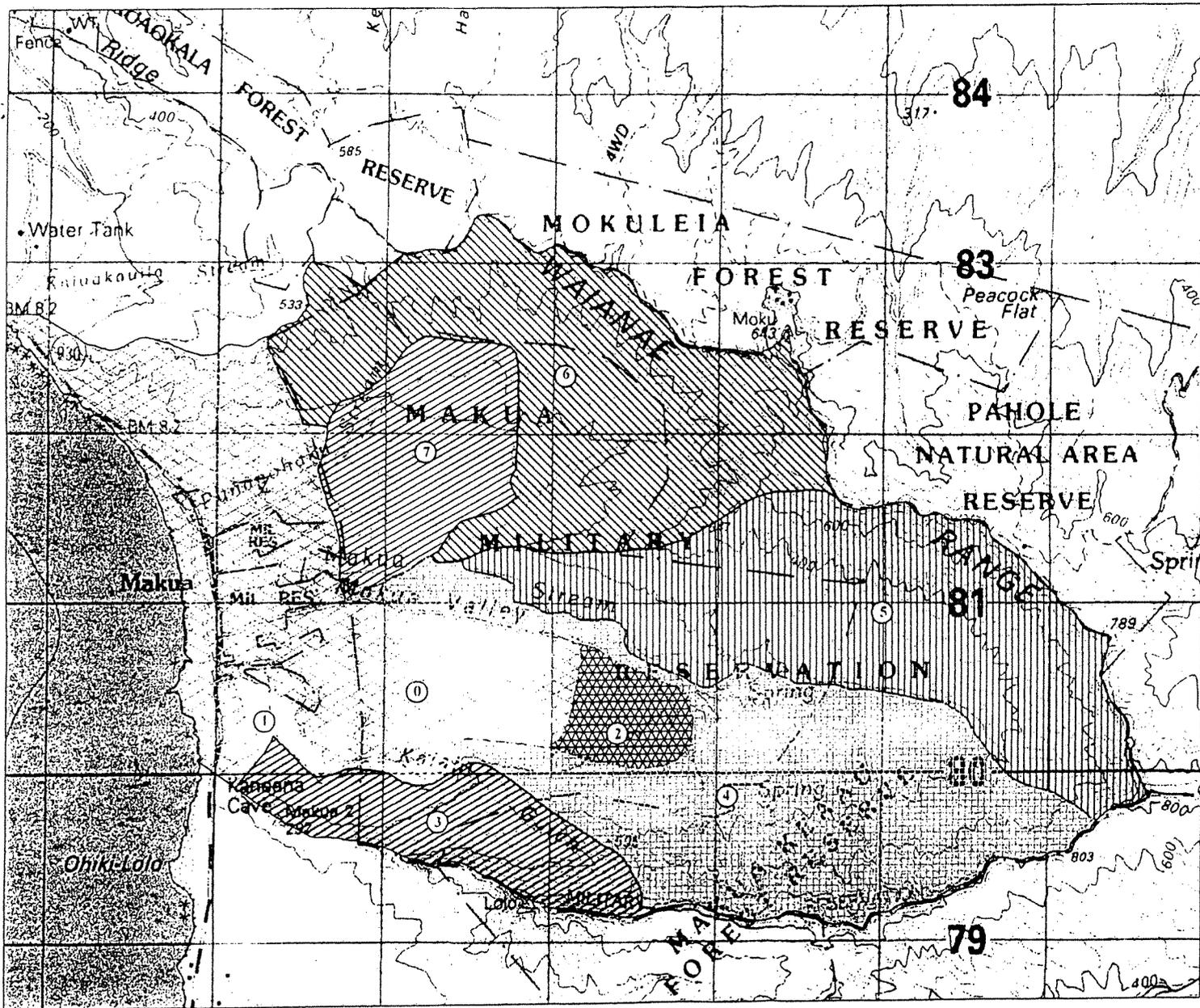
**CULTURAL RESOURCES MANAGEMENT PRIORITIES
AND SCHEDULING
MAKUA MILITARY RESERVATION**

ACTIONS	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003-
Prepare Installation Cultural Resources Management Plan/Do Planning Level Surveys (CRPL/SURV)	X Traditional Cultural Places	X			
Complete Inventory Surveys (INVE)		Area 0 Sub-surface testing			
Evaluate Sites for the National Register of Historic Places (EVAL)	X		X	X	X
Mitigation Actions for Routine Training (MITM/MNTR)		Area 0	Area 0	Area 0	Area 0

APPENDIX D

MAKUA MILITARY RESERVATION		
Priority Area	Acres	Estimated Fieldwork Time (in weeks)
0	298.26	10-12*
1	50.00	3-4*
2	100.15	5-6
3	271.25	7-9
4	875.92	10-12
5	852.78	10-12
6	843.59	10-12
7	312.28	4-6

* Only surface survey has been completed. Time is for subsurface testing.



LEGEND

- MILITARY RESERVATION
- INVENTORY SURVEY AREA PRIORITIES
- ▨ PREVIOUSLY SURVEYED AREA 0
- ▨ PRIORITY AREA 1
- ▨ PRIORITY AREA 2
- ▨ PRIORITY AREA 3
- ▨ PRIORITY AREA 4
- ▨ PRIORITY AREA 5
- ▨ PRIORITY AREA 6
- ▨ PRIORITY AREA 7

NOTES

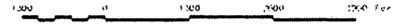
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2. PROJECT NUMBER 314790031
3. PROJECT NUMBER 314790031
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SOURCES

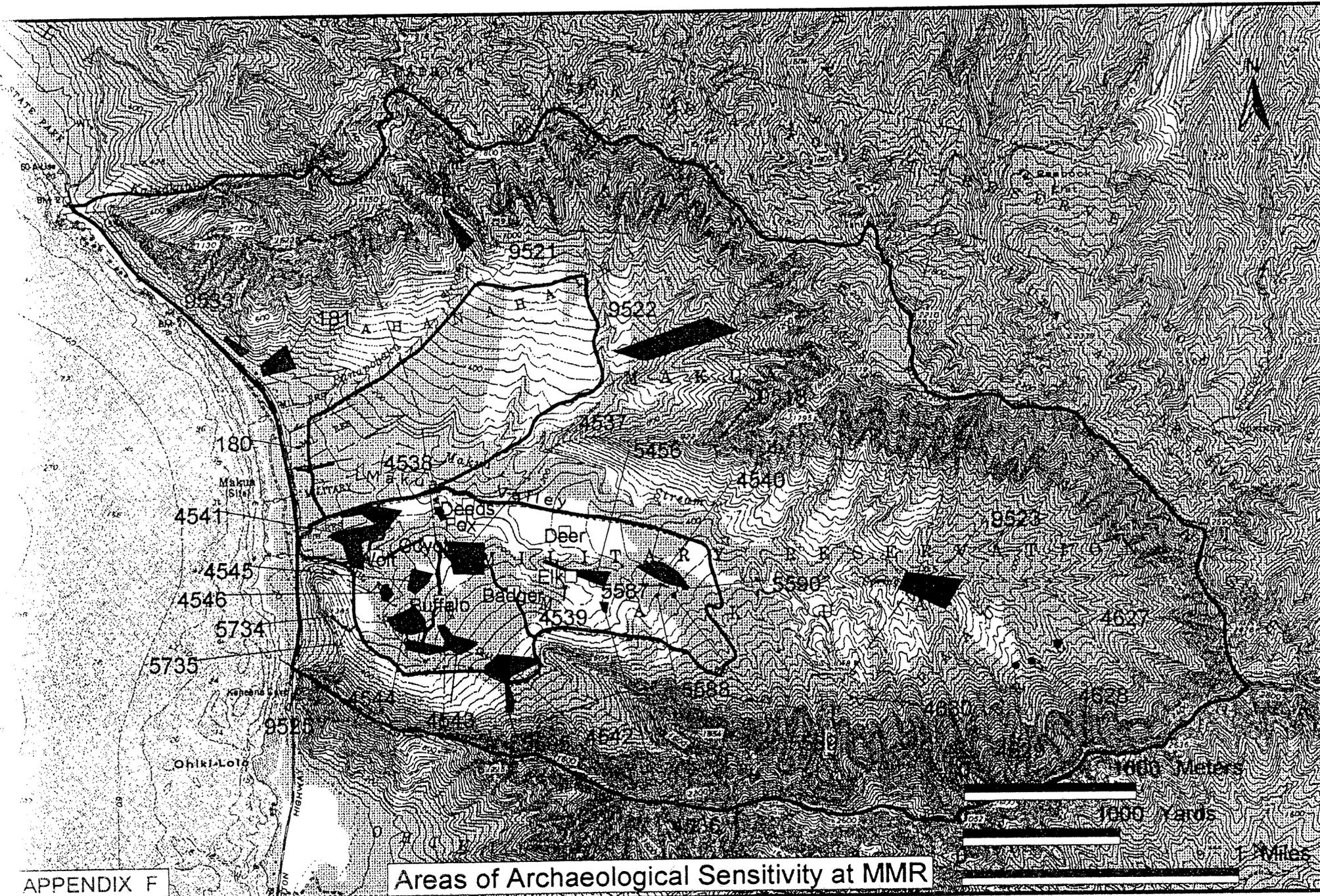
MILITARY RESERVATION SURVEY DATA FROM 1980-1985
 MAPS FROM THE OFFICE OF THE ADJUTANT GENERAL

TITLE

INVENTORY SURVEY AREA PRIORITY
 AT MAKUA MILITARY RESERVATION
 OAHU, HAWAII



APPENDIX E



APPENDIX F

Areas of Archaeological Sensitivity at MMR

APPENDIX G

PROCEDURES FOR ARCHAEOLOGICAL SITE MONITORING

Archaeological Site Monitoring

Monitoring Sites for Major Training Exercises. Archaeological sites located in areas of troop concentrations (e.g., favored bivouac sites, fixed firing points) will be monitored (inspected) to identify those sites having the highest impact risk, to implement site protection measures for threatened sites if prudent (e.g., flagging, fencing), and to monitor the effectiveness of such measures. Determining which sites will be monitored will be based on the Installation Cultural Resources Managers (CRM's) review of maneuver overlays for planned training operations regularly submitted to the MMR Range Officer. For the first year after the signing of this Programmatic Agreement, this will be done whenever a unit departs a Training Area, or range, and immediately following the training exercise. The monitor may accompany Range Control personnel in their regular performance of the clearance inspection before the unit departs the field (U.S. Army 1993: Chapter 2, Section 2-4b).

Monitoring Sites for Other Reasons. Monitoring of archaeological site conditions at MMR will be scheduled for other actions that will permit large numbers of personnel into areas of concentrated archaeological sites for a protracted period of time (e.g., construction of a new firebreak road or upgrading facilities), or in response to any report of nonpermitted site access or vandalism. All archaeological sites within the actively used training areas at MMR will be monitored quarterly after the first year of this Programmatic Agreement.

Monitoring Records. All site monitoring will be documented, including date, name and title or rank of inspector, reason for inspection (e.g., name of military training unit and/or maneuver), sites visited, observed site conditions, and recommended site protection actions as appropriate. Sketch maps and/or photographs showing changes in site conditions will be included in the monitoring documentation record. For particular sites it may be advantageous to establish photographic vantage points, with photographs taken during each monitoring episode. Site monitoring efforts will be reported by the CRM in the annual report to the Hawaii SHPO.

Reporting Site Damage. The CRM will report to the Range Officer within 48 hours of his or her notice that humans or natural agents have damaged an archaeological site. The CRM's report will include (1) the circumstances of the site damage such as how and when the damage occurred and who was responsible, (2) assessment of the nature and extent of site damage including first-hand observations made by the CRM and/or his or her representative, with reference to site conditions documented prior to the damage, (3) recommendations for treatment of the damaged site such as data recovery excavation or site fencing, and (4) suggestions to avoid damage to other sites potentially threatened by similar circumstances. Acting as the Installation Commander's representative, the CRM will notify the Hawaii SHPO within five working days of the discovery to consult about treatment of the damaged resource. All incidents involving damage to archaeological sites will be summarized in the annual report to the Hawaii SHPO.

APPENDIX H

SETTLEMENT PATTERN MODEL AND PREVIOUS ARCHAEOLOGICAL FIELDWORK

SETTLEMENT PATTERN MODEL

Archaeological and historical surveys at MMR have documented extensive surface and subsurface Cultural remains. The remains represent traditional Hawaiian residential, religious, and Agricultural use of the valley, and post-Contact use of the valley by Hawaiians and other ethnic groups. A small village existed near the coast throughout the 19th and mid-20th centuries, and had probably been settled for several hundred years prior to that. Historically, Makua was noted for its excellent fishing and Makua Village was primarily a fishing village supported by dryland farming. Land claim testimonies from the mid-19th century record that the residents of both Kahanahaiki and Makua *ahupua'a* farmed *kula* fields (non-irrigated agricultural plots) in both lower valleys. Based on these data, the following settlement pattern is hypothesized. The coast was probably initially used for temporary fishing camps. Permanent occupation followed, but lacking archaeological data from the coast, the time period when this occurred is unknown, but it was likely to have been in the period Kirch (1985:303) calls the Expansion Period, after A.D. 1100. By the Contact period a permanent village, well known for its fishing, was established, and probably had been for several hundred years.

Temporary shelters or field *hale* were probably first established in the lower elevations of Makua (e.g., Site 5456) around the same time the uplands were being cleared and cultivated, as early as the mid-15th century (Williams and Patolo 1998:82). The lower elevations of Makua Valley, up to approximately 600 ft amsl eventually developed into an area of permanent settlement particularly in proximity to water resources, such as Kalena Stream in Ko'iahi Gulch, unnamed drainages to the north, and Makua Stream at the center of the valley. The back of Makua Valley was utilized for the collection of forest resources, but may also have contained some residences and possibly wetland crops (*lo'i*); archaeological data to support this are lacking, but this pattern is present in nearby Makaha and Lualualei valleys.

By the late 19th and 20th centuries, Makua and Kahanahaiki were the site of *kuleana* parcels particularly on and near the coast, and ranching activities in the uplands. Traditional subsistence crops, such as sweet potatoes, and introduced crops, such as cucumber, watermelon, pumpkins, cotton, corn and tobacco, were cultivated in the lower valley *kuleana*. The residential occupation and ranch activities in Makua Valley ceased after the U.S. Army took over the land in 1941.