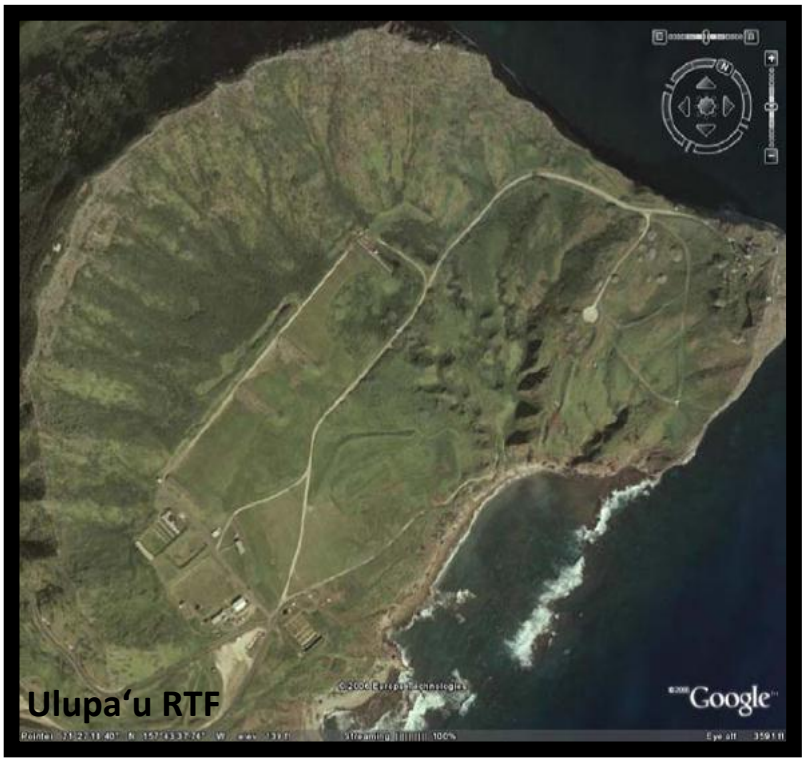
ENVIRONMENTAL ASSESSMENT AND

FINDING OF NO SIGNIFICANT IMPACT



Reconfiguration and Construction of Small Arms Ranges
At the Ulupau Range Training Facility, Marine Corps Base Hawaii
Kaneohe Bay

March 2014

Finding of No Significant Impact (FONSI)
For
Reconfiguration and Construction of Small Arms Ranges at the Ulupau Range Training Facility, Marine Corps Base Hawaii Kaneohe Bay

United States Marine Corps Base (MCB) Hawaii proposes to reconfigure two existing small arms ranges and construct three new small arms square-bay ranges at Ulupau Range Training Facility (RTF), Marine Corps Base Kaneohe Bay. The United States Marine Corps must provide facilities for entry-level marksmanship and annual marksmanship training. Revised training requirements require suitable unknown-distance marksmanship facilities to fulfill individual Marine marksmanship requirements. The proposed reconfiguration would alleviate scheduling problems at Ulupau RTF and increase range capacity by reducing overlap among range safety fans. The proposed action would support Marine Corps combat marksmanship training requirements by creating ranges that support U.S. Marine Corps unknown-distance marksmanship requirements while continuing to support known-distance marksmanship requirements.

The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to consider potential environmental impacts prior to undertaking a course of action. Within the U.S. Marine Corps, NEPA is implemented through regulations promulgated by the Council on Environmental Quality [40 CFR Parts 1500 – 1508], with supplemental guidance provided by Marine Corps NEPA regulations (Chapter 12 of Marine Corps Order P5090.2A).

DESCRIPTION OF ACTION AND ALTERNATIVES

The environmental Assessment (EA) analyzed the potential impacts of the proposed action and alternatives.

Alternative 1 – Proposed Action. Under the proposed action, MCB Hawaii would reconfigure Range 1 and reorient Range 9, and construct three new square-bay close engagement ranges at the Ulupau RTF, Marine Corps Base Hawaii Kaneohe Bay. The proposed action includes changes to the design of existing ranges, new range construction, and changes in marksmanship training conducted at Ulupau RTF.

Alternative 2 – No Action. Under the no-action alternative the proposed changes would not take place. Alternative facilities would need to be identified so that U.S. Marine Corps training requirements could be met.

ANTICIPATED ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

Geology and Soils. Erosion by water and transport of sediment-laden runoff to adjacent marine environments is a management concern at Ulupau RTF. Construction and ground-disturbing activities would occur on existing small-arms ranges in the Ulupau RTF. Soil erosion potential from water and wind would not be altered and would be generally minor due to the type of soil and the slight slope found at the location. Best management practices such as proper grading, stabilization, culverts to channel storm water runoff, and sediment retention fences, as needed, would minimize adverse effects during construction. Runoff, erosion, and sediment transport would be minimized during construction using a variety of best management practices. Effects would be mitigated to less-than-significant levels.

Water Quality. There are no surface waters in Ulupa'u Crater where the range training facility is located. Currently, runoff and sediment from the RTF area is occasionally conveyed by sheet flow and concentrated flows in gullies to the ocean when rainfall intensities exceed infiltration rates. Best management practices implemented during construction would minimize adverse impacts to water quality during construction. Range and road construction would incorporate best management practices and design elements to minimize exposed, erodible soil, sediment transport, and runoff from developed/disturbed areas. Because

more than 1 acre would be disturbed, a National Pollutant Discharge Elimination System permit would be required. Effects would be mitigated to less than significant.

Flora. Much of the terrestrial habitat at Ulupa'u Crater is badly degraded, predominantly secondary successional plant communities dominated by introduced species. There are no natural occurrences of plants currently listed or pending listing as "endangered" under the Federal Endangered Species Act. Construction activities would occur in predominantly disturbed habitats. Therefore, no effects to flora, including threatened and endangered plant species, are anticipated.

Fauna. Waters surrounding the Mōkapu Peninsula host several federally listed species, including the threatened green sea turtle and the endangered hawksbill turtle. The endangered Hawaiian monk seal occasionally uses the Mōkapu shoreline beaches for resting. The endangered humpback whale has been observed in the waters surrounding the Mōkapu Peninsula. The Ulupa'u Head Wildlife Management Area at the northeast tip of Ulupa'u Crater provides habitat for the red-footed booby, protected by federal law under the Migratory Bird Treaty Act. Potential impacts to wildlife from construction noise would be short-term and minor. MCB Hawaii regulations would continue to be implemented to avoid wildland fire damage to red-footed boobies and their habitat. It is anticipated that effects of the proposed action on terrestrial and marine fauna would not be significant.

Coastal and Reef Systems. A variety of coral reef communities and features occurs in the waters adjacent to the Ulupau RTF. The nearshore area is occasionally subject to sediment plumes associated with runoff from the installation. The proposed action would have minimal effect on nearshore water quality since those impacts would be minimized by the use of construction and design best management practices during and after construction, as well as ongoing maintenance of erosion and sediment control measures. Therefore, the proposed action would have little or no impact on reef systems. The proposed action is listed as a *de minimis* activity agreed upon by the Department of the Navy and the State of Hawaii Coastal Zone Management (CZM) Program, and as such, is not subject to further review under the State CZM Program.

Cultural and Archaeological Resources. The proposed action would take place within areas of low archaeological sensitivity. Although archaeological sites have been recorded on the Mōkapu Peninsula, none of the recorded sites at MCB Hawaii Kaneohe Bay are within the Ulupa'u Crater, and no historic structures are located within the project area. The World War II era Battery Pennsylvania is located on the crater rim to the northeast, outside the area directly affected by the proposed action. The area is considered to be of low archaeological sensitivity and no historic structures or archaeological sites occur within the area of potential effect. A section 106 consultation was filed with the State Historic Preservation Office by MCB Hawaii staff. The State concurred with the NHPA Section 106 Review that determined a finding of no historic properties affected.

Noise. The primary sources of noise at Ulupau RTF are the existing firing ranges and helicopter training. The Ulupau RTF reconfiguration would result in only slight changes to modeled noise contours and would not affect any residential areas. Overall noise impacts of the proposed action are anticipated to be less than significant.

CUMULATIVE EFFECTS

The geographical scope of analysis included the extent of sensitive environmental resources potentially affected by the project, as well as the boundaries of other projects and actions that may affect those same resources. The proposed action, in conjunction with other actions on and in the vicinity of the RTF would not result in incrementally or collectively significant and unmitigable cumulative adverse effects.

CONCLUSIONS

This environmental assessment found the proposed action (Alternative 1) would have no significant direct, indirect or cumulative adverse impacts on human health or the environment. As such, this proposed action does not require the completion of an environmental impact statement, as defined by the Council on Environmental Quality regulations (40 CFR 1500-1508) and 32 CFR Part 651.

Approved by:

4/23/2014

Date

BRIAN ANNICHIARICO
Colonel, U.S. Marine Corps
Commanding Officer
Marine Corps Base Hawaii

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Environmental Assessment
For
Reconfiguration and Construction of Small Arms Ranges at the Ulupau Range Training Facility, Marine Corps Base Hawaii Kaneohe Bay

March 2014

Prepared By

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For

Operations and Training Directorate
U.S. Marine Corps Base Hawaii

ABSTRACT: The United States (U.S.) Marine Corps must provide facilities for entry-level marksmanship and annual marksmanship training. Revised training requirements require suitable unknown-distance marksmanship facilities to fulfill individual Marine training requirements. To accomplish this, the proposed action would reconfigure two ranges and construct three new square-bay close engagement ranges at the Ulupa'u Range Training Facility (RTF), Marine Corps Base Hawaii Kaneohe Bay. The proposed action includes changes to the design of existing ranges, new range construction, and changes in marksmanship training conducted at Ulupau RTF

Under the no action alternative, the US Marine Corps Base Hawaii would not make changes to the current RTF at Ulupa'u. This EA analyzes the potential environmental consequences of the proposed action and no-action alternative on geology and soils, water quality, flora and fauna, coastal and marine resources, cultural resources, noise, socioeconomics and environmental justice. Findings indicate that the proposed action would not adversely impact to a significant level any variable of environmental concern. There are no significant cumulative impacts from the reconfiguration and increased use in conjunction with other past, present, or reasonably foreseeable actions.

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ACRONYMS AND ABBREVIATIONS

AICUZ	Air Installation Compatible Use Zone
ac	acre(s)
BMP	Best Management Practices
CFR	Code of Federal Regulations
cm	centimeter(s)
dB	decibel
dBP	peak decibel
EA	Environmental Assessment
EIS	Environmental Impact Statement
FBI	Federal Bureau of Investigation
FONSI	Finding of No Significant Impact
ft	foot**/**feet
ha	hectare(s)
in	inch(es)
km	kilometer(s)
m	meter(s)
MCB	Marine Corps Base
MCO	Marine Corps Order
MEF	Marine Expeditionary Force
mi	mile(s)
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
PTA	Pōhakuloa Training Area
RTF	Range Training Facility
SARNAM	Small Arms Range Noise Assessment Model
SOP	Standing Operating Procedure
SDZ	Surface Danger Zone
UG/TC	User Group/Tenant Command
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corps
yd	yard(s)

EXECUTIVE SUMMARY

PROPOSED ACTION: Reconfiguration and Construction of Small Arms Ranges at the Ulupau Range Training Facility at MCB Hawaii Kaneohe Bay.

United States Marine Corps Base (MCB) Hawaii proposes to reconfigure two existing small arms ranges and construct three new small arms square-bay ranges at Ulupau Range Training Facility (RTF), Marine Corps Base Kaneohe Bay. The United States (U.S.) Marine Corps must provide facilities for entry-level marksmanship and annual marksmanship training. Revised training requirements require suitable unknown-distance marksmanship facilities to fulfill individual Marine marksmanship requirements. The proposed reconfiguration would alleviate scheduling problems at Ulupau RTF and increase range capacity by reducing overlap among range safety fans. The proposed action would support Marine Corps combat marksmanship training requirements by creating ranges that support U.S. Marine Corps unknown-distance marksmanship requirements while continuing to support known-distance marksmanship requirements.

The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to consider potential environmental impacts prior to undertaking a course of action. Within the U.S. Marine Corps, NEPA is implemented through regulations promulgated by the Council on Environmental Quality [40 CFR Parts 1500 – 1508], with supplemental guidance provided by Marine Corps Order P5090.2A Environmental Compliance and Protection Manual (U.S. Marine Corps Headquarters 1998).

DESCRIPTION OF THE ACTION AND ALTERNATIVES

The environmental Assessment (EA) analyzed the potential impacts of the proposed action and alternatives.

Alternative 1 – Proposed Action. Under the proposed action, MCB Hawaii would reconfigure Range 1 and reorient Range 9, and construct three new square-bay close engagement ranges at the Ulupau RTF, Marine Corps Base Hawaii Kaneohe Bay. The proposed action includes changes to the design of existing ranges, new range construction, and changes in training usage compared to current military training at these locations.

Alternative 2 – No Action. Under the no-action alternative the proposed changes would not take place. Alternative facilities would need to be identified so that U.S. Marine Corps training requirements could be met.

Alternatives Considered but not Carried Forward. Other alternatives considered included continued use of unknown-distance ranges at Schofield Barracks Military Installation, O‘ahu and Pōhakuloa Training Area (PTA) on the island of Hawaii. However, none of these alternatives met the full range of training and throughput requirements and efficiency objectives associated with having requisite Marine Corps facilities, and did not meet the ease of scheduling requirements. Moreover, the use of off-site ranges for marksmanship training is increasingly difficult to integrate with the existing battalion training cycles.

ANTICIPATED ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The environmental assessment (EA) analyzed the impacts of each alternative on the affected environment as well as cumulative impacts of the proposed action. Mitigation measures described in the Environmental Assessment will be employed to ensure that effects on resources are minimized. Mitigation measures include: 1) updating the MCB Hawaii range regulation to ensure safety of users and the public 2) all necessary permits and approvals will be obtained from State of Hawaii and federal agencies before implementation of the project; 3) all construction activities will incorporate best management practices to prevent erosion and sedimentation and maximize watershed protection (e.g., minimizing soil disturbance;

minimizing sediment generation during construction; employing erosion and sediment control BMPs and products to slow water flow, increase infiltration, and minimize movement of sediment off site; and quickly establishing vegetation and ground cover on disturbed areas; 4) invasive and noxious plant species at the facilities will be controlled as needed - the MCB Hawaii Environmental Compliance and Protection Department will provide advice on best management practices for conducting these operations; 5) although there are no known listed endangered species of flora or fauna in the affected environment of the construction area or anywhere else in Ulupaʻu Crater, the MCB Hawaii Environmental Compliance and Protection Department would be consulted in the event that a species is encountered, including the possibility of seabirds and shorebirds; 6) in the event that previously unknown or unanticipated archaeological resources are discovered the activity proponent will stop land-disturbing work within the area, take precautions to protect the resource, notify appropriate MCB Hawaii Environmental Compliance and Protection Department staff, and suspend work until notified by the cultural resources manager or other authority. The following section summarizes the anticipated environmental impacts of the proposed action:

Environmental Components Examined in Detail

The environmental assessment (EA) analyzed the impacts of each alternative on the affected environment as well as cumulative impacts of the proposed action. The following section summarizes the anticipated environmental impacts of the proposed action:

Geology and Soils. Erosion by water and transport of sediment-laden runoff to adjacent marine environments is a management concern at Ulupau RTF. Although Construction and ground-disturbing activities would occur on the Ulupau RTF, soil erosion potential from water and wind would not be altered. Construction activities would involve removal of a minimal amount of vegetation and soils as well as grading. Best management practices such as proper grading, stabilization, culverts to channel storm water runoff, and sediment retention fences, as needed, would minimize adverse effects during construction. Following completion of construction all ground surfaces would be restored. Range construction at Ulupau RTF could have some short-term effects. Runoff, erosion, and sediment transport would be minimized during construction using a variety of best management practices described in the Environmental Assessment. Because more than 1 acre would be disturbed, an National Pollutant Discharge Elimination System permit would be required. Effects would be mitigated to less-than-significant levels.

Water Quality. Surface waters surrounding the Mōkapu Peninsula are classified and regulated by the state of Hawaii. The waters of Kailua Bay and outer portions of Kāneʻohe Bay are designated Class A marine waters. The management objective of Class A waters is to protect the waters for recreational purposes and aesthetic enjoyment. There are no surface waters at Ulupaʻu Crater where the range training facility is located. Currently, runoff and sediment from the RTF area is occasionally conveyed by sheet flow and concentrated flows in gullies to the ocean when rainfall intensities exceed infiltration rates. Best management practices implemented during construction would minimize adverse impacts to water quality during the construction phase. Runoff minimization and management designs would likely reduce the erosion that currently occurs on the RTF site where the three square-bay ranges would be constructed. Range and road construction would incorporate best management practices and design elements to minimize exposed, erodible soil, sediment transport, and runoff from developed/disturbed areas. The increases and changes in training activities described under the proposed action would not adversely affect surface water quality. The increases and changes in training facilities and activities described under the proposed action would not adversely affect surface water quality in the long-term. Short-term impacts to surface water during construction would be minimized by use of best management practices. Effects would be mitigated to less than significant.

Flora. Much of the terrestrial habitat at Ulupaʻu Crater is badly degraded, predominantly secondary successional plant communities dominated by introduced species. The areas around the RTF are largely unmanaged landscapes dominated by non-native koa haole (*Leucaena leucocephala*) shrubland. The sparse and degraded nature of the vegetation results in limited use of the area by native and non-native wildlife. From the crest of Ulupaʻu Crater down to the coastal zone, vegetation is dominated by alien and

invasive species. Dominant species include koa haole and kiawe trees, with a mixed guinea grass and buffelgrass understory, reflecting the fire history of the area. The coastal zone, identified as the area from the reach of high wave run-up to the transition line with upland vegetation, contains a mixture of endemic, indigenous, invasive and non-native plant species. There are no natural occurrences of plants currently listed or pending listing as "endangered" under the Federal Endangered Species Act.

Because of the disturbed nature of the existing ranges, no additional impacts to vegetation of a long-term nature are expected to occur with implementation of the proposed action. Construction activities would occur in predominantly disturbed habitats. No effects to flora, including threatened and endangered species, are anticipated.

Fauna. Nearshore and offshore waters surrounding the Mōkapu Peninsula host several federally listed species, including the threatened green sea turtle and the endangered hawksbill turtle. The endangered Hawaiian monk seal occasionally uses the Mōkapu shoreline beaches for resting. The endangered humpback whale has been observed in the waters surrounding the Mōkapu Peninsula. The 9-ha (23 ac) Ulupa'u Head Wildlife Management Area at the northeast tip of Ulupa'u Crater was established in 1966 to protect the red-footed booby (*Sula sula*), protected by federal law under the Migratory Bird Treaty Act. The standing operating procedures for Ulupau RTF provides details for conducting weapons firing to avoid wildland fire and associated damage to boobies and their habitat. Potential impacts to wildlife from construction noise would be short-term and not be expected to additionally affect wildlife already exposed to activity at the existing range, including the Ulupa'u booby colony. MCB Hawaii Standing Operating Procedures would continue to be implemented to avoid wildland fire damage to red-footed boobies and their habitat.

Construction and design best management practices would be employed to minimize the effects of construction and site disturbance on the nearshore marine environment (coral resources, marine species, and their habitats) at Ulupau RTF. These areas would be regularly monitored for erosion during and after construction. Therefore, it is anticipated that effects of the proposed action on terrestrial and marine fauna would not be significant.

Coastal and Reef Systems. A variety of coral reef communities and features occurs in the waters adjacent to the Ulupau RTF. The area supports a variety of macro algae, coral, macro invertebrate, and reef fish species. The nearshore area and reef systems are occasionally subject to sediment plumes associated with runoff from the installation. The proposed action would have minimal effect on nearshore water quality since those impacts would be minimized by the use of best management practices during and after construction, as well as ongoing maintenance of erosion and sediment control measures. Following construction, the risk of runoff and sediment from Ulupa'u Crater may actually be reduced compared to current levels due to the construction of erosion and sediment control features.

Mitigation, monitoring, and oversight by MCB Hawaii environmental and facilities staffs, and agency permitting requirements would ensure that risk associated with sediment and runoff are minimized. There would be no disturbance to the coastal strand or nearshore areas. There would be no generation of debris or new UXO with potential to damage reef systems. The increases and changes in training activities described under the proposed action would not adversely affect surface water quality. Therefore, the proposed action would have little or no impact on reef systems. The proposed action is listed as a *de minimis* activity agreed upon by the Department of the Navy and the State of Hawaii Coastal Zone (CZM) Program, and as such, is not subject to further review under the State CZM Program.

Cultural and Archaeological Resources. Cultural resources may include archaeological sites, historic structures, and traditional cultural places. The proposed action would take place within areas of low archaeological sensitivity. Although archaeological sites have been recorded on the Mōkapu Peninsula, none of the recorded sites at MCB Hawaii Kaneohe Bay are within the Ulupa'u Crater, and no historic structures are located within the project area. The World War II era Battery Pennsylvania is located on the crater rim to the northeast, outside the area directly affected by the proposed action. The area is considered

to be of low archaeological sensitivity and no historic structures or archaeological sites occur within the area of potential effect.

A section 106 consultation was filed with the State Historic Preservation Office by MCB Hawaii staff. The State concurred with the NHPA Section 106 Review that determined a finding of no historic properties affected.

Socioeconomics and Environmental Justice. Construction expenditures for new range construction and redesign at Ulupau RTF are estimated at $2.6 million. The transitory economic effects from these construction-related expenditures, including the multiplier (1.84), are estimated at $4.78 million. It is expected that the savings that would result from reduced use of Schofield Barracks ranges would substantially offset these costs. No environmental justice issues are raised by the proposed project.

Noise. The primary sources of noise at Ulupau RTF are the existing firing ranges and aircraft noise from helicopters.

Noise generated from construction activities associated with the proposed action would remain confined to the existing range area at Ulupa‘u Crater. The Ulupau RTF reconfiguration would result in only slight changes to the noise contours and would not affect any residential areas.

Environmental Components Considered But Not Examined in Detail

Some issues would not be affected by the proposed action and have been eliminated from detailed analysis. They include air quality, land use, hazardous waste, and human health and safety.

CUMULATIVE EFFECTS

The geographical scope of analysis included the extent of sensitive environmental resources potentially affected by the project, as well as the boundaries of other projects and actions that may affect those same resources. The proposed action, in conjunction with other actions on and in the vicinity of the RTF would not result in incrementally or collectively significant and unmitigable cumulative adverse effects.

CONCLUSIONS

This environmental assessment found the proposed action (Alternative 1) would not have any unmitigable direct, indirect or cumulative adverse impacts on human health or the environment. As such, this proposed action does not require the completion of an environmental impact statement, as defined by the Council on Environmental Quality regulations (40 CFR 1500-1508) and 32 CFR Part 651.

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

Marine Corps Base (MCB) Hawaii proposes to reconfigure two existing small arms ranges and construct three new small arms square-bay ranges at Ulupau Range Training Facility (RTF), Marine Corps Base Kaneohe Bay. Weapons used and the types of training activities would be the same as or similar to current usage. This environmental assessment (EA) evaluates the direct, indirect, and cumulative effects of the proposed action and alternatives to the proposed action, including the no-action alternative. Under the no-action alternative, no changes would be made to existing facilities at the Ulupau RTF.

1.2 BACKGROUND

1.2.1 Marine Corps Base Hawaii Mission and Units

MCB Hawaii facilities on O'ahu include MCB Hawaii Kaneohe Bay, MCB Hawaii Camp Smith, Marine Corps Training Area Bellows, Manana Housing Area, and Puuloa Range Training Facility. These facilities provide operational, training, maintenance, berthing, and personnel support facilities to support the III Marine Expeditionary Force (III MEF) (Hawaii) (Department of the Navy 2006). Major III MEF ground units include the 3rd Marine Regiment (Reinforced), Combat Service Support Group-3, the 3rd Radio Battalion, and the 4th Force Reconnaissance Company. Air units include Marine Aircraft Group 24 (three heavy helicopter squadrons) and three Navy air units. The III MEF is a major user of operational facilities at MCB Hawaii Kaneohe Bay (Figure 1-1) and other ground training facilities. The mission of the III MEF is to execute amphibious assault and other required air/ground operations. This mission requires constant deployment of appropriately organized units of an air/ground task force. Units of the III MEF (Hawaii) may also be required to augment other Marine Corps air/ground task forces.

1.2.2 Ulupau Range Training Facility

Marine Corps Base Hawaii Kaneohe Bay occupies approximately 1,194 hectares (ha) (2,951 acres [ac]) of land on the Mōkapu Peninsula on the windward side of O'ahu and exercises control of a 500-yard security buffer zone extending seaward from the shoreline (MCB Hawaii 2006). The proposed project areas are located within the Ulupa'u Crater, a volcanic crater that encompasses approximately 165 ha (410 ac) on the northeast portion of the peninsula (Figure 1-2). The existing range training facility includes the following ranges:

Range #	Range Name
1	Known Distance
2	Pistol
5	Portable Infantry Target System
6	Small Arms Square-bay
7	Multipurpose
8	Explosive Training
9	BZO/Grouping

1.2.3 Puuloa Range Training Facility

Pu'uloa Range Training Facility (RTF) encompasses 56 ha (138 ac) on Iroquois Point near 'Ewa Beach, south and west of Pearl Harbor, Hawaii (Figure 1-1). The existing facility includes six firing ranges, barracks,

and classrooms used annually by more than 4,000 Marines from MCB Hawaii Kaneohe Bay to meet training requirements with a variety of small arms weapons. The range also is the site used for Marine sniper training.

The northern border of the facility adjoins a Federal Aviation Administration transmitter facility site that is relatively undeveloped. Lands to the east of the Federal Aviation Administration parcel are primarily owned by Public Works Center Pearl Harbor and include Iroquois Point Naval Housing. The western border of the Puuloa RTF adjoins private property, some of which has been developed into single-family housing. Directly adjacent to the western edge of this residential area is ʻEwa Beach Park, a public recreation area and beach access point.

1.3 PURPOSE AND NEED

Marksmanship proficiency is essential in combat operations. The objective of marksmanship training is to develop proficiency to the highest possible level. Marksmanship training is generally conducted annually in accordance with Marine Corps doctrine and training requirements. The combat rifle program uses a building block/training continuum approach to build Marines into proficient marksmen. The program is broken into five different stages of training: Preparatory Training and Tables 1 through 4. Recent additions to Tables 3 and 4 include close engagement and unknown-distance combat marksmanship. The new qualification standards and course of fire are designed to develop fundamentals of combat marksmanship and include initial qualification and annual re-qualification with the service rifle (M16A2, M16A4, and M4) and pistol (M9 service pistol). MCB Hawaii currently does not have facilities to support these new training requirements for its Marines. Scheduling of the existing ranges is also inefficient and difficult. For example, Ranges 5 and 9 at the Ulupau RTF have overlapping surface danger zones that preclude their simultaneous use. Furthermore, unknown distance Range 6 is owned by the Federal Bureau of Investigation (FBI), which has priority use of the range. Barring scheduling conflicts, increased use of Range 6 by Marines could rapidly degrade the range and cause the FBI to further limit use by Marines.

To address the scheduling and training requirement issues, MCB Hawaii units currently use Army unknown-distance ranges at Schofield Barracks Military Reservation (Oʻahu) and Pōhakuloa Training Area on the island of Hawaii. However, these Army ranges are very heavily scheduled by Army and other units with higher range scheduling priority and are therefore very difficult to schedule into MCB Hawaii training cycles. Training Ranges A and B at Puuloa RTF are the only other MCB Hawaii ranges that can support known-distance marksmanship qualification at distances of up to 600 meters (m) (1,968 feet [ft]). The proposed reconfiguration would alleviate scheduling problems at Ulupau RTF and increase range capacity by reducing overlap among range safety fans. The proposed action would support Marine Corps combat marksmanship training requirements (Marine Corps Order 3574.2K; U.S. Marine Corps Headquarters 2007) by creating ranges that support U.S. Marine Corps unknown-distance marksmanship requirements while continuing to support known-distance marksmanship requirements. The range redesign and construction would allow Marines to meet marksmanship training requirements for Table 2 training on Ulupaʻu Range 1 concurrent with Table 3 and Table 4 training on the Ulupaʻu square-bay ranges. All Table 1 rifle marksmanship qualification training would take place on existing Ranges A and B at Puuloa RTF.

The Marine Corps must provide facilities for entry-level marksmanship and annual marksmanship training. No suitable unknown-distance marksmanship facilities currently exist to meet the needs of the MCB Hawaii Marines. The proposed action would fulfill current individual marksmanship requirements.

Considerations for site selection and design of unknown-distance ranges to be used by MCB Hawaii include:

- Need for nighttime firing.
- Requirements for larger surface danger zones due to lower accuracy, increased potential for ricochet, and increased possibility of rounds escaping compared to known-distance firing.

- Noise considerations.
- Complementary use of unknown distances range for multipurpose range training.
- Designs that allow concurrent training on multiple ranges for known- and unknown-distance marksmanship training.

1.4 SCOPE OF THIS EA AND DECISION TO BE MADE

This environmental assessment (EA) was prepared in compliance with the *National Environmental Policy Act of 1969* (NEPA) (42 USC 4321 *et seq.*), the Council on Environmental Quality (CEQ) Regulations implementing NEPA, (40 CFR Parts 1500-1508), Marine Corps Order (MCO) P5090.2A, Chapter 12, *Environmental Compliance and Protection Manual* (10 July 1998), and other applicable federal and state-delegated environmental legislation.

A specific requirement for this EA is an appraisal of the impacts of the construction and training activities associated with the proposed action. The EA will be used to determine whether or not a Finding of No Significant Impact (FONSI) is appropriate or whether a Notice of Intent to prepare an environmental impact statement (EIS) is required.

The EA is structured in the following manner:

- Chapter 2 describes the proposed action and alternatives to the action. Mitigation measures for the proposed action and a summary of the effects of each alternative on all assessed components are also provided in Chapter 2.
- Chapter 3 presents the affected environment and anticipated environmental effects of the proposed action and alternatives.
- Chapter 4 addresses the potential for cumulative effects.
- Chapter 5 provides a listing of individuals and agencies consulted during preparation of the EA.
- Chapter 6 identifies persons who prepared the document.
- Chapter 7 includes bibliographical information for cited sources.

1.4.1 Issues Analyzed

Potential issues could include construction within areas with culturally sensitive materials or protected plants and animals, or the spread of noxious or invasive plant or animal species. Without proper construction and mitigation, variables of environmental concern at Ulupaʻu Crater could be further impaired by the action. Relevant environmental components identified and evaluated in this EA include:

- Geology and soil
- Water quality
- Flora
- Fauna (terrestrial and marine)
- Reef systems
- Cultural and archaeological resources
- Socioeconomics and environmental justice
- Noise

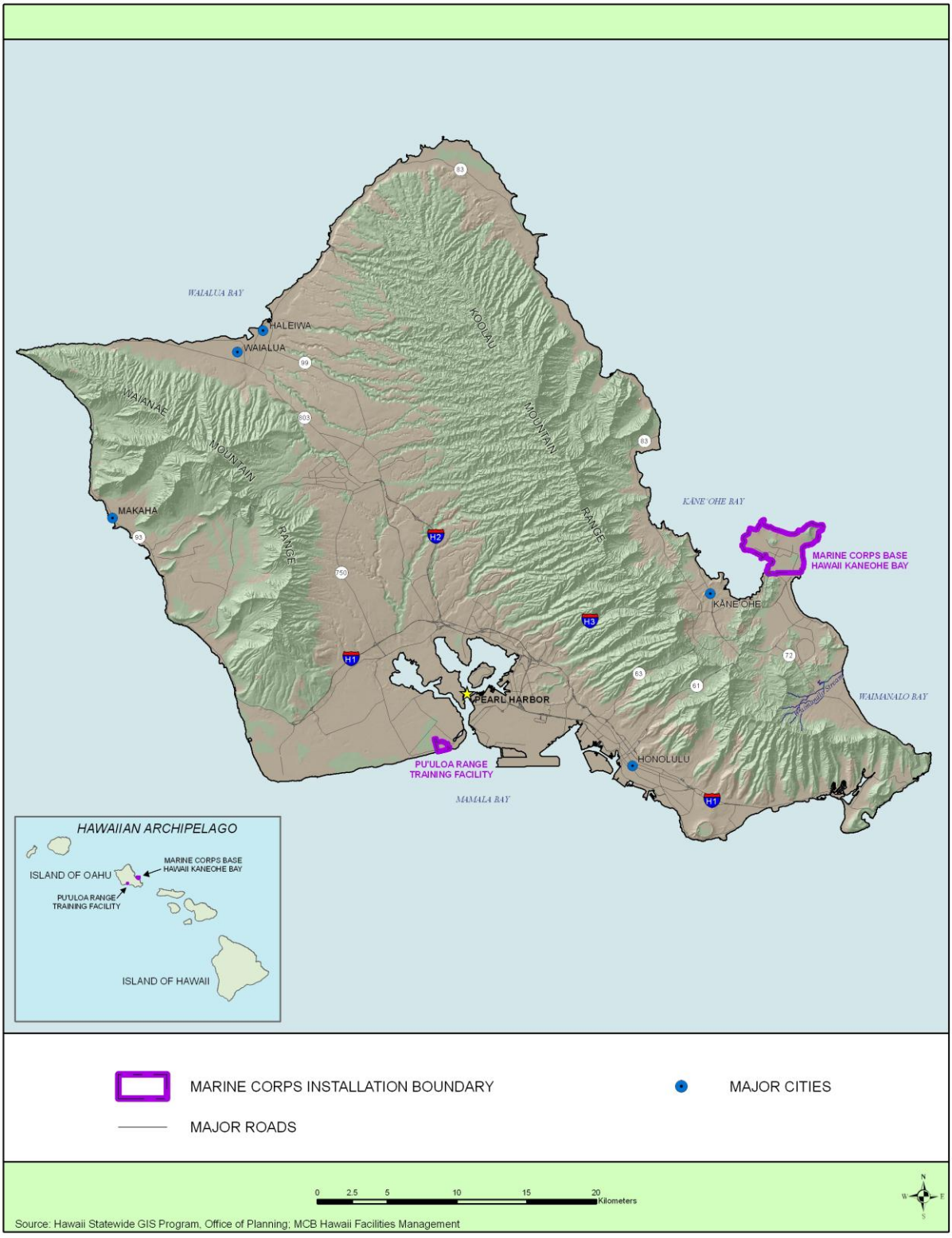

Figure 1-1. Location of Marine Corps Base Hawaii Kaneohe Bay and Puuloa Range Training Facility on the island of O'ahu.

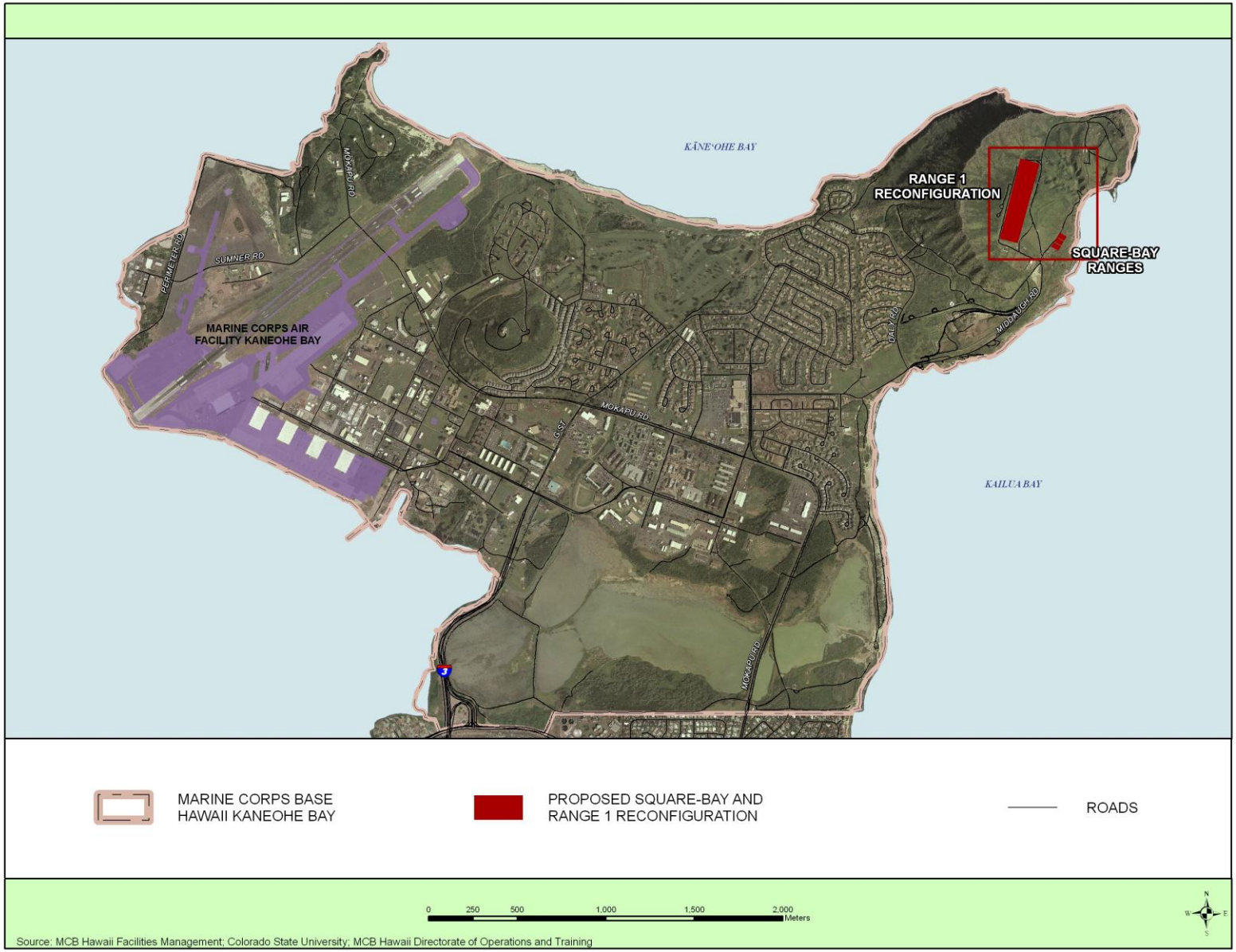

Figure 1-2. Location of the Ulupau Range Training Facility at Marine Corps Base Hawaii Kaneohe Bay.

1.4.2 Issues Considered and Eliminated from Analysis

Some issues would not be affected by the proposed action and have been eliminated from in-depth analysis. These include:

- Air quality
- Wetlands and floodplains
- Land use and recreation
- Hazardous materials and waste
- Human health and safety
- Wildland fire

Rationale for the treatment of these components is offered in Section 3.9.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter describes the proposed action (redesign and construction of ranges at the Ulupau Range Training Facility (RTF). and a no-action alternative and compares the alternatives in terms of their environmental effects (summarized from Chapter 3) and achievement of project objectives. The no-action alternative provides the baseline for comparison with other alternatives. Alternatives considered and eliminated from detailed analysis are also described.

2.1 ALTERNATIVE 1: PROPOSED ACTION – ULUPA'U RANGE REDESIGN

Under the proposed action, MCB Hawaii would reconfigure Range 1 and reorient Range 9, and construct three new square-bay close engagement ranges at the Ulupau RTF, Marine Corps Base Hawaii Kaneohe Bay (Figure 2-1, Figure 2-2). The proposed action includes changes to the design of existing ranges, new range construction, and changes in training usage compared to current military training at these locations.

2.1.1 Ulupau Range Training Facility Redesign, New Range Construction and Use

2.1.1.1 Range 1 Redesign

Current Design and Usage of Range 1

Range 1 currently is a 475-m (500 yd) known-distance qualification range with 25 targets/firing lanes. The targets are on the north end of the range, backed by earthen bullet traps on the hillside to the north. The existing range has firing lines on raised earthen berms at 500 m, 300 m, and 200 m from the targets as well as a 100-m firing line without a berm. Range 1 currently supports known-distance training for 5.56mm and 7.62mm rifles. The most commonly used weapon on Range 1 is the 5.56mm M16, and the loudest weapon is the 7.62mm sniper rifle. Range 1 is currently used both during the day and at night approximately 150 days per year. The average number of rounds fired during the day when the range is used is 7,800, and the average number of rounds fired during the night when the range is used is 250. About 50 percent of the day and night fire is rapid fire. The current surface danger zone for Range 1 extends north over the ocean, and red flags are flown from numerous locations when the range is active.

Proposed Redesign and Usage of Range 1

Under the proposed Range 1 redesign, existing targets at the north end of the range would remain in place and the 300-m and 200-m earthen berms would be leveled. Ten lanes of new pop-up targets would be located in the ground every 50 m (164 ft) from the firing line, located at the south end of the range. Each lane would be approximately 10-m (32.8-ft) wide. There would be a single firing position and the shooter

would respond as targets popped up at varying distances and various angles to the right and left. The size and location of the range would remain largely unchanged. The range would be designed and built to minimize safety hazards and maximize management of lead residues from bullets. Soil for berms would be obtained from a source either on-site or off-site that meets both engineering and environmental acceptability criteria.

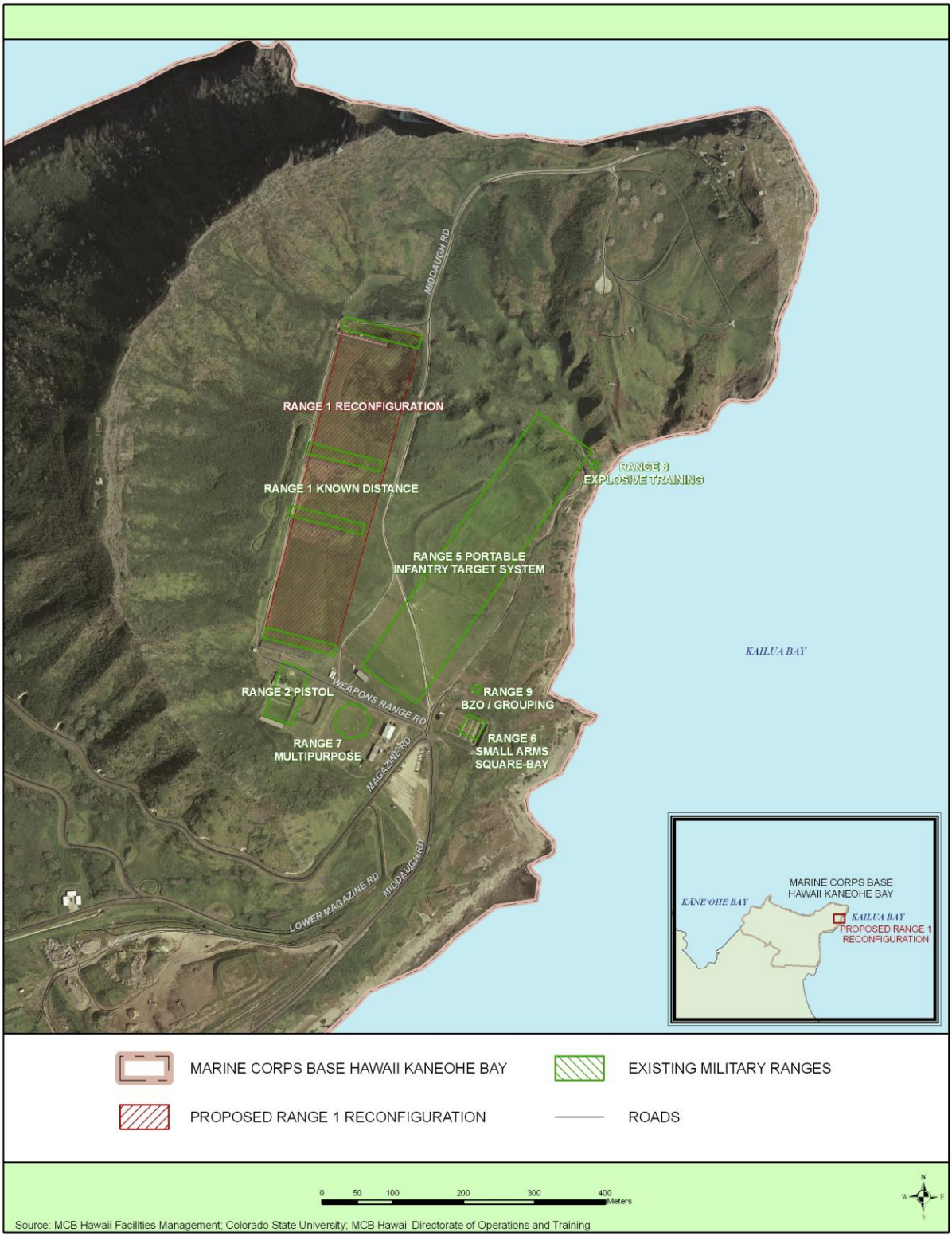

Figure 2-1. Existing and proposed Range 1 reconfiguration at Ulupau Range Training Facility.

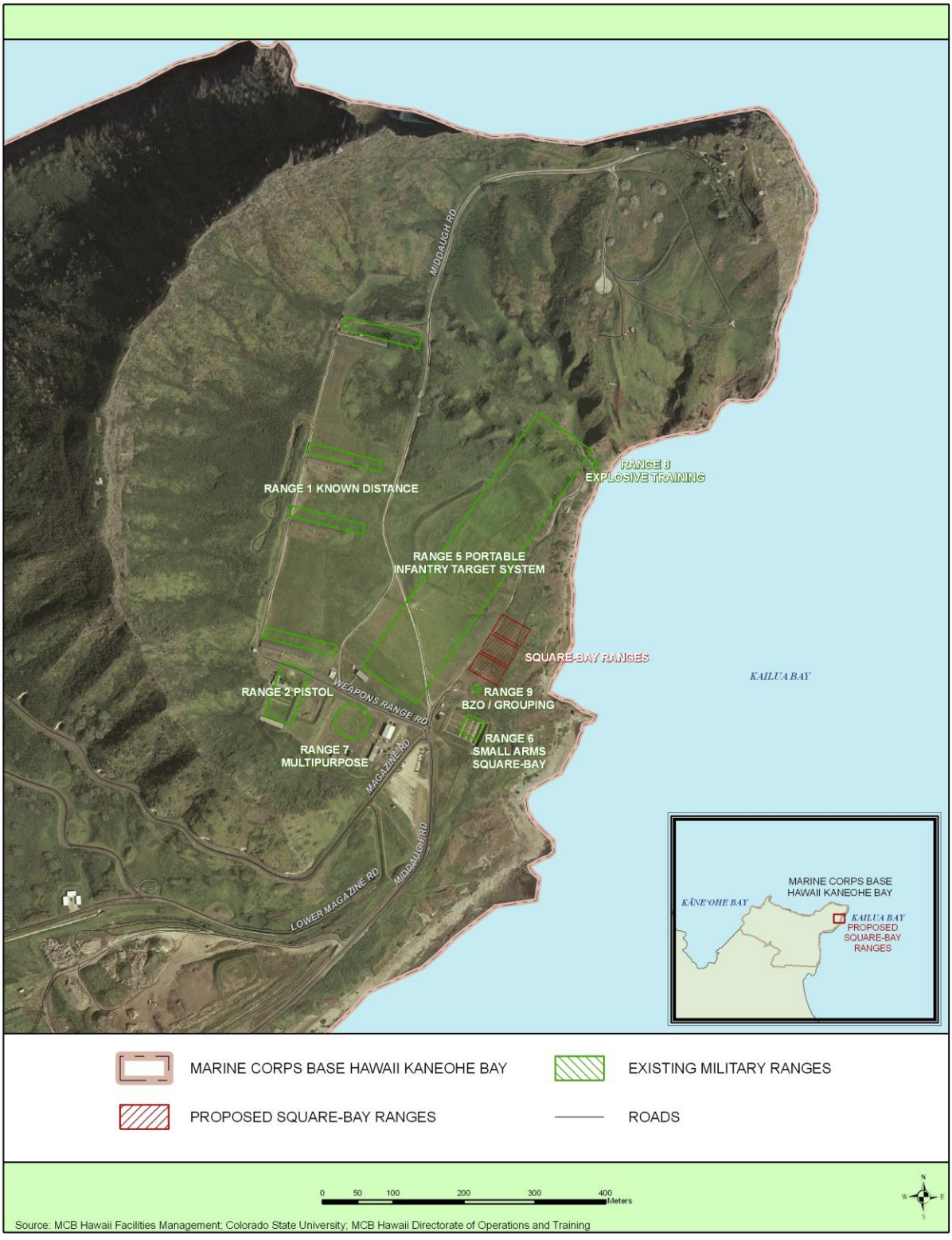

Figure 2-2. Proposed location of three square-bay ranges at Ulupau Range Training Facility.

The redesigned range would support unknown-distance qualification training with rifles up to the 5.56 mm M16. The number of days the reconfigured range would be used annually would increase to approximately 190 days per year compared to the current usage of approximately 150 days per year. The number of rounds fired annually on the range would decrease to approximately 650,000 from the current 1,200,000 rounds per year. The average number of rounds fired per night when live fire occurs would be approximately 1,750 versus the current average of 250 rounds per night-fire event. The current Range 1 surface danger zone (Figure 2-3) would not be affected by the range redesign, and recreational use by boaters beyond the existing 500-yard security zone would be unaffected.

2.1.1.2 Range 9 Reorientation

Current Design and Usage of Range 9

Range 9 is a small arms range and 9A is a mortar range with two mortar firing points with surface danger zones that overlap with Range 5. Range 9 consists of two mortar pits used for firing 60mm mortars at charge 1 (maximum range of 1,300 m [4,265 ft]).

Proposed Redesign and Usage of Range 9

Construction of three new square-bay ranges adjacent to Range 6 would require reorientation of Range 9. The existing Range 9 safety berm would be leveled as part of the square-bay range construction and then reconstructed in accordance with the reorientation of the range. The location of the mortar pits would be unchanged. The new berm would be constructed using acceptable soil obtained either on-site or from a source off-site that meets both engineering and environmental acceptability criteria. The berm would be stabilized with vegetation and using other soil stabilization best management practices (see Section 2.1.2 for discussion of best management practices). Usage of Range 9 would not change.

2.1.1.3 Construction of Three Square-Bay, Close Engagement Ranges

The proposed action includes the development of three new square-bay, close engagement ranges that would be very similar to existing Range 6, also known as the Small Arms Square-bay Range. Each range would be approximately 60-m (65-yd) wide and 120-m (131-yd) long.

Construction of the new ranges would require leveling a portion of the existing Range 9 safety berm, realignment of an existing access trail through the area, site grading/leveling, and construction of the three new ranges, including lateral berms on the sides of each range. Backstop and bullet trap design would be similar to the schematic shown in Figure 2-4. Each range would have lateral berms and a backstop. “Green” small arms range concepts would be applied to minimize firing hazards and maximize safe management of chemical residues/wastes at the ranges. For example, GEL-COR™ granular rubber material (approximately 0.6 m [2 ft] thick) would be used to trap bullet metal (primarily lead), minimize leaching of lead through drainage, minimize generation of hazardous dust, and optimize range maintenance.

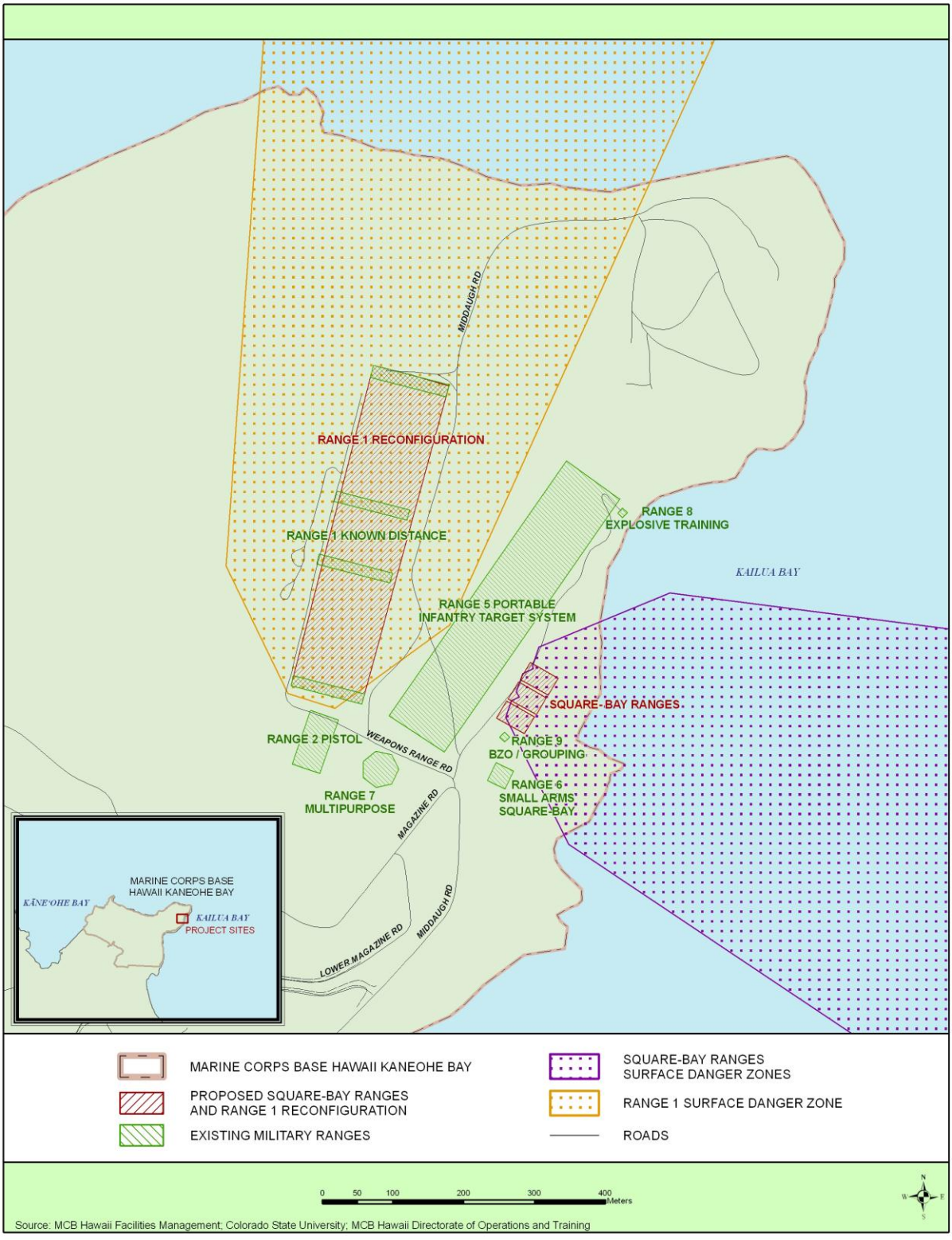

Figure 2-3. Surface danger zones for Ulupau Range Training Facility Range 1 and proposed square-bay ranges.

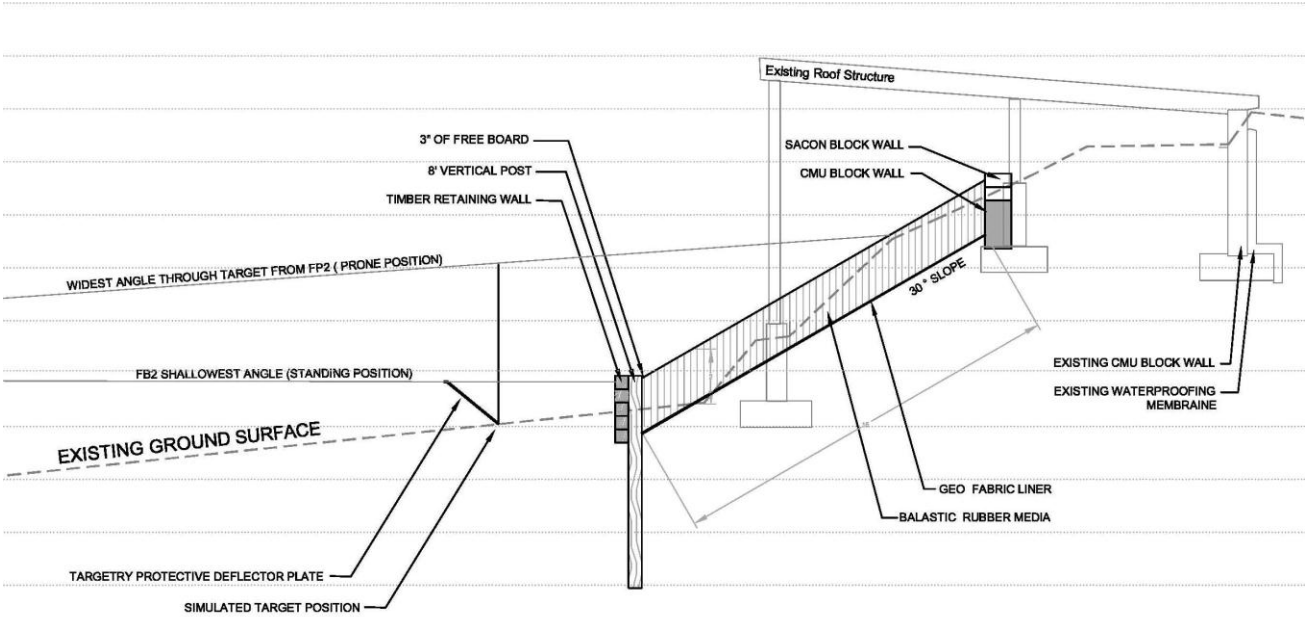

Figure 2-4. Cross section of a granular rubber bullet trap system (source: AMEC Renovation Plan for Range 2 [Ulupau RTF], May 2007). The proposed square-bay ranges would have a similar design but would not have a roof

The new ranges would be used for small arms close engagement training with up to 7.62mm caliber rifles. Each range would have 20 to 30 lanes or firing positions along the firing line. The number of rounds fired per event would be approximately 1,200, with 50 percent of the rounds fired at night. Approximately half of the firing would consist of rapid fire. From the firing line, shooters would engage pop-up targets at distances from 5 m (16 ft) to 50 m (165 ft). Each of the new ranges would be used approximately 63 days per year. The surface danger zones (SDZs) for the three new square-bay ranges would extend off-shore, overlapping to some degree with the SDZs for other ranges such as Range 5 and Range 7 (Figure 2-3). As per procedures currently used for Range 6 (MCB Hawaii Base Order P3574.6), a red standard range flag would be flown from each range berm when a range is active. During all live fire on Range 6 and the new square-bay ranges, beach guards would be posted to observe the entire controlled firing area surrounding the Ulupau RTF. Firing would be stopped if a boat approached or entered the controlled firing area and would resume only when the boat left the controlled firing area.

Standing operating procedures (SOPs) for the Ulupau RTF would be updated to include amended procedures for reconfigured ranges and procedures for new ranges. Pistols (9mm and .45 cal), shotguns, and rifles (up to 7.62mm caliber) would be used on the proposed square-bay ranges. No new weapon systems beyond those currently used at the Ulupau RTF would be used. Incendiary, illumination, pyrotechnic, and tracer ammunition/devices would continue to be prohibited within the Ulupau RTF. The Code of Federal Regulations requires that MCB Hawaii provide the weekly firing schedule to Coast Guard District #14. The schedule is then published in the weekly local Notice to Mariners bulletin.

2.1.2 Mitigation Measures for the Proposed Action

Mitigation measures associated with implementation of the proposed action are described below.

2.1.2.1 Range Regulations/SOPs

MCB Hawaii Base Order P1500 (May 2000) establishes policies, procedures and responsibilities for control and use of all training areas within MCB Hawaii. Range usage would be managed to ensure safety to users and the public. The Base Order would be updated to reflect operation of the reconfigured and new ranges.

2.1.2.2 Permits and Review

The proposed action would disturb an area of more than one acre and thus requires a State of Hawaii Department of Health Issued National Pollutant Discharge Elimination System (NPDES) permit. The permit application would contain a list of best management practices that would be used during construction activities to avoid discharges of sediment-laden stormwater runoff from the construction sites, laydown yards and stockpile sites. It is anticipated that the final NPDES issued by the State Department of Health would list all the necessary best management practices to be adhered to so that water quality would not be affected. The project was evaluated and categorized as de minimis in accordance with Department of Commerce, National Oceanic and Atmospheric Administration, Coastal Zone Management Agency (CZMA) Federal Consistency Regulations, as the project would not directly affect coastal components (Appendix B). Construction potentially affecting water quality would be coordinated with the state and federal agencies, and all necessary permits and approvals would be obtained before implementation of the project.

2.1.2.3 Watershed, Erosion and Sediment Control Best Management Practices

This project would employ a "watershed" approach for planning activities and evaluating watershed-related problems and solutions. All construction activities would incorporate best management practices to prevent erosion and sedimentation that could cause water quality degradation and possible adverse effects to marine species and coastal reef systems. Erosion and sediment control is most important during construction and for the first year after construction while vegetation is getting established on disturbed areas. In accordance with the Storm Water Pollution Prevention Plan for MCB Hawaii Kaneohe Bay (Hawaii Pacific Engineers 2001), during construction and excavation activities, soils would be stabilized to minimize transport of soil off-site due to storms. Stockpiled soils would be stored on flat locations and/or would be covered with tarpaulins or other covers, and surrounded with hay bales or other runoff controls. Following construction, all berms and other disturbed and bare soil areas would be seeded using approved planting mixes and stabilized using mulch, geotextile, fiber matting, or other soil stabilizing material to minimize the potential for soil erosion and transport of sediments by gullies or via overland flow to coastal waters. MCB Hawaii-specific recommendations for best management practices have been developed for berm stabilization (SRGII 2005) and erosion and sediment transport minimization (SRGII 2007). Revegetation and seeding would follow best management practices and utilize native species prescribed for use on MCB Hawaii lands (MCBH and SRGII 2006, Appendix D). MCB Hawaii staff would provide these guidelines to the design engineers and construction contractors to be incorporated into project designs and construction operations. Possible runoff, erosion, and sediment control mitigation measures are presented in Table 2-1.

Additional design features that can be used to minimize runoff, erosion, and sediment delivery and maximize infiltration include rolling dips and water bars, out-sloped road drainage, crown-center road drainage, energy dissipation where concentrated flows are discharged, rock-lined channels with geotextile liners, grass-lined channels, straw rolls and coir logs placed along slope contours, drop inlet structures, and slope drains. Conceptual designs, specifications for design and construction, and maintenance requirements of these features are presented in SRGII (2007).

Table 2-1. Potential minimization and design best management practices (BMPs) for erosion and sediment control.

Area of Concern	Potential Issues	Minimization and Design BMPs
Disturbed areas (in general)	Runoff, erosion, concentrated flows, delivery of excess sediment to marine environments	• Minimize site disturbance. • Stabilize soils using revegetation BMPs (soil amendments, geotextiles/fiber matting, seeding, and mulch) or gravel/rock. • Trap sediment in catchment basins, or behind silt fences. • Stockpiled soil used for berms or other construction would be covered under rainy conditions to prevent erosion. • Stabilize soils using revegetation BMPs (soil amendments, geotextiles/fiber matting, seeding, and mulch) or gravel/rock, as per SRGII (2005) recommendations. • To ensure optimum germination and establishment of vegetation, revegetation should be conducted during the months of November to January, when feasible. • If 90% vegetation cover is not achieved within revegetation areas after 12 months, additional hydromulching can be used.
Berms	Runoff, erosion, delivery of excess sediment to marine environments	• Stabilize soils using revegetation BMPs (soil amendments, geotextiles/fiber matting, seeding, and mulch) or gravel/rock, as per SRGII (2005) recommendations. Hydromulch with a tacifier (binding) agent may be used prior to applying the erosion matting. • Use perennial grass species that will self-perpetuate via seed or rhizomes and provide dense ground and vegetation cover, including species such as *Sporobolus virginicus* (aki aki) and *Heteropogon contortus* (Pili). • Water concentrating at the base of berms should be channelized or managed using culverts or other diversion structures with armored channels and outlets. Where flows are low and grades are moderate, hydromulching and matting may provide adequate scour protection.
Roads and parking areas	Stormwater runoff, sources of sediment, increased erosion along flow paths, sediment generation, and maintenance of water and sediment management structures	• Minimize the amount of impervious ground created. • Use road aggregate that does not break down and contribute to sediment loads (e.g., preference for basalt vs. coral road material). • Employ proper road construction BMPs, such as proper crowning, drainage, sediment control, and cut/fill procedures.
Drainages and ditches	Stormwater runoff, sources of sediment, increased erosion along flow paths, sediment generation	• Slow water flow in natural drainages and altered ditches flowing to the ocean and across disturbed or denuded earthwork areas using a combination of vegetation, rock linings, or other structural controls. • Identify drainage segments with actively cutting channels and stabilize those sections to minimize sediment generation and incision over time.

2.1.2.4 Weed Monitoring and Control

Reconfigured and constructed ranges at Ulupau RTF would be vegetated and maintained as training facilities, and invasive and noxious plant species would be controlled. The site is currently covered with non-native vegetation, and there are no specific invasive species of concern in the range area on the crater floor. MCB Hawaii Facilities Department personnel regularly mow the grass and apply herbicide via work order. The MCB Hawaii Environmental Compliance and Protection Department provides advice on best management practices for conducting these operations.

2.1.2.5 Federally Protected Species

There are no known listed endangered species of flora or fauna in the affected environment of the construction area or anywhere else in Ulupaʻu Crater (MCBH & SRGII 2006). Seabirds and shorebirds such as frigate birds and red-footed boobies, protected under the Federal Migratory Bird Treaty Act, soar above and just offshore of the range areas year round. Other species also use Ulupaʻu Range grasslands. For

example, seasonal migrants such as Pacific golden plovers use these areas during late summer and early spring, and a few Laysan albatrosses have been known to occasionally land on grassed areas within the RTF, primarily during the period from November through January. The MCB Hawaii Environmental Compliance and Protection Department maintains a federal permit from the U.S. Fish and Wildlife Service that allows hazing and relocating of any albatrosses found on firing areas to discourage colonization. Hazing or relocation actions are infrequent occurrences, but if an albatross were to be found occupying the premises during construction activities, all activities in the area would be halted immediately, Range Control would be notified, and the MCB Hawaii Environmental Compliance and Protection Department natural resources staff would be contacted for further appropriate action.

2.1.2.6 Cultural Resources Construction Monitoring

There are no known archaeological resources in the area of potential effect, which is defined here as Ulupau Range Training Facility (RTF) Range 1, Range 9, and the three proposed square-bay ranges (Figures 2-1 and 2-2) located within the Ulupa'u Crater. Ulupa'u Crater is considered to be an area of low archaeological sensitivity. Low sensitivity zones are areas where no cultural resources have been found and where there is almost no probability of encountering cultural resources (U.S. Army Corps of Engineers Honolulu District 2006). As a result, monitoring is not recommended. In the event that previously unknown or unanticipated archaeological resources are discovered the activity proponent would:

1) stop land-disturbing work within an area to a maximum of 20 m (65 ft) radius around the point of discovery;

2) take all necessary precautions to protect the resource from damage, loss or destruction;

3) notify the cultural resources manager within 24 hours of the discovery; and

4) suspend work until notified to continue by the cultural resources manager or other authority.

The cultural resources manager would follow the procedures at 36 CFR Part 800.4 – 800.6 to determine the proper management or treatment of the archaeological find (U.S. Army Corps of Engineers Honolulu District 2006).

If potential human remains and associated objects were inadvertently discovered, the User Group/Tenant Command (UG/TC) sponsoring the activity leading to the discovery would immediately stop ground-disturbing activities within at most, 20 m (65 ft) from the discovery. The UG/TC would, as soon as possible (but within 24 hours), notify the NEPA program manager and the cultural resources manager of the discovery. The UG/TC would make a reasonable effort to protect the human remains or object discovered so they would not be damaged, destroyed or lost; so they would remain as much as possible in the place of discovery, and would maintain their condition at the time of discovery (U.S. Army Corps of Engineers Honolulu District 2006).

Marine Corps Base Hawaii's *Integrated Cultural Resources Management Plan (ICRMP) 2006 – 2010* provides a detailed description of the roles and responsibilities surrounding inadvertent discoveries (U.S. Army Corps of Engineers Honolulu District 2006).

2.2 ALTERNATIVE 2: NO ACTION

Under Alternative 2, the proposed range reconfiguration, construction, and changes to training activities would not take place. The no-action alternative would preclude MCB Hawaii units and other user units from carrying out unknown-distance and close engagement training at the Ulupau RTF, with the exception of the existing Range 6. The no-action alternative is not considered feasible because existing facilities are inadequate to support emerging requirements for close range combat training or unknown-distance fire training.

2.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The following alternatives were initially proposed, but later eliminated from further consideration and analysis because they failed to meet the MCB Hawaii purpose (i.e., objectives) for enhancing training mission support.

2.3.1 Use of Army Unknown-Distance Ranges

Some MCB Hawaii units currently use unknown-distance ranges at Schofield Barracks Military Installation, O'ahu, and Pōhakuloa Training Area (PTA) on the island of Hawaii. However, it is not feasible to continue to use Schofield Barracks and PTA exclusively for training because of the lack of adequate facilities to meet MCB Hawaii scheduling and throughput requirements.

2.4 PAST, PRESENT AND FUTURE ACTIONS CONTRIBUTING TO CUMULATIVE EFFECTS

Analysis of cumulative effects is required for NEPA documents. Cumulative effects result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can also result from individually minor but collectively significant actions taking place locally or regionally over a period of time. Impacts of these cumulative activities are discussed in Chapter 4 of this EA. Other actions to be considered in assessing cumulative effects include projects, training activities, and nonmilitary actions.

2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Determination of the significance of effects should consider both the context and intensity of an effect, whether beneficial or adverse. Significance is determined by evaluating the action, alternatives, and proposed mitigation measures in relation to each variable of environmental concern.

Geology and Soils. An alternative could have a significant effect if it results in extensive loss of soil (erosion) or a change in the availability of a geologic type. Erosion by water and transport of sediment-laden runoff to adjacent marine environments is a management concern at Ulupau RTF. Construction and ground-disturbing activities would occur on the Ulupau RTF. Soil erosion potential from water and wind would not be altered and would be generally minor due to the type of soil and the slight slope found at the location. Construction activities would involve removal of a minimal amount of vegetation and soils as well as grading. Best management practices such as proper grading, stabilization, culverts to channel storm water runoff, and sediment retention fences, as needed, would minimize adverse effects during construction. Following completion of construction all ground surfaces would be restored. Range construction could have some short-term effects. Runoff, erosion, and sediment transport would be minimized during construction using a variety of best management practices described in the Environmental Assessment. Because more than 1 acre would be disturbed, an National Pollutant Discharge Elimination System permit would be required. Effects would be mitigated to less-than-significant levels.

Water Quality. An alternative could have a significant effect if it adversely affects the quality of surface water or ground water, or alters the availability of water. Surface waters surrounding the Mōkapu Peninsula are classified and regulated by the state of Hawaii. The waters of Kailua Bay and outer portions of Kāne'ohe Bay are designated Class A marine waters. The management objective of Class A waters is to protect the waters for recreational purposes and aesthetic enjoyment. Currently, runoff and sediment from the RTF area is occasionally conveyed by sheet flow and concentrated flows in gullies to the ocean when rainfall intensities exceed infiltration rates. Best management practices implemented during construction would minimize adverse impacts to water quality during the construction phase. Runoff minimization and management designs would likely reduce the erosion that currently occurs on the RTF site where the three square-bay ranges would be constructed. Range and road construction would incorporate best management practices and design elements to minimize exposed, erodible soil, sediment transport, and

runoff from developed/disturbed areas. The increases and changes in training activities described under the proposed action would not adversely affect surface water quality. The changes in training facilities and activities described under the proposed action would not adversely affect surface water quality in the long-term. Short-term impacts to surface water during construction would be minimized by use of best management practices. Effects would be mitigated to less than significant.

Flora. An alternative could have a significant effect to flora if it would disrupt or remove any endangered or threatened species or associated habitat. The loss of a substantial number of individuals of any species that could affect the abundance or diversity of that species beyond normal variability could also be considered a significant effect. Much of the terrestrial habitat at Ulupaʻu Crater is badly degraded, predominantly secondary successional plant communities dominated by introduced species. The areas around the RTF are largely unmanaged landscapes dominated by non-native koa haole (*Leucaena leucocephala*) shrubland. The sparse and degraded nature of the vegetation results in limited use of the area by native and non-native wildlife. From the crest of Ulupaʻu Crater down to the coastal zone, vegetation is dominated by alien and invasive species. Dominant species include koa haole and kiawe trees, with a mixed guinea grass and buffelgrass understory, reflecting the fire history of the area. The coastal zone, identified as the area from the reach of high wave run-up to the transition line with upland vegetation, contains a mixture of endemic, indigenous, invasive and non-native plant species. There are no natural occurrences of plants currently listed or pending listing as "endangered" under the Federal Endangered Species Act. Because of the disturbed nature of the existing ranges, no additional impacts to vegetation of a long-term nature are expected to occur with implementation of the proposed action. Construction activities would occur in predominantly disturbed habitats. Therefore, no effects to flora including threatened and endangered plant species, are anticipated.

Fauna. An alternative could have a significant effect to fauna if it would disrupt or remove any endangered or threatened species or associated habitat. The loss of a substantial number of individuals of any species that could affect the abundance or diversity of that species beyond normal variability could also be considered a significant effect.

Nearshore and offshore waters surrounding the Mōkapu Peninsula host several federally listed species, including the threatened green sea turtle and the endangered hawksbill turtle. The endangered Hawaiian monk seal occasionally uses the Mōkapu shoreline beaches for resting. The endangered humpback whale has been observed in the waters surrounding the Mōkapu Peninsula. The 9-ha (23 ac) Ulupaʻu Head Wildlife Management Area at the northeast tip of Ulupaʻu Crater was established in 1966 to protect the red-footed booby (*Sula sula*), protected by federal law under the Migratory Bird Treaty Act. The standing operating procedures for Ulupau RTF provides details for conducting weapons firing to avoid wildland fire and associated damage to boobies and their habitat. Potential impacts to wildlife from construction noise would be short-term and not be expected to additionally affect wildlife already exposed to activity at the existing range, including the Ulupaʻu booby colony. MCB Hawaii Standing Operating Procedures would continue to be implemented to avoid wildland fire damage to red-footed boobies and their habitat.

Construction and design best management practices would be employed to minimize the effects of construction and site disturbance on the nearshore marine environment (coral resources, marine species, and their habitats). These areas would be regularly monitored for erosion during and after construction. Therefore, it is anticipated that effects of the proposed action on terrestrial and marine fauna would be negligible

Coastal and Reef Systems. An alternative could have a significant effect to the reef if there is excessive sedimentation, or disturbance of nearshore habitats or physical impacts to substrates. A variety of coral reef communities and features occurs in the waters adjacent to the Ulupau RTF. The area supports a variety of macro algae, coral, macro invertebrate, and reef fish species. The nearshore area and reef systems are occasionally subject to sediment plumes associated with runoff from the installation. The proposed action would have no or minimal effect on nearshore water quality since those impacts would be minimized by the use of best management practices during and after construction and ongoing maintenance of erosion and

sediment control measures. Following construction, the risk of runoff and sediment from Ulupaʻu Crater may actually be reduced compared to current levels due to the construction of erosion, sediment control, and runoff best management practices.

Mitigation best management practices, monitoring, oversight by MCB Hawaii environmental and facilities staffs, and agency permitting requirements would ensure that risk associated with sediment and runoff are minimized. There would be no disturbance to the coastal strand or nearshore ocean bottom. There would be no generation of debris or new UXO with potential to damage reef systems. The changes in training activities described under the proposed action would not adversely affect surface water quality or reef systems. Therefore, the proposed action would have little or no impact on reef systems. The proposed action is listed as a *de mininis* activity agreed upon by the Department of the Navy and the State of Hawaii Coastal Zone Management (CZM) Program and, as such, is not subject to further review under the State CZM Program.

Cultural and Archaeological Resources. An alternative could have a significant cultural or archaeological impact if it would result in destruction or loss of artifacts or historical sites or Native population resources or result in the loss of archeological sites. Cultural resources may include archaeological sites, historic structures, and traditional cultural places. The proposed action would take place within areas of low archaeological sensitivity. Although archaeological sites have been recorded on the Mōkapu Peninsula, none of the recorded sites at MCB Hawaii Kaneohe Bay are within the Ulupaʻu Crater, and no historic structures are located within the project area. The World War II era Battery Pennsylvania is located on the crater rim to the northeast, outside the area directly affected by the proposed action. The area is considered to be of low archaeological sensitivity and no historic structures or archaeological sites occur within the area of potential effect.

A NHPA Section 106 consultation was filed with the State Historic Preservation Office by MCB Hawaii staff. The State concurred with a determination of no historic properties affected.

Socioeconomics and Environmental Justice. An alternative could have a significant effect on socioeconomics and environmental justice if there are associated adverse effects to livelihood, labor or living conditions, or if the number and magnitude of accidents increases. Construction expenditures for new range construction and redesign at Ulupau RTF are estimated at $2.6 million. The transitory economic effects from these construction-related expenditures, including the multiplier (1.84), are estimated at $4.78 million. It is expected that the savings that would result from reduced use of Schofield Barracks ranges would substantially offset these costs. *Noise*. An alternative could have a significant effect if noise levels increase to unacceptable levels that result in health effects or increased noise complaints from the community. The primary sources of noise at Ulupau RTF are the existing firing ranges and aircraft noise from helicopters.

Noise generated from construction activities associated with the proposed action would remain confined to the existing range area within Ulupaʻu Crater. The Ulupau RTF reconfiguration would result in only slight changes to the noise contours and would not affect any residential areas. Overall noise impacts of the proposed action on the public are anticipated to be less than significant.

Five categories of effect are used in this environmental assessment:

- Significant Adverse
- Significant but Mitigable
- Less than Significant
- Minor or No Impact
- Beneficial Impact

The beneficial effects of mitigation actions (Section 2.1.2) are included in the determination of overall effects. Without the implementation of listed mitigation, adverse effects could be more severe. The proposed

action would have less than significant adverse effects on the following variables of environmental concern: geology and soils, water quality, and noise levels. There would be minor or no impact to flora, fauna, reef systems, cultural and archaeological resources, and socioeconomics and environmental justice components. No beneficial consequences were identified. The anticipated environmental consequences of the proposed action (including mitigation) and no-action alternative are summarized in Table 2-2 and discussed in detail in Chapter 3.

Table 2-2. Summary of environmental consequences by component for the proposed action and no-action alternative. The beneficial effects of mitigation actions (Section 2.1.2) are included in the determination of overall effects.

Variable of Environmental Concern	Proposed Action	No Action
Geology and Soils (Section 3.1)	less than significant	less than significant
Water Quality (Section 3.2)	less than significant	less than significant
Flora (Section 3.3)	minor or no impact	minor or no impact
Fauna (Section 3.4)	minor or no impact	minor or no impact
Coastal and Reef Systems (Section 3.5)	minor or no impact	minor or no impact
Cultural and Archaeological Resources (Section 3.6)	minor or no impact	minor or no impact
Socioeconomics and Environmental Justice (Section 3.7)	minor or no impact	minor or no impact
Noise (Section 3.8)	less than significant	less than significant

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES OF EACH ALTERNATIVE

As set forth in Section 1.3.1, per 40 CFR 1501.7(a) (3), this EA addresses a focused scope of potentially impacted environmental components or issues: geology and soil, water quality, flora, fauna, reef systems, and cultural and archaeological resources, socioeconomics and environmental justice and noise. Resources or components deemed to be unaffected by the proposed action were not examined in detail and the rationale for their treatment is described in Section 3.9.

This chapter provides an overview of the existing environmental conditions (affected environment) of the area(s) created or affected by the proposed action. Only variables of environmental concern that are relevant to the proposed projects or of public concern are presented and analyzed in this section of the EA. The affected environment portion for each component provides background information on the existing environment and discusses the current conditions of the component within the vicinity of the proposed action.

This chapter also identifies the probable direct or indirect effects (environmental consequences) to the environmental components that would be affected by the proposed action and alternatives. Anticipated adverse or beneficial effects are presented for each component described and provide the scientific and

analytic basis for comparison and decision-making. If no impacts are identified for a particular component, then that is also mentioned.

Chapter 3 is organized by environmental component. For each component, a description of the affected environment is followed by discussion of the environmental consequences for the proposed action and alternatives. Assessment of environmental effects considers best management practices to prevent adverse impacts as part of the proposed action.

3.1 GEOLOGY AND SOILS

Ulupau RTF is located within the northeast Crater catchment of the volcanic Ulupaʻu Crater on the Mōkapu Peninsula. The dominant lithology of Ulupaʻu Crater is volcanic tuff lava (SRGII 2004). The crater catchment contains approximately 63 ha (155 ac). The elevation of the crater ranges from 638 ft mean sea level at Ulupaʻu Head on the north crest of the crater's rim to sea level. The interior crater contains three distinct topographic zones: the steep slopes of the crater rim; the interior crater basin; and the steep sea cliffs along the east side of the feature. Topography of the southern half of the basin is characterized by gentle slopes that fall east towards the sea with small rises and bumps along the surface from manmade berms and other features used in training exercises. The northern half of the interior basin is dissected by a gully network resulting in entrenched gullies with small plateau sections inset between the tops of the gullies. At the north end of Ulupaʻu Crater, near the RTF, a shelf extends inland an average of 12 m (40 ft) from the shoreline where it intersects with the toe of the outer crater (SRGII 2004). This toe slopes to the ocean and is best described as a scarp, created by erosion from waves and later by overland flow derived from the uplands. The height of this scarp face varies from up to 1 m (3 ft) at its initial location adjacent to the sanitary landfill to approximately 13 m (45 ft) near the RTF.

Soils at the Ulupau RTF have been affected by land use activities that occurred in the past and present. The Natural Resource Conservation Service classifies the soils on the steep uplands of the crater and along the shoreline area as rock land and the crater "bottom" or inner basin area occupied by the RTF as Makalapa clay (Figure 3-1). Rock land comprised of moderately weathered tuff substrate includes areas where the exposed rock covers 25-90 percent of the surface. Soil has begun to accumulate in small inclusions, and profiles have begun to develop in numerous areas comprised of steep slopes and some other rock areas around Ulupaʻu Head.

Erosion by water and transport of sediment-laden runoff to adjacent marine environments is a management concern at Ulupau RTF. Trade wind showers, cold front storms, Kona storms, and intense tropical storms can generate overland flow and flooding events. Rainfall rates associated with these storms often exceed soil infiltration rates, and it is during these storms and immediately afterwards that erosion rates and impacts from erosion are highest (SRGII 2007). An erosion assessment of the MCB Hawaii Kaneohe Bay Landfill and the northeast Ulupau Crater catchment was completed in 2004 (SRGII 2004). The report delineated vegetation types and sub-watersheds within the catchment; delineated erosion hotspots, areas of erosion sensitivity, and areas of erosion concern; and identified specific site factors and processes contributing to erosion risk and problem areas. A summary of erosion-related characteristics for Range 1 and the site proposed for the construction of three new square-bay ranges is presented in Table 3-1.

Table 3-1. Erosion-related characteristics of the sites proposed for construction at Ulupau RTF (developed from material in SRGII [2004]).

Erosion-related Characteristic	Range 1 Site	Site of Proposed Square-bay Ranges and Range 9
Watershed	Northern 40 percent of range (28 ha or 69 ac) draining into major gully system. Southern 60 percent of range (19 ha or 47 ac) draining into road and storm water management system toward Range Office.	Watershed (6 ha or 15 ac) drains to Kailua Bay to the east via overland flow, diversion ditches, and gullies.
Relative Erosion Rate	Medium, except for a relatively small area of "high" adjacent to the target line where the vegetation consists of Koa haole/Kiawe/mixed grass vegetation that is less stable than the landscaped grass, especially after fire.	High
Probability of Runoff	Moderate	High

The SRGII (2004) report concluded that the northern half of the crater basin has numerous areas where both accelerated erosion and overland flow are occurring and that the southern half of the basin has low erosion rates across the interior portion but contributes surface runoff that results in erosion of land near the coastal terraces and scarp faces. Other key observations conveyed by the report are:

- Sediment concentrations in runoff water increase along unlined earthen ditches due to detachment of soils along channel bed and banks.
- Fine sediments with long suspension times can be transported without long detention times or effective upland dispersion/infiltration.
- Relatively small areas of exposed soil contribute the greatest density loads of sediments in the runoff waters. These areas include roads, parking lots, and exposed piles of soil.
- Impervious surfaces generate runoff rapidly, and in many instances impervious areas form a continuous flow path that routes water across the watershed while exponentially increasing its total volume.

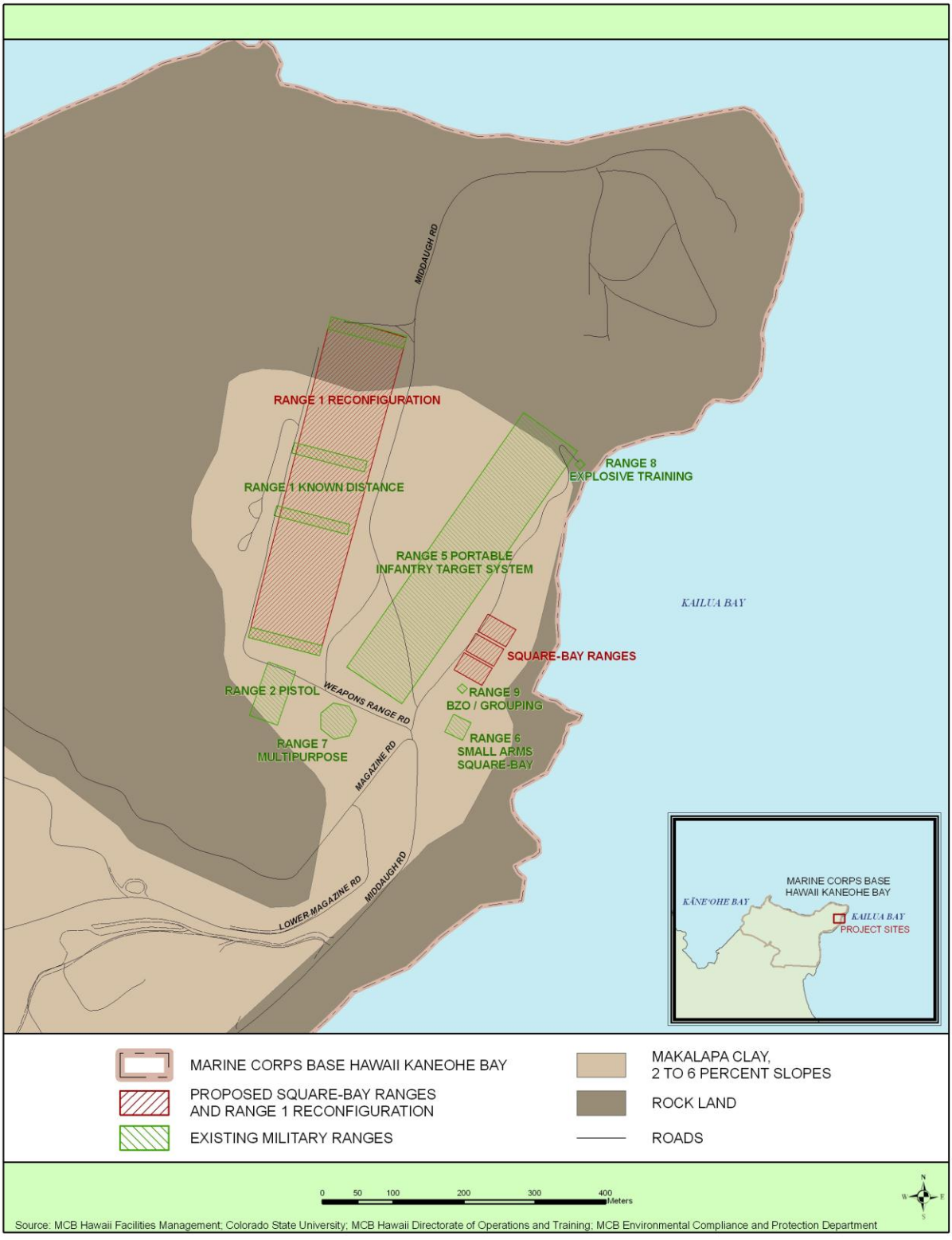

Figure 3-1. Soil types on the Ulupau Range Training Facility.

3.1.1 Environmental Consequences to Geology and Soils

3.1.1.1 Alternative 1: Proposed Action – Ulupau Range Redesign

Construction and ground-disturbing activities would occur on the Ulupau RTF. Soil erosion potential from water and wind would not be altered and would be generally minor due to the type of soil and the slight slope found at the location. Construction activities would involve removal of a minimal amount of vegetation and soils as well as grading. However, best management practices (BMPs) such as proper grading, stabilization, culverts to channel storm water runoff, and sediment retention fences, as needed, would minimize adverse effects during construction. Following completion of construction all ground surfaces would be restored. If fill material is needed, it would be selected for use in accordance with the specifications provided by a certified soils engineer to ensure stability of the built environment without an increase to maximum peak flow rates of storm drainage. In addition, soil or mulch that would be used for landscaping would be certified as weed free to comply with MCB Hawaii's recommended BMPs for handling soil and mulch used for landscaping to reduce risk of introducing invasive species (see MCB Hawaii's 2002 *Invasive Species Management Study* [SRGII 2002] for further details).

Construction of the three square-bay ranges could have some short-term effects. Runoff, erosion, and sediment transport would be minimized during construction using a variety of BMPs (see Section 2.1.2). Because more than 1 acre would be disturbed, an NPDES permit would be required. Large rainfall or runoff events during construction or during the revegetation period following construction could result in localized soil erosion and runoff. The sea cliff edge or "scarp" would be the most vulnerable erosion location. Management of runoff from higher in the basin would be critical to minimize erosion of the erodible scarp. Best management practices for managing runoff and sediment are discussed in Section 2.1.2. The overall effect on geology and soils would be less than significant.

3.1.1.2 Alternative 2: No Action

Under the no-action alternative, the range would not be redesigned/constructed at Ulupa'u and no additional impacts to soil beyond those associated with the current configuration would occur. Runoff, erosion and sediment associated with the crater basin would generally decline as erosion mitigation and sediment control projects are implemented over time, leading to increased infiltration, improved runoff management, and reduced incidence of sediment plumes in Kailua Bay.

3.2 WATER QUALITY

3.2.1 Affected Environment

Surface waters surrounding the Mōkapu Peninsula are classified and regulated by the state of Hawaii under Title 11 Hawaii Administrative Rules, Department of Health, Chapter 54 Water Quality Standards. The waters of Kailua Bay and outer portions of Kāne'ohe Bay are designated Class A marine waters. The management objective of Class A waters is to protect the waters for recreational purposes and aesthetic enjoyment[1]. The waters immediately surrounding MCB Hawaii Kaneohe Bay are used by Marines for various activities, including helicopter search and rescue training. Access within a 500-yard buffer surrounding the installation is restricted due to its designation as a Naval Defense Sea Area.

[1] State of Hawai'i, Department of Health. Hawai'i Administrative Rules: Amendment and Compilation of Chapter 11-54. 31 August 2004. http://www.hawaii.gov/health/about/rules/11-54.pdf.

There are no surface waters at Ulupaʻu Crater where the range training facility is located. Rapid runoff and erosion can be severe on the steep slopes of Ulupaʻu Crater (SGII 2004). Currently, runoff from the RTF area is occasionally conveyed by sheet flow and concentrated flows in gullies to the ocean when rainfall intensities exceed infiltration rates. Some sediment is delivered to Kailua Bay during occasional extended or severe precipitation events resulting in rainfall runoff from the crater basin. These events have caused sediment plumes off shore (SRGII 2004, 2007).

3.2.2 Environmental Consequences to Water Quality

3.2.2.1 Alternative 1: Proposed Action – Ulupau Range Redesign

Best management practices implemented during construction would minimize adverse impacts to water quality during the construction phase. Runoff minimization and management designs would likely reduce the erosion that currently occurs on the RTF site where the three square-bay ranges would be constructed. Range and road construction would incorporate BMPs and design elements to minimize exposed, erodible soil, sediment transport, and runoff from developed/disturbed areas. Best management practices are described in Section 2.1.2.3 - *Watershed, Erosion and Sediment Control Best Management Practices*. Areas at the Ulupau RTF developed under the proposed action would be pervious surfaces consisting of vegetation, gravel/rock, or other erosion control materials. Water runoff from roads and parking areas would be managed for optimal dispersion and infiltration to minimize creation of concentrated flows downslope. The increases and changes in training activities described under the proposed action would not adversely affect surface water quality.

3.2.2.2 Alternative 2: No Action

No additional impacts to water quality would occur. Current training activities and management actions would continue to manage runoff and sediment adjacent to the ocean.

3.3 FLORA

3.3.1 Affected Environment

Much of the terrestrial habitat at Ulupaʻu Crater is badly degraded, predominantly secondary successional plant communities dominated by introduced species. The areas around the RTF are largely unmanaged landscapes dominated by non-native koa haole (*Leucaena leucocephala*) shrubland. The sparse and degraded nature of the vegetation results in limited use of the area by native and non-native wildlife.

From the crest of Ulupaʻu Crater down to the coastal zone, vegetation is dominated by alien and invasive species (SRGII 2004). Dominant species include koa haole and kiawe trees, with a mixed guinea grass and buffelgrass understory, reflecting the fire history of the area. The coastal zone, identified as the area from the reach of high wave run-up to the transition line with upland vegetation, contains a mixture of endemic, indigenous, invasive and non-native plant species. The type is referred to as coastal mixed vegetation. Small pockets of native plants are interspersed with non-native plants throughout Ulupaʻu Crater and its outer slopes. Vegetation in the southern half of the crater basin and on the sites occupied by Range 1 and the proposed site for the square-bay ranges consists of landscaped grasses dominated by Bermuda grass (*Cynodon* spp.). Other vegetation types in the area include Kiawe/mixed grass, Koa haole/Kiawe/mixed grass, and Koa haole/mixed grass/scrub.

There are no natural occurrences of plants currently listed or pending listing as “endangered” under the Federal Endangered Species Act (Drigot et al. 2001). *Capparis sandwichiana* (Hawaiian caper bush or Maiapilo) is an endemic Hawaii species of concern that was documented in the Ulupaʻu Head area historically. *Sesbania tomentosa* (‘Ohia) is an endemic federally endangered plant that was last documented in the Ulupa'u Head area in 1934 (Hawaii Biodiversity and Mapping Program, data received February 2008). Historic occurrences for these two species are shown in Figure 3-2. Extensive searches

have been conducted in the vicinity of historic observations and within the Ulupa‘u Crater, but no individuals of these species have been found (Herbst 1998, Diane Drigot personal comm. 2008).

3.3.2 Environmental Consequences to Flora

3.3.2.1 Alternative 1: Proposed Action – Ulupau Range Redesign

Because of the disturbed nature of the existing ranges, no additional impacts to vegetation of a long-term nature would be expected to occur with implementation of the proposed action. All of the construction upgrades and reconfiguration would occur in predominantly disturbed habitats; no adverse impacts to flora, including threatened and endangered species, are anticipated.

3.3.2.2 Alternative 2: No Action

No additional impacts would occur to existing vegetation. Current training activities and management actions would continue to influence vegetation species and communities, including non-native plants.

3.4 FAUNA

3.4.1 Terrestrial Fauna

The 9-ha (23 ac) area at the northeast tip of Ulupa‘u Crater is designated as the Ulupa‘u Head Wildlife Management Area (Figure 3-2). This area includes the hillside and slope of the crater that supports Koa haole, kiawe, and grass cover dominated by guinea grass and buffelgrass (*Cenchrus ciliaris*). The Ulupa‘u Head Wildlife Management Area was established in 1966 to protect the red-footed booby (*Sula sula*) and its habitat. The red-footed booby is a seabird protected by federal law under the Migratory Bird Treaty Act. The Ulupa‘u booby colony was first established in the 1940s and is one of only two nesting colonies in the populated chain of the Hawaiian Islands. The number of birds at the colony fluctuates through the season and over the years, but averages between about 2,000 and 4,000 birds. The primary wildlife management document affecting the Ulupa‘u Head Management Area is the MCB Hawaii *Integrated Natural Resources Management Plan* (INRMP) (MCB Hawaii and SRGII 2006). The standing operating procedures for range training facilities provides details for conducting weapons firing on the rifle range to avoid brush fire and subsequent damage to the birds and their habitat (MCB Hawaii 2000, Base Order P1500.9 p. 35-37). A *Wildland Fire Management Plan* is being developed that will update the guidance for this concern (MCB Hawaii in prep.).

3.4.2 Environmental Consequences to Terrestrial Fauna

3.4.2.1 Alternative 1: Proposed Action – Ulupau Range Redesign

Ulupau RTF redesign and increased Puuloa RTF usage would have a negligible effect on terrestrial mammals and birds. Given the disturbed nature of the sites and the low quality of the existing vegetation, faunal effects would not be significant from a community perspective. Potential impacts to wildlife from construction noise would be short-term and not be expected to additionally affect wildlife already exposed to activity at the existing range, including the Ulupa‘u booby colony. There would be no increased risk of direct bird strikes during rifle training or risk of fire as a result of the proposed action. The details for conducting weapons firing outlined in Marine Corps Base Order P1500.9 (USMC 2008) would continue to be implemented to avoid brush fire damage to the birds and their habitat.

3.4.2.2 Alternative 2: No Action

Under the no-action alternative there would be no change to current baseline conditions, and additional environmental effects to surrounding habitats and wildlife would not occur.

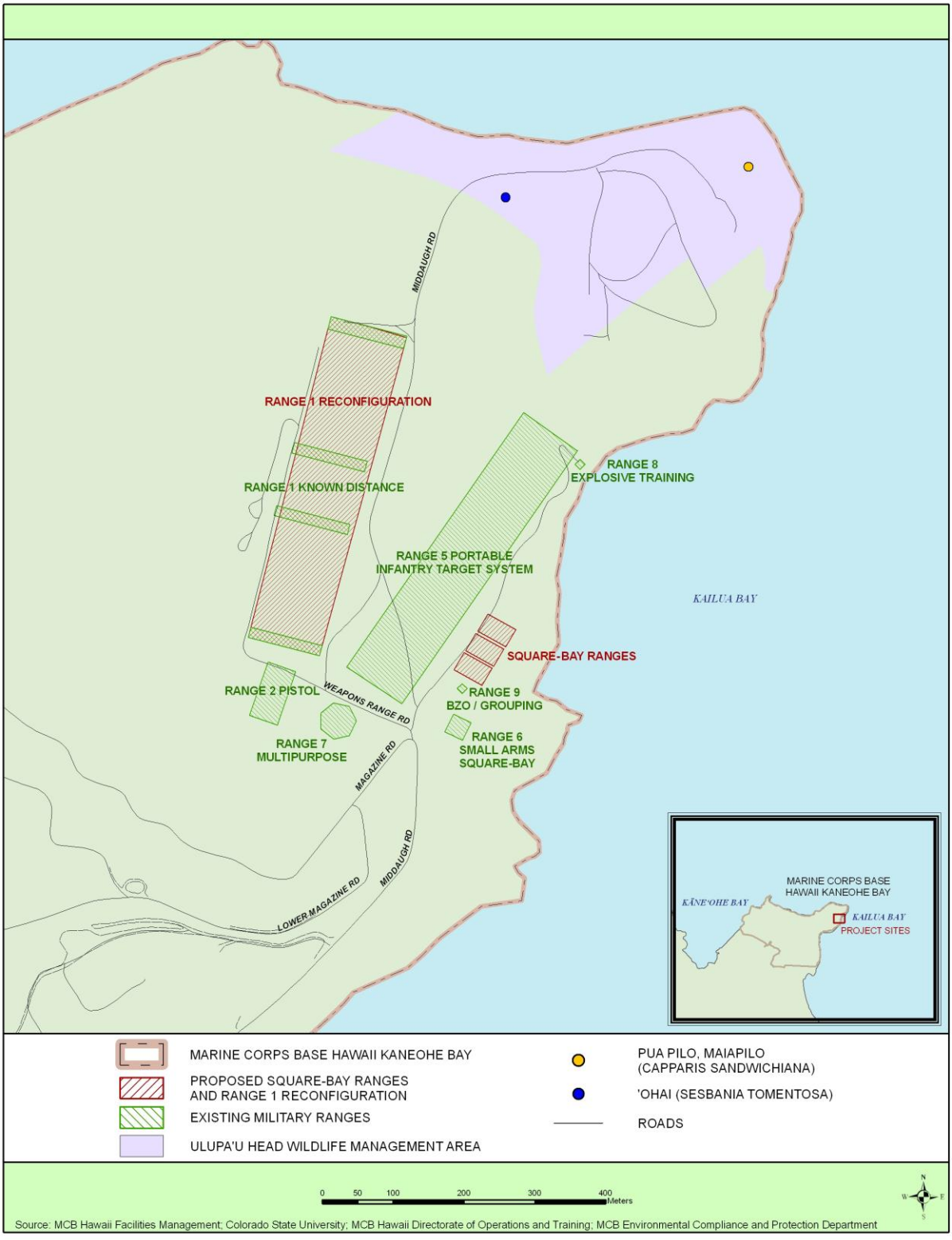

Figure 3-2. Location of the Ulupa‘u Head Wildlife Management Area and historic rare plant species occurrences.

3.4.3 Marine Fauna

Surface waters surrounding Mōkapu Peninsula are classified and regulated by the state of Hawaii under Title 11, Hawaii Administrative Rules, Department of Health, Chapter 54, Water Quality Standards. The waters of Kailua Bay and outer portions of Kāneʻohe Bay are designated Class A marine waters, which has a management objective to protect the waters for recreational purposes and aesthetic enjoyment (Department of Navy 2006).

A variety of marine species and environmentally sensitive coral reef communities occurs in the waters surrounding the base. Live coral colonies, sponges, bryozoans, sabellid worms, tunicates, burrow-dwelling gobies, spiny balloon fish, and schools of transient fish such as jacks and sting rays have been documented in the Kāneʻohe Bay zone. Coral coverage is up to 50 percent in some places within the bay. In addition, there are abundant populations of 20 or more fish species, with an abundance and diversity of species similar to that of the open ocean zone found in the Kailua Bay zone.

Nearshore and offshore waters host several federally listed species, including the threatened green sea turtle (feeding on the abundant mats of sea grass occurring on the sand slopes of the lagoon in the transition zone) and the endangered Hawksbill turtle (*Eretmochelys imbricata*) that regularly feeds in nearshore waters. Several "false nest" attempts have been reported from these species along Mōkapu shoreline beaches. The endangered Hawaiian monk seal (*Monachus schauinslandi*) occasionally uses the Mōkapu shoreline beaches for resting, and the endangered humpback whale (*Megaptera novaeangliae*) has been observed in the waters surrounding the Mōkapu Peninsula. There are also several islets located off the Mōkapu Peninsula that are restricted-access seabird sanctuaries, owned and controlled by the state (Department of the Navy 2006).

3.4.4 Environmental Consequences to Marine Fauna

3.4.4.1 Alternative 1: Proposed Action – Ulupaʻu Range Redesign

The potential soil disturbances from the Range 9 safety berm reconstruction and square-bay range construction if not monitored and mitigated, could result in temporarily increased erosion and runoff into the ocean, negatively impacting coral reef community structure, and possibly impacting habitats and species. Sea turtles and other species that depend on coral habitat would have reduced foraging opportunities and limited habitat options as a result. Mitigation in the form of minimizing site disturbance during construction; stopping work during rainfall events; using erosion control fabric/matting, vegetation, and ground cover for any disturbed areas; and trapping sediment in catchment basins or behind silt fences would reduce erosion and the threat of increased runoff into the ocean. These areas would be regularly monitored for erosion during and after construction. Therefore, it is anticipated that effects on marine fauna would not be significant.

3.4.4.2 Alternative 2: No Action

No additional effects to coastal and marine components would be expected from the no-action alternative.

3.5 COASTAL AND REEF SYSTEMS

A variety of coral reef communities and features occurs in the waters surrounding the base. The *Coastal and Marine Resources Inventory* was initiated in 2003 and completed in 2008 (Foster et al. 2008) in support of management objectives for MCB Hawaii's littoral (i.e., nearshore) areas. One of the goals in the 2001 *MCB Hawaii Integrated Natural Resources Management Plan* is to improve inventory information and conditions of biological and geophysical processes and features in MCB Hawaii littoral areas (Drigot et al. 2001). The geographic scope of the inventory was focused on the offshore restricted-access 500-yard security buffer zone around Mōkapu Peninsula, which is where most of the significant marine and coastal natural elements and habitats under MCB Hawaii stewardship responsibility are concentrated. The inventory area was divided into 11 survey stations that were evaluated by field surveys during the periods of April-

August 2004. Station (study area) 3 is located adjacent to the Ulupau RTF (Figure 3-3). The survey participants documented presence and general distribution of coastal terrestrial and nearshore coral reef species and habitats within each of these survey areas, recorded observations on the overall condition of these areas, identified threats, and offered a number of conservation recommendations based on survey findings[2].

Station 3 has eastern exposures to trade winds and large waves and swells. The area supports a very complex coral reef community with moderate to high relief (e.g., spur-and-groove formations, arches and overhangs). Algae, coral (e.g., *Montipora* sp. and *Porites* sp.), mollusks and urchins are well represented. Sub-habitat features include urchin bore holes and channels, patches of sand, small crevices, and large outcrops. Reproductive capacity for algae, mollusks, urchins and corals is high. Metal debris (I-beam), fish netting (gillnet), metal cable (~2 centimeter diameter), and UXO (small bullets and bombs) were observed throughout the survey area. The area supports a variety of macro algae, coral, macro invertebrate, and reef fish species. Some coral show evidence of lesions and bleaching. The trend in reef system health is currently unknown.

Threats identified by Foster et al. (2008) that pose a significant risk to coral reef systems at station 3 include unexploded ordnance of various types and sizes, abandoned fishing gear, and assorted marine debris. Some UXO appeared to be rolling around on the reef, producing a negative scouring effect by limiting growth and reproduction of sessile organisms. Other pieces of UXO appeared to be encrusted in place by coralline algae and coral. Chemical impacts of UXO on the coral reef system at the site are unknown. The possibility of damage to the reef system from accidental detonation of UXO was noted. Several types of abandoned fishing gear (e.g., rod and reel, gillnet and traps) were observed at station 3, whereby fishing gear had become entangled on coral colonies or lodged in the reef, abrading colonies and the reef pavement with repetitive motion primarily driven by swells and waves. This sort of negative impact not only stresses existing corals and other benthic organisms, but dramatically limits recruitment within the affected area. Pieces of marine debris (e.g., metal, plastic, netting and wooden material) were observed at station 3. Most debris had become entangled with coral colonies, encrusted by coral or coralline algae, or has rolled around on the reef, scouring and abrading sessile marine organisms and limiting recruitment.

Conservation recommendations in Foster et al. (2008) include general recommendations as well as the following recommendations for coral and macroinvertebrate protection specific to station 3 adjacent to the Ulupau RTF:

1. Sessile marine organisms, such as corals and many macroinvertebrate species, remain vulnerable to physical (e.g., scouring or accidental detonation) and possible chemical impacts that may be associated with discarded [historic] UXO observed at station 3. There is concern regarding UXO-related impacts to coral reef at station 3, since the [historic] range likely provides a constant supply of UXO to the nearshore marine environment [through natural erosion processes]. (Foster et al. recommendation #9)

[2] Description of station 3 environment, threats, and recommendations condensed from Foster et al. (2008).

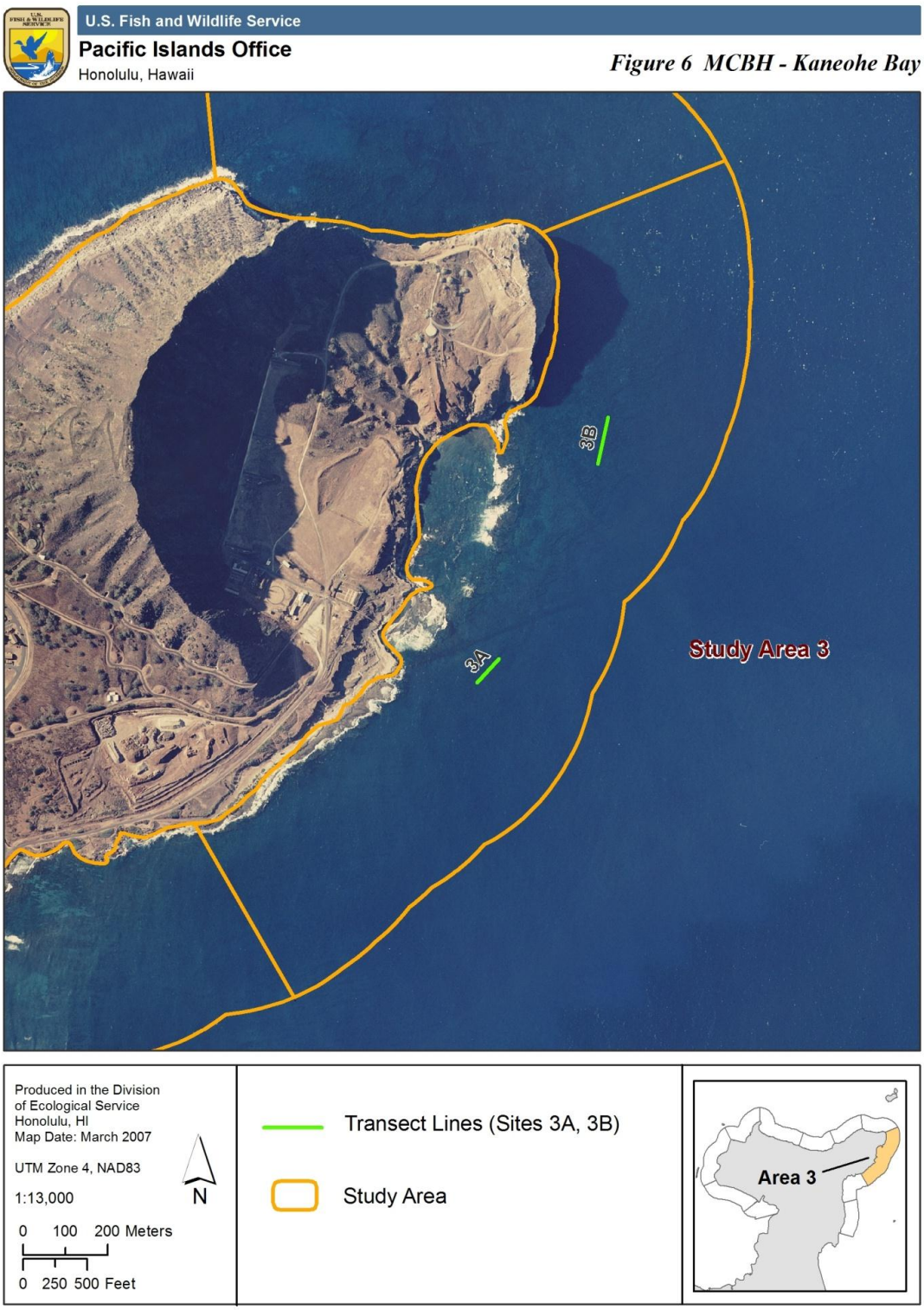

Figure 3-3. Location of *Coastal and Marine Resources Inventory* study area/station number 3 adjacent to the Ulupau Range Training Facility (from Foster et al. 2008).

2. Periodic inspections of station 3 should be coordinated with UXO specialists to identify the location of discarded ordnance. UXO removal should be coordinated with state and federal resources and conducted in a manner that does not harm the coral reef. Special emphasis should be placed on removing UXO from station 3, since this may represent the largest number of pieces of UXO that may occur in the intertidal and nearshore marine environment [surrounding the installation]. (Foster et al. recommendation #10)

3. Perform surveys every six years, with special attention to data gaps for coral functional groups at station 3B. (Foster et al. recommendation #16).

3.5.1 Environmental Consequences to Coastal and Reef Systems

3.5.1.1 Alternative 1: Proposed Action – Ulupau Range Redesign

At Ulupau RTF, the nearshore area and reef systems are occasionally subject to sediment plumes associated with runoff from the installation. Threats to the reef system noted in Foster et al. (2008) consist of UXO and debris that scours the ocean bottom and damages coral. The proposed action would have no or minimal effect on nearshore water quality since those impacts would be minimized by the use of best management practices during and after construction and ongoing maintenance of erosion and sediment control measures. Following construction, the risk of runoff and sediment from Ulupa‘u Crater may actually be reduced compared to current levels due to the construction of erosion, sediment control, and runoff best management practices. Mitigation best management practices, monitoring, oversight by MCB Hawaii environmental and facilities staffs, and agency permitting requirements would ensure that risk associated with sediment and runoff are minimized. There would be no disturbance to the coastal strand or nearshore ocean bottom. There would be no generation of debris or new UXO with potential to damage reef systems. The increases and changes in training activities described under the proposed action would not adversely affect surface water quality or reef systems. The proposed action is listed as a *de minimis* activity agreed upon by the Department of the Navy and the State of Hawaii Coastal Zone Management (CZM) Program, and as such, is not subject to further review under the State CZM Program.

3.5.1.2 Alternative 2: No Action

Under no action, the current condition of reef systems may be maintained. Identified threats and conservation recommendations presented in Foster et al. (2008) would be considered in management planning and activities to minimize anthropogenic impacts on reef systems.

3.6 CULTURAL AND ARCHAEOLOGICAL RESOURCES

3.6.1 Affected Environment

Construction and use of the RTF redesign includes the Range 1 reconfiguration area and the three proposed square-bay range locations located within the Ulupa‘u Crater. The proposed action would take place within an area of low archaeological sensitivity (U.S. Army Corps of Engineers, Honolulu District 2006: Figure B-1). Mōkapu Peninsula is of legendary importance to Native Hawaiians and is the setting for a number of Hawaiian origins stories. Additionally, more burial sites have been identified on the peninsula than at any other location in the Hawaiian Islands. Fifty-two archaeological sites have been recorded on the Mōkapu Peninsula. None of the recorded sites at MCB Hawaii Kaneohe Bay are within the Ulupa‘u Crater. Marine Corps Base Hawaii Kaneohe Bay has upwards of 478 buildings and structures constructed prior to 1960, many of which are considered eligible for inclusion in the National Register of Historic Places (U.S. Army Corps of Engineers, Honolulu District 2006); however none of these historic structures are located within the project area. The World War II era Battery Pennsylvania is located on the crater rim to the northeast, outside the area directly affected by the proposed action.

3.6.2 Environmental Consequences to Cultural and Archaeological Resources

3.6.2.1 Alternative 1: Proposed Action – Ulupau Range Redesign

No known historic properties are expected to be impacted by the RTF redesign. The area is considered to be of low archaeological sensitivity and no historic structures or archaeological sites occur within the area of potential effect. The State of Hawaii Historic Preservation Officer concurred with MCB Hawaii determination of no historic properties affected under NHPA Sec 106 consultation.

3.6.2.2 Alternative 2: No Action

Under the no-action alternative, the range would not be redesigned/constructed at Ulupa'u and no additional impacts to cultural resources would occur.

3.7 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Socioeconomics focuses on the general features of the local economy that could be affected by the proposed action. U.S. Marine Corps Hawaii continues to play an important role in Hawaii's regional economy. During FY 2006, total expenditures for MCB Hawaii exceeded $521 million, which includes $516 million of payroll expenditures (Department of Defense 2006). These expenditures contribute nearly $1 billion in direct and indirect economic activity for the state of Hawaii (based on a 1.84 multiplier: 2002 input-output study for Hawaii [Hawaii Department of Business 2006]).

The alternatives carried forward for analysis in this EA involve range training facilities (RTF) and training activities for personnel stationed at MCB Hawaii Kaneohe Bay. This analysis centers on the related socioeconomic impacts of existing training activities and a proposed action to meet current combat marksmanship training requirements. These impacts largely encompass construction activities and generation of noise that can spill over to adjacent suburbs (communities).

Most of the personnel stationed at MCB Hawaii are at two principal installations: Kaneohe Bay and Camp H. M. Smith. Kaneohe Bay is the larger of the two and is located on Mōkapu Peninsula, the eastern side of O'ahu. Camp H.M. Smith is on the western slope of Halawa Heights, near Pearl Harbor. The Kaneohe Bay installation is shared with the U. S. Navy. These installations are relatively important in terms total personnel and expenditures and thus make a significant contribution to Hawaii's economy (Department of Defense 2006).

The Ulupa'u range is located on the north eastern tip of the peninsula, which provides a wide buffer between the residential areas adjacent to the base.

Marksmanship training for stationed personnel is a critical part of preparedness training and is currently conducted at several locations: Ulupau RTF, the Puuloa RTF, and Schofield Barracks (U.S. Army facility). Because MCB Hawaii's facilities are not adequate for meeting established training doctrines, personnel must commute to Schofield Barracks to complete a portion of the prescribed training (close engagement and unknown distance).

Use of Schofield's facilities is challenging for Marine personnel. Because the facility receives heavy use by the Army and other higher priority personnel, it is very difficult for Marine personnel to plan training at the facility. This has resulted in numerous delays and longer required periods to complete necessary training. When training is possible, long commutes are required and logistic support is costly. Because prescribed combat training follows a sequential process, the existing facilities constraints have a detrimental impact on meeting training requirements.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of

environmental laws, regulations, and policies. Environmental justice is achieved when everyone enjoys the same degree of protection from environmental and health hazards.

3.7.1 Environmental Consequences to Socioeconomics and Environmental Justice

3.7.1.1 Alternative 1: Proposed Action – Ulupau Range Redesign

Under the proposed action, MCB Hawaii would construct three new small arms ranges and reconfigure Ranges 1 and 9 at Ulupau RTF at Kāneʻohe Bay.

Construction expenditures for new range construction and redesign at Ulupau RTF is estimated at $2.6 million. The transitory economic effects from these construction-related expenditures, including the multiplier (1.84), are estimated at $4.78 million. Construction would be completed within one year after preliminary work was completed. Once in operation, the enhanced RTF at Ulupaʻu would require a negligible increase in support personnel, and thus operating costs would only increase slightly. It is expected that the savings that would result from reduced use of Schofield's RTF would substantially offset these higher operating costs under this alternative.

Because the noise would not increase, in adjacent neighborhoods, it is reasonable to conclude that no environmental justice issues are raised by the proposed project.

3.7.1.2 Alternative 2: No Action

Under the no-action alternative, the proposed range reconfiguration, construction, and change to training activities would not take place. The no-action alternative would preclude MCB Hawaii units from meeting the prescribed marksmanship training at Ulupau RTF. MCB Hawaii personnel would continue to commute to Schofield Barracks for training at substantially greater cost of time and higher logistics support. These facilities are heavily utilized by Army and other higher priority personnel, which results in scheduling conflicts and substantial delays for the completion of required training. Reliance on Schofield facilities for training jeopardizes preparedness of Marine personnel, and imposes longer training schedules and/or increased deployment times to ensure that training standards are met prior to combat deployments. This alternative is not considered feasible because the existing facilities cannot support current and emerging marksmanship training doctrines.

3.8 NOISE

Noise is defined as any unwanted sound. Defining characteristics of noise include sound level (amplitude), frequency (pitch), and duration. Each of these characteristics plays a role in determining the intrusiveness and level of impact of the noise on a receptor. Sound levels are measured on a logarithmic decibel (dB) scale, reflecting the relative way in which differences in sound energy levels are perceived. A sound level that is 10 dB higher than another would normally be perceived as twice as loud while a sound level that is 20 dB higher than another would be perceived as four times as loud.

Annoyance is the most common effect of noise on humans. It can interfere with activities such as conversation, watching television, using a telephone, listening to the radio, and sleeping. Whether or not an individual becomes annoyed by a particular noise is highly dependent on emotional and situational variables of the listener as well as the physical properties of the noise. However, when assessed over long periods of time and with large groups of people, a strong correlation exists between the percentage of people highly annoyed by noise and the time-averaged noise exposure level in an area (Finegold et al. 1994).

3.8.1 Department of Defense Noise Guidelines

The Department of Defense began developing noise evaluation and management programs in the early 1970s. Initial program development involved the Air Installation Compatible Use Zone program for military airfields. Early application of the Air Installation Compatible Use Zone or AICUZ program emphasized Air

Force and Navy airfields. The Army implemented the program as the Installation Compatible Use Zone program by addressing both airfield noise issues and other major noise sources, such as weapons testing programs and firing ranges. Three broad noise exposure zones are used as the basis for characterizing various land use compatibility conditions (Table 3-2). At noise levels greater than 87 dB (unweighted peak noise level) the percentage of the highly annoyed population can reach 39 percent.

Table 3-2. Noise zones defined in Army Regulation 200-1 (Source: US Army 1997).

Noise Zone	Small Arms, Peak Unweighted dB Range	Percent of Population Highly Annoyed	Acceptability for Noise-Sensitive Land Uses
Zone I	Up to 87 dB Peak	Less than 15 percent	Acceptable
Zone II	87 to 104 dB Peak	15 to 39 percent	Normally Acceptable
Zone III	Over 104 dB Peak	Over 39 percent	Unacceptable

The primary sources of noise at Ulupau RTF are the existing firing ranges and aircraft noise from helicopters. No complaints have been filed from the surrounding populace related to range firing at either location (MCB Hawaii Public Affairs Office personal comm.).

3.8.2 Environmental Consequences for Noise

This section briefly describes the methods used to assess noise impacts associated with the noise generated during the proposed training. Rifle range noise is classified as impulse noise –very intense sounds of short duration (e.g., the discharge of a weapon). The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommends using peak decibel levels (dBP) when discussing impulsive noise (USACHPPM 2005). For this environmental assessment, noise contours associated with 87 and 104 dB were generated to determine the potential for annoyance and complaints from the proposed action.

The Small Arms Range Noise Assessment Model (SARNAM), a software program that calculates and displays noise level contours for firing operations at small arms ranges, was used to assess the potential noise level during training. SARNAM is designed to consider type of weapon and ammunition, number and time of rounds fired, range attributes such as size and barriers, metrics and assessment procedure to estimate the contours at greater than 87 dBP and greater than 104 dBP. Data required for munitions noise modeling was gathered from range operators and users. For all analyses, best available information was used as required by NEPA.

3.8.2.1 Alternative 1: Proposed Action – Ulupau Range Redesign

Noise generated from construction activities associated with the proposed action would remain confined to the existing range area at Ulupaʻu Crater. The Ulupau RTF is located at the base of a steep-sided, eroded crater that faces toward the ocean. The SARNAM program cannot account for the steep terrain of the sides of the crater so berms were included in the program to simulate the effect the crater could have on the noise contours. Modeled noise contours for existing Range 1 usage are shown in Figure 3-4. Modeled noise contours associated with the proposed reconfiguration and use of Range 1 are shown in Figure 3-5 and predicted noise contours for the three square-bay ranges are shown in Figure 3-6. The Ulupau RTF is removed from Kāneʻohe Bay's main residential areas and, as shown by the figures, the reconfiguration would result in only slight changes to the noise contours and would not affect any residential areas. Therefore, noise impacts as a result of the proposed action are anticipated to be less than significant.

3.8.2.2 Alternative 2: No Action

The no-action alternative would not alter existing noise levels because training activities would continue at present levels.

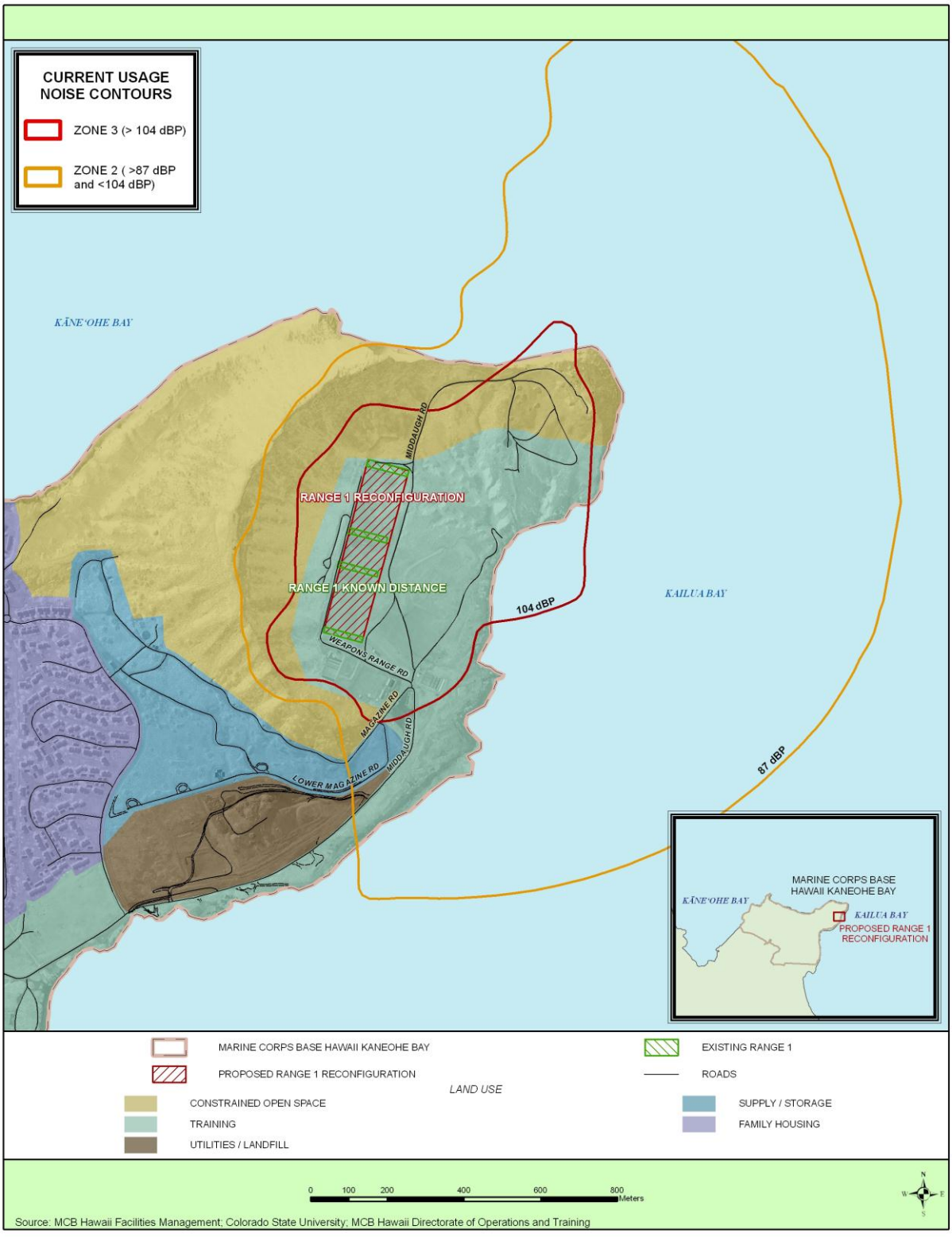

Figure 3-4. Modeled noise contours for current training at Range 1, Ulupau Range Training Facility.

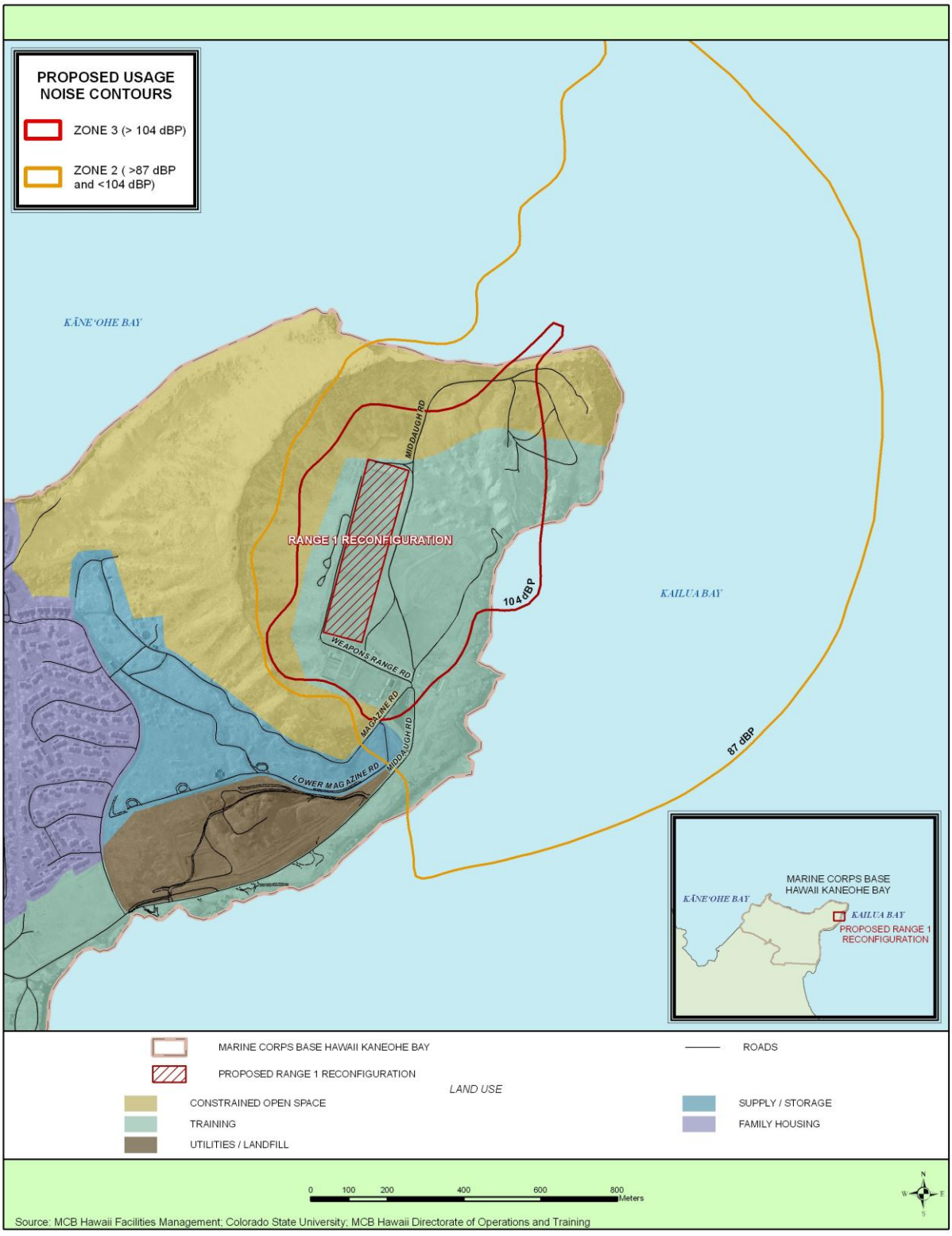

Figure 3-5. Modeled noise contours for reconfiguration and use of Range 1 as part of the proposed action at Ulupau Range Training Facility.

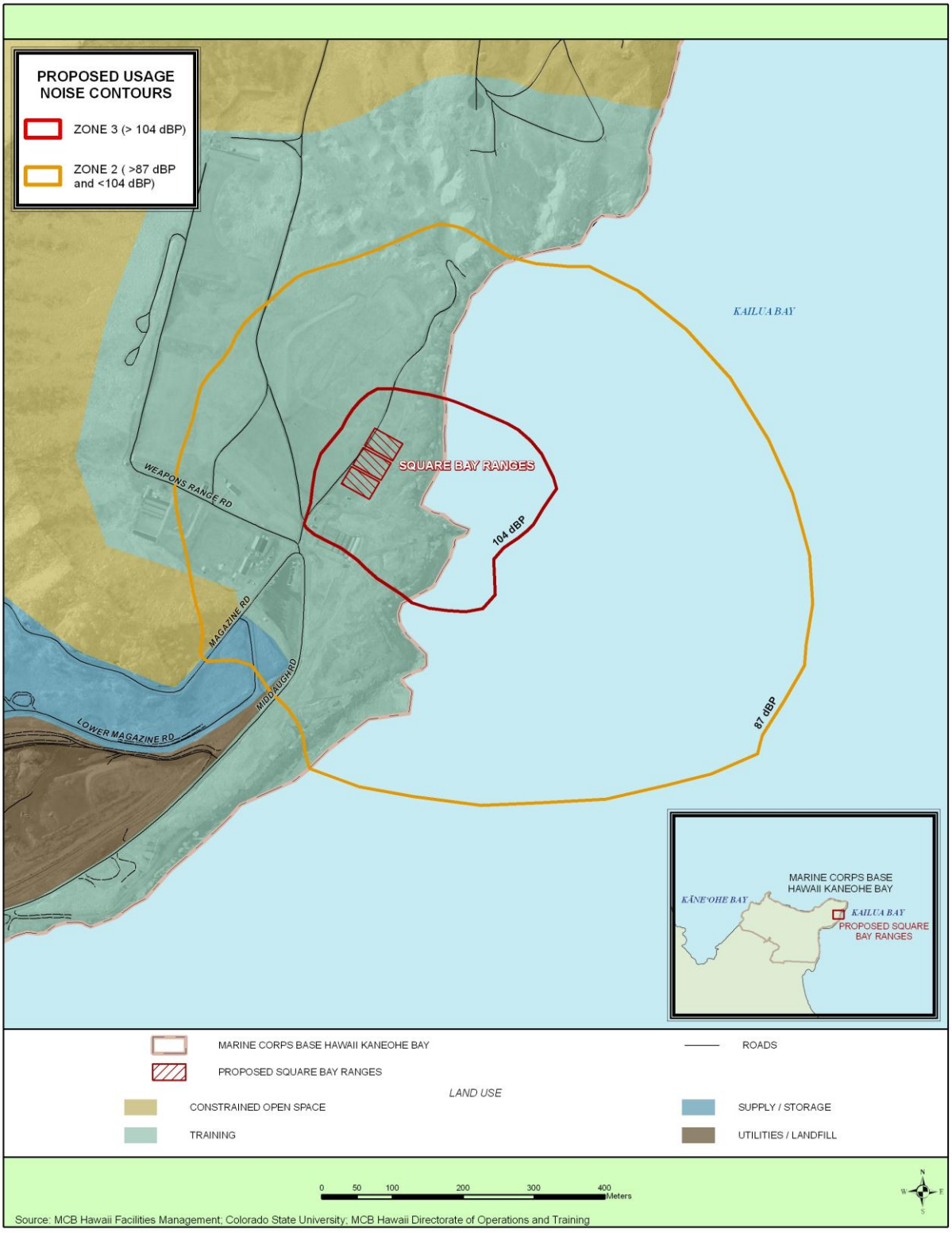

Figure 3-6. Modeled noise contours for three square-bay ranges as part of the proposed action at Ulupaʻu Range Training Facility.

3.9 ENVIRONMENTAL COMPONENTS NOT EXAMINED IN DETAIL

The description of the affected environment focuses on variables of environmental concern that would be potentially affected if the proposed action or alternatives were implemented. The following issues were omitted from this detailed analysis: air quality, land use, hazardous waste and human health and safety. These areas were deemed to be unaffected by implementation of the proposed action. The following sections describe omitted variables and issues and the basis for their treatment.

3.9.1 Air Quality

Air pollution in Hawaii is generally minimal due to the small size and isolated location of the state. The state's small size limits opportunities for locally generated air pollutants to accumulate or recirculate before being transported offshore and away from land areas. There would be no perceptible change to air quality under the proposed action. Emissions during construction would not increase the concentrations of any of the criteria pollutants substantially and these emissions would be temporary in nature, ending when construction was completed. In general, fugitive dust and combustive emissions would produce localized, short-term emissions that would not result in any long-term impact to air quality. Therefore air quality was not examined in further detail.

3.9.2 Wetlands and Floodplains

No wetlands are present in the vicinity of the proposed action or between the proposed project sites and the ocean. No floodplains or flood hazard areas have been identified within the Ulupa'u Crater. Construction and activities described under the proposed action would not affect or alter the status or flow of floodways, drainage structures, or floodwaters.

3.9.3 Land Use and Recreation

Land uses would continue to be consistent with existing military land uses and military-related activities. The area offshore from Ulupau RTF is accessible by boat, and is used by the public for recreational boating and fishing. The proposed action could have a minimal incremental impact on public access or recreational use of these waters due to the increased usage of the facility and related restrictions placed on the 500 m (1,640 ft) security buffer zone surrounding the terminus of the Mōkapu Peninsula. The overall footprint of surface danger zones extending into Kailua Bay would be relatively unaffected, as the overlap of existing surface danger zones from the Ulupau RTF ranges already create a nearly complete coverage. Surface danger zones extend approximately 4 km (2.5 mi) from shore, but recreation is not restricted past the 500 m security buffer zone. Visually, the area would not change from the perspective of boaters more than 500 m from shore or from Kailua Bay. In summary, no additional adverse impacts would occur to land use, recreation, or visual resources under the proposed action. Therefore, in-depth analysis is not warranted.

3.9.4 Hazardous Materials and Waste

Hazardous materials and waste are not expected to be encountered or generated during construction activities or result from training. Marine Corps Base Hawaii has a committed department and program that work to reduce waste and hazardous material usage, encourage recycling and promote environmental awareness. Both ranges would continue to be maintained and cleaned and spent munitions/lead disposed of under existing procedures already used at the ranges.

3.9.5 Health and Safety

Effects to human health and safety related to the range redesign would be minimal and no different from standard, on-going activities already occurring at Ulupau RTF. There are no specific aspects of construction, operations, or maintenance that would create unique or extraordinary safety issues. All facilities for firing are on military lands, would be contained within prescribed safety zones, and would not endanger civilian

populations. These types of activities currently take place on both ranges and existing safety procedures would be followed and continued under the proposed action.

3.9.6 Wildland Fire

Wildland fire risk would not increase as a result of the proposed action. At Range 1, the number of days of usage would increase; however, the number of rounds fired would decrease substantially, negating the potential effect of increased usage. The Range 9 redesign would neither alter the usage of the range nor the fire risk. The new ranges would be bermed, thus ensuring that rounds remain within the range, and would service only non-tracer ammunition, the combination of which reduces fire risk to negligible levels.

The existing wildland fire management protocols embodied in MCB Hawaii Base Order P1500.9 (MCBH 2008) are being updated by an improved Integrated Wildland Fire Management Plan (MCB Hawaii in prep.) prior to completion of the construction of the ranges. This plan would take into consideration all of the changes expected under the proposed action.

4.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.1 CUMULATIVE EFFECTS

A cumulative effects analysis considers the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present and reasonably foreseeable further actions regardless of what agency or person undertake such other actions" (40 CFR 1508.7). Assessing cumulative effects involves defining the scope of the other actions and their interrelationship with the proposed actions if they overlap in space and time. Cumulative effects are most likely to arise when a proposed action is related to other actions that could occur in the same location or at a similar time. Actions geographically overlapping or close to the proposed actions would likely have more potential for a relationship than those farther away. Similarly, actions coinciding in time with the proposed actions would have a higher potential for cumulative effects.

To identify cumulative effects, the analysis addresses three questions:

1. Could affected components of the proposed action interact with the affected components of past, present and reasonably foreseeable actions?
2. If one or more of the affected environmental components of the proposed action and another action overlap, would the proposed action affect or be affected by impacts of the other action?
3. If such a relationship exists, are there any potentially significant impacts not identified when the proposed action is considered alone?

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time in which the effects could occur. Actions not occurring in or near Ulupau RTF are not considered in the analysis. Primary sources of this analysis were public documents prepared by MCB Hawaii and personal communication with MCB Hawaii personnel.

No cumulative effects are identified for the proposed action. Cumulative effects to terrestrial flora and fauna from military land use can include impacts on federally listed species and their federally designated and critical habitats, impacts to sensitive species either by the loss or degradation of habitat or the spread and added competition from non-native species in training areas.. The proposed action is not likely to contribute to cumulative impacts to the biological variables of environmental concern present at Ulupau RTF Increased military use would not increase the presence of non-native species and may reduce the abundance of non-

native plants. No threatened or endangered species are expected to be affected at any of the proposed action locations.

In the event a federally listed species is inadvertently encountered during use of the Ulupau RTF, all activities in the area would be halted immediately, the individual(s) would be protected from further damage, Range Control would be notified, and any damage caused would be reported. The MCB Hawaii Environmental Compliance and Protection Department would be contacted for advisement.

4.1.1 Past, Present and Reasonably Foreseeable Actions

Marine Corps Base Hawaii is an active military installation that undergoes continuous changes in mission and training requirements. This process is consistent with the United States defense policy that the U.S. Marine Corps must be combat ready at all times. Other actions considered in assessing cumulative effects at Ulupa‘u include projects, training activities, and nonmilitary actions. The effects of past and present actions are expressed by the existing facilities and current condition of resources. Reasonably foreseeable actions occurring in or near the Ulupau RTF include the following:

Management Activities

- An Integrated Wildland Fire Management Plan has been developed for MCB Hawaii Kaneohe Bay, Marine Corps Training Area Bellows, and Puuloa Range Training Facility.
- One erosion control project recommended in the 2004 erosion assessment study of the Crater (SRGII 2004) was successfully implemented in 2008. This project of access road system improvements to remedy historic transport of sediment-laden stormwater runoff into marine waters of Kailua Bay. The project included regrading the access road, covering it with a geotextile liner, resurfacing it with basalt gravel, and constructing side slopes, broad-based dips tied to gravel-lined run-out ditches, and upslope diversion ditches. All ditches were lined with permeable geotextile mat anchored with basalt gravel. Small micro-basins were located at discharge locations to disperse runoff and reduce velocities. The best management practices dissipated stormwater runoff and eliminated a significant source of sediment-laden runoff into the coastal zone.

Other Projects

In addition to the proposed action described in this EA, the Projects completed recently include:

- Ulupau RTF: Grenade and shoot house construction.
- Explosives Training Range on the backside of Ulupa‘u Crater (environmental assessment in preparation).

4.1.2 Nonmilitary Activities

Nonmilitary activities can also contribute to cumulative effects. These include public recreation, such as use of oceans and beaches, and other activities affecting MCB Hawaii lands such as road realignment and construction projects. No planned projects affecting the project vicinity and variables of environmental interest are known.

4.2 CUMULATIVE EFFECTS BY VARIABLE OF ENVIRONMENTAL CONCERN

4.2.1 Geology and Soils

The proposed action is not likely to add measurably to existing effects due to the mitigation measures proposed, and the developed nature of the site.

4.2.2 Water Quality

Cumulative effects to surface and ground water would include incremental effects of past, present, and future projects on quality, quantity, and distribution of water. By implementing construction, design, and maintenance best management practices (Chapter 2), no effects to surface waters are anticipated. Proper stormwater management and permitting make it unlikely that significant runoff from the project site would occur. Groundwater would not be affected, as the project would not include deep excavations. Other past, current, and future projects abide by similar requirements and employ similar best management practices to protect ground and surface waters. Cumulative effects to surface and ground water are therefore considered minor.

4.2.3 Flora

Cumulative effects to vegetation from military land use can include impacts on federally listed species and their federally designated and critical habitats, impacts to sensitive species either by the loss or degradation of habitat, or competition from non-native species in training areas (USACE 2004). The proposed action would have a very minor cumulative effect on flora present at the previously disturbed site. No endangered plant species are expected or known in the vicinity of the proposed action.

4.2.4 Fauna

Cumulative effects to terrestrial and marine wildlife from military land use include impacts on federally listed species and their federally designated and critical habitats, impacts to sensitive species either by the loss or degradation of habitat or competition from non-native species in training areas. The proposed action is not likely to contribute to cumulative impacts to terrestrial or marine fauna. No threatened or endangered species are expected to be affected at the proposed action location.

If listed species or evidence of listed species are identified during construction activities, all activities in the area would be halted immediately to eliminate further damage, Range Control would be notified and any damage caused would be reported. The MCB Hawaii Environmental Compliance and Protection Department would be contacted for advisement.

4.2.5 Reef Systems

The proposed action is not likely to add measurably to existing effects due to the mitigation measures and best management practices proposed. The proposed action may help reduce periodic sediment plumes in inshore areas due to better management of erosion and sediment-laden runoff. If conservation recommendations from Foster et al. (2008) are implemented, then abrading and scouring of adjacent reef systems may be reduced. While direct anthropogenic effects on reef systems may remain minimal or be reduced, the effects of natural and climate change-induced stresses in the long term are unknown.

4.2.6 Cultural and Archaeological Resources

The reconfiguration would take place within the confines of the existing Range area. No known archaeological sites would be affected by the activities. Archaeological monitoring of construction would minimize or eliminate impacts to cultural resources.

4.2.7 Socioeconomics and Environmental Justice

The Range 9 reconfiguration would not contribute significantly to cumulative effects of socioeconomics and environmental justice.

4.2.8 Noise

The Ulupau RTF is removed from Kāneʻohe Bay's main residential areas and the reconfiguration would result in only slight changes to the existing noise contours. No residential areas would be affected.

4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA requires an analysis of significant, irreversible effects resulting from implementation of a proposed action. Resources that are irreversibly or irretrievably committed to a project are those that are typically used on a long-term or permanent basis; however, those used on a short-term basis that cannot be recovered (e.g., non-renewable resources) also are irretrievable. Irreversible commitments are those that cannot be reversed, except perhaps in the extreme long-term.

Most impacts associated with the proposed action are short-term and temporary, or longer lasting but negligible. Implementation of the proposed action would result in the irreversible commitment and expenditure of human labor that could not then be expected in the service of other projects. These commitments of resources are neither unusual nor unexpected, given the nature of the action. Redesign and construction of the Range 1 facility could result in irreversible commitment of fuel for construction vehicles and equipment and irretrievable commitment of land. Construction would result in irreversible commitment and expenditure of human labor that could not then be expected in the service of other projects.

4.4 CONCLUSION

Implementation of the proposed action would not result in significant unmitigable effects to any variables of environmental concern. Therefore, the proposed action, in conjunction with other actions on and in the vicinity of the reconfiguration at Ulupau RTF, would not result in significant cumulative effects.

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7.0 REFERENCES

Department of the Navy. 2006. Marine Corps Base Hawaii Master Plan (Volume I) and Capital Improvements Plan (Volume II). Naval Facilities Engineering Command Hawaii, Facilities Planning and Real Estate Department. Naval Facilities Engineering Command Hawaii.

Department of Defense. 2006. Directorate for Information Operations and Reports, Statistical Information Analysis Division, Work Force Publications 2007. Atlas/Data Abstract for the United States and Selected Areas Fiscal Year 2006. Date visited: April 7, 2008. http://siadapp.dmdc.osd.mil/.

Drigot, D.C., B.A. Wilcox, and K.N. Duin. 2001. Marine Corps Base Hawaii Integrated Natural Resources Management Plan and Environmental Assessment (MCB Hawaii INRMP/EA), (2002-2006), MCB Hawaii Environmental Department and Geo InSight International, Inc., Nov 2001.

Finegold L.S., Harris C.S., von Gierke H.E. 1994. "Community annoyance and sleep disturbance: Updated criteria for assessing the impacts of general transportation noise on people." *Noise Control Engineering Journal* 42: 25-30.

Hawaii Department of Business. 2006. The 2002 State Input-Output Study for Hawaii. Economic Development, and Tourism; Research and Economic Analysis Division.

Herbst, D. 1998. Botanical Survey of Selected Areas of MCBH, Kāneʻohe, Oʻahu, Hawaiʻi.

Marine Corps Base Hawaii (MCB Hawaii). 1997. MCB Hawaii Base Order P3574.6, Standing Operating Procedures for the Range Training Facility.

Marine Corps Base Hawaii (MCB Hawaii). 2008. MCB Hawaii Base Order P1500 - Standing Operating Procedures for Ranges and Training Areas. MCB Hawaii Kaneohe Bay.

Marine Corps Base Hawaii (MCBH). In prep. Integrated Wildland Fire Management Plan for MCB Hawaii. Prepared for MCB Hawaii Range Operation by the Center for Environmental Management of Military Lands, Colorado State University, Fort Collins, CO.

Marine Corps Base Hawaii and Sustainable Resources Group Int'l, Inc. (MCBH and SRGII). 2006. Final Marine Corps Base Hawaii Integrated Natural Resources Management Plan Update (MCB Hawaii INRMP) (2007-2011). Environmental Compliance and Protection Department, G4, Marine Corps Base Hawaii.

Rauzen, M.J. 1992. Field investigation progress report, Fish and Wildlife Management Plan Update for MCAS Kaneohe Bay. Prepared for MCBH Kaneohe Bay through the U.S. Army Corps of Engineers, Pacific Division, Ft. Shafter, HI.

Sustainable Resources Group Int'l Inc. (SRGII). 2002. Marine Corps Base Hawaii Invasive Species Management Study - Final Report. Prepared for: Environmental Compliance and Protection Department, Marine Corps Base Hawaii through: Naval Facilities Engineering Service Center.

SRGII. 2004. Landfill and Northeast Crater Catchment, Erosion Assessment Report with Recommendations. Prepared for Environmental Compliance and Protection Department, Marine Corps Base Hawaii. Final Report June 2004.

SRGII. 2005. Erosion Control Design/Instructions for Range Berms within Ulupa'u Crater - Final Report. Prepared for Environmental Compliance and Protection Department, Marine Corps Base Hawaii through the Naval Facilities Engineering Services Center.

SRGII. 2007. Erosion Assessment with Recommendations: Outer Slopes and Southeast Shoreline, Ulupa'u Crater, Marine Corps Base Hawaii. Final Report May 2007.

U.S. Army. 1997. Army Regulation 200-1: Environmental Protection and Enhancement. Chapter 7: Environmental Noise Management Program. Washington, DC. Internet web site: www.usapa.army.mil/gils/epubs4.html.

U.S. Army Engineer Research and Development Center. 2006. Fact Sheet for GEL-CORTM (January 2006) accessed 11/15/07 at www.erdc.usace.army.mil

USACHPPM. 2005. Operational Noise Management. An Orientation Handbook for Army Facilities. Aberdeen Proving Ground, Maryland. USACHPPM. Internet web site: http://chppm-www. apgea.army.mil/enp/enp.htm. November 2005/

U.S. Army Corps of Engineers, Honolulu District. 2006. Integrated Cultural Resources Management Plan (ICRMP) 2006-2010. Marine Corps Base Hawaii, O'ahu Hawai'i. Prepared for the Installation Commander, Marine Corps Base Hawaii by U.S. Army Corp of Engineers, Honolulu Engineer District. Prime Contractor: Wil Chee – Planning and Environmental. Subcontractors: Fung Associates Historic Architecture. Pacific Legacy, Inc. (Archaeology and Cultural Resources Management). Contract No. DACA83-00-D0012, T.O. 0007, 0030, 0042.

U.S. Marine Corps. 2000. Marine Corps Base Order P1500.9, SOP for Ranges and Training Areas. MCB Hawaii Kaneohe Bay, Hawai'i.

U.S. Marine Corps Headquarters. 2007. Marine Corps Order 3574.2K, Marine Corps Combat Marksmanship Programs. Washington, DC.

Appendix A. National Historic Preservation Act Section 106 Review – Concurrence with Determination

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESEERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

July 20, 2009

Major D. M. Hudock
Director, Environmental Compliance and Protection Department
United States Marine Corps
Marine Corps Base Hawaii
Box 63002
Kaneohe Bay, Hawaii 96863-3002

LOG NO: 2009.3152
DOC NO: 0907NM49

Dear Major Hudock:

SUBJECT: **Section 106 (NHPA) Consultation – Reconfiguration Ulupau Range Training Facility (RTF) Marine Corp. Base Hawaii**
Kaneohe *Ahupua'a*, Ko'olaupoko District, Island of O'ahu
TMK: (1) 4-4-09: 003

Thank you for your submittal of July 15, 2009. The proposed undertaking is the reconfiguration of the RTF (two small arms ranges (Range 1 and Range 9) and construction of three small arms square bay ranges. The SHPD concurs with the Marine Corps' determination of **no historic properties affected**" for the proposed undertaking.

Should you have any additional questions or concerns please do not hesitate to contact me, at 692-8015.

Sincerely,

Nancy A. McMahon

Nancy McMahon
Deputy State Historic Preservation Officer

c: U.S. Department of the Interior, National Park Service, Frank Hays, Director, Pacific West Region-Honolulu, West Regional Office, 300 Ala Moana, Blvd., Room 6-226, Honolulu, Hawaii 96850
National Trust for Historic Preservation, Brian R. Turner, Law Fellow, Western Office, The Hearst Building, 5 Third Street, Suite 707, San Francisco, California 94103
Historic Hawaii Foundation, Kiersten Faulkner, Executive Director, P.O. Box 1658, Honolulu, Hawaii 96806
Advisory Council on Historic Preservation, Kelly Fanizzo, Historic Preservation Specialist, Office of Federal Agency Programs, 1100 Pennsylvania Avenue N.W., Suite 809, Washington, D.C. 20004
Office of Hawaiian Affairs Honolulu, 711 Kapi'olani Boulevard, Suite 500, Honolulu, Hawai'i 96813

APPENDIX B

Coastal Zone Management Correspondence

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
ABBEY SETH MAYER
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-12644

July 9, 2009

Lieutenant Commander E. J. D'Andrea
Assistant Regional Engineer
Department of the Navy
Commander
Navy Region Hawaii
850 Ticonderoga Street, Suite 110
Pearl Harbor, Hawaii 96860-5101

Attention: Mr. Brian Yamada

Dear Lt. Commander D'Andrea:

Subject: Hawaii Coastal Zone Management (CZM) Program Federal Consistency Concurrence with Modifications to the Department of the Navy De Minimis Activities in Hawaii under the Coastal Zone Management Act (CZMA)

The Hawaii CZM Program has completed the federal consistency review of the proposed modifications to the list of Department of the Navy de minimis activities under the CZMA, including changes to various activity categories, adding new activity categories, and expanding the coverage to Marine Corps Base Hawaii Kaneohe Bay and Camp Smith. The CZM Program conducted a thorough review of the request and a public notice of the CZM review was published in the State of Hawaii Office of Environmental Quality Control's publication, *The Environmental Notice*, on June 23, 2009. The public was provided an opportunity to participate in the review through July 7, 2009. There were no public comments received.

We concur that the activities identified on the modified list entitled, "Navy/Marine Corps De Minimis Activities Under CZMA" are expected to have insignificant direct or indirect (cumulative and secondary) coastal effects, and should not be subject to further review by the Hawaii CZM Program on the basis and condition that the listed activities are subject to and bound by full compliance with the corresponding "Project Mitigation / General Conditions."

The Hawaii CZM Program reserves the right to review, amend, suspend, and/or revoke the "Navy/Marine Corps De Minimis Activities Under CZMA" list whenever it finds that a listed activity or activities will have reasonably foreseeable coastal effects. CZM consistency

concurrence does not convey approval with any other regulations administered by any State or County agency.

Modifying and expanding the list of Navy de minimis activities under the CZMA was a cooperative effort between our Office and Mr. Brian Yamada from the Department of the Navy, who interned with the Hawaii CZM Program in September 2008. We appreciate the efforts of Mr. Yamada in working with our CZM staff. The de minimis activities list will result in more efficient compliance with CZMA federal consistency requirements for both the Navy and the Hawaii CZM Program.

If you have any questions, please call John Nakagawa of our CZM Program at 587-2878.

Sincerely,

Abbey Seth Mayer
Director

c: U.S. Army Corps of Engineers, Regulatory Branch (w/ copy of de minimis list)
Ms. Rebecca Hommon, Region Counsel, Navy Region Hawaii

DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGION HAWAII
850 TICONDEROGA ST STE 110
PEARL HARBOR, HAWAII 96860-5101

5090
Ser N4/ 04163
01 JUN 2009

CERTIFIED MAIL NO. 7007 2560 0002 0326 9580

Mr. Abbey Mayer
Office of Planning
Department of Business, Economic
Development and Tourism
P. O. Box 2359
Honolulu HI 96804

Dear Mr. Mayer:

SUBJECT: REQUEST FOR CONCURRENCE WITH MODIFICATIONS TO THE DEPARTMENT OF THE NAVY DE MINIMIS ACTIVITIES UNDER THE COASTAL ZONE MANAGEMENT ACT (CZMA)

This letter is to request your concurrence with the attached list of Navy/Marine Corps de minimis activities under the CZMA. The attached de minimis list will amend the current de minimis list which was established on April 2, 2007. The new de minimis list will include the Marine Corps, and will cover areas in the Pearl Harbor Naval complex, Naval Magazine Lualualei, Naval Communications and Telecommunications Area Master Station Pacific, Pacific Missile Range Facility on Kauai, Kaneohe Marine Corps Base Hawaii, Camp Smith and all associated installations/facilities/equipment located outside of those Navy/Marine Corps properties.

The Navy and Marine Corps have determined that the listed Proposed Actions have insignificant direct or indirect (cumulative and secondary) coastal effects and should therefore be categorized as de minimis in accordance with the Department of Commerce, National Oceanic and Atmospheric Administration, CZMA Federal Consistency Regulations 15 CFR part 930.33 (3). With the corresponding mitigation and conditions applied, these actions would be exempt from a negative determination or a consistency determination from the State of Hawaii.

Should you have any questions, please contact Mr. Brian Yamada at 472-1449, by facsimile transmission at 474-5419, or by email at brian.yamada@navy.mil.

Sincerely,

E. J. D'ANDREA
Lieutenant Commander, CEC, U. S. Navy
Assistant Regional Engineer
By direction of the
Commander

Enclosure: 1.Navy De minimis Activities Under CZMA

Navy/Marine Corps De Minimis Activities Under CZMA

***covering areas in Pearl Harbor Naval Complex, Naval Magazine Lualualei, Naval Communications and Telecommunications Area Master Station (NCTAMS) Pacific, Pacific Missile Range Facility (PMRF), Kaneohe Marine Corps Base Hawaii, Camp Smith, and all associated installations/facilities/equipment located outside of these Navy/Marine Corps properties**

No.	Proposed Action	Description	Mitigation / Conditions
1	New Construction	Construction of new facilities and structures wholly within Navy/Marine Corps controlled areas (including land and water) that is similar to present use and, when completed, the use or operation of which complies with existing regulatory requirements.	1, 3, 6, 8, 9, 10, 11, 13, 14, 16
2	Utility Line Activities	Acquisition, installation, operation, construction, maintenance, or repair of utility or communication systems that use rights of way, easements, distribution systems, or facilities on Navy/Marine Corps controlled property. This also includes the associated excavation, backfill, or bedding for the utility lines, provided there is no change in preconstruction contours.	1, 10, 11, 12, 14, 16
3	Repair and Maintenance	Routine repair and maintenance of buildings, ancillary facilities, piers, wharves, dry docks, vessels, or equipment associated with existing operations and activities.	12, 14, 16
4	Aids to Navigation	Includes buoys, beacons, signs, etc. placed within Navy/Marine Corps controlled coasts and navigable waters as guides to mark safe water.	2, 5, 14, 16
5	Structures in Fleeting and Anchorage Areas	The installation of structures, buoys, floats and other devices placed within anchorage or fleeting areas to facilitate moorage of vessels within Navy/Marine Corps controlled property.	2, 5, 14, 16
6	Oil Spill and Hazardous Waste Cleanup	Activities required for the containment, stabilization, removal and cleanup of oil and hazardous or toxic waste materials on Navy/Marine Corps controlled property.	1, 8, 14, 16
7	Maintenance Dredging	Excavation and removal of accumulated sediment for maintenance to previously authorized depths.	2, 3, 4, 5, 7, 8, 9, 13, 14, 16
8	New Dredging	Excavation and removal of material from the ocean floor not to exceed 100 cubic yards below the plane of the ordinary high water mark or the mean high water mark from navigable waters of the US and; excavation and removal of material from the ocean floor within Navy/Marine Corps controlled property. This does not include dredging or degradation through coral reefs.	2, 3, 4, 5, 7, 8, 9, 13, 14, 16
9	Scientific Measuring Devices	The installation of devices which record scientific data (staff gages, tide gages, water recording devices, water quality testing and improvement devices and similar structures) on Navy/Marine Corps controlled property. Devices must not transmit acoustics (certain frequencies) that will adversely affect marine life.	1, 2, 14, 16
10	Studies and Data Collection and Survey Activities	Studies, data and information-gathering, and surveys that involve no permanent physical change to the environment. Includes topographic surveys, wetlands mapping, surveys for evaluating environmental damage, engineering efforts to support environmental analyses, core sampling, soil survey sampling, and historic resources surveys.	2, 3, 6, 8, 9, 11, 12, 13, 14, 16
11	Demolition	Demolition and disposal involving buildings or structures when done in accordance with applicable regulations and within Navy/Marine Corps controlled properties.	1, 11, 12, 14, 16
12	Military Testing and Training	Routine testing and evaluation of military equipment on or over military, or an established range, restricted area or operating area or training conducted on or over military land or water areas in which the impact is not significant.	9, 13, 14, 15, 16
13	Real Estate/Property Transfer	Real estate acquisitions or outleases of land involving new ingrants/outgrants and/or 50 acres or more where existing land use will change.	14, 16

ENCLOSURE(/)

14	Mission Changes	Mission changes, base closures/relocations/consolidations, and deployments that would cause long term population increases or decreases in affected areas.	14, 16
15	Limitation of Access to Property	Permanent closure or limitation of access to any areas that were open previously to public use, such as roads or recreational purposes (provided the access is not required by established agreements with State of Hawaii, private industry, etc.)	14, 16
16	Environmental Management Activities	Environmental management activities within Navy/Marine Corps controlled areas including, but not limited to, activities such as vegetation and mangrove removal, ditch clearing, sediment removal, invasive species removal, construction related to protecting endangered species and wildlife, and actions prescribed by the Integrated Natural Resources Management Plan (INRMP)	2, 13, 14, 16
17	Towers	Installation, operation, and maintenance of towers (such as communication towers, cellular phone antennas, wind-energy towers) within Navy/Marine Corps controlled areas.	1, 2, 6, 8,9 , 12, 13, 14, 16
18	Alternative Energy Research	Installation, operation, replacement, and removal of alternative energy research structures/equipment taking place within Navy/Marine Corps controlled areas.	1, 2, 3, 5, 6, 12, 13, 14, 16
19	Army Corps Nation Wide Permits	Work subject to an Army Corps of Engineers Nationwide permit (which are applicable to Hawaii)	16

Project Mitigation / General Conditions

1) Navy/Marine Corps controlled property refers to land areas, rights of way, easements, roads, safety zones, danger zones, ocean and naval defensive sea areas under active Navy/Marine Corps control.
2) If any listed species enters the area during conduct of construction activities, all activities should cease until the animal(s) voluntarily depart the area.
3) Turbidity and siltation from project related work shall be minimized and contained to within the vicinity of the site through appropriate use of effective silt containment devices and the curtailment of work during adverse tidal and weather conditions.
4) Dredging/filling in the marine/aquatic environment shall be scheduled to avoid coral spawning and recruitment periods.
5) All project-related materials and equipment (dredges, barges, backhoes, etc.) to be placed in the water shall be cleaned of pollutants prior to use.
6) No project-related materials (fill, revetment rock, pipe, etc.) should be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands, etc.).
7) All debris removed from the marine/aquatic environment shall be disposed of at an upland site or EPA approved ocean disposal site, and Best Management Practices shall be followed.
8) No contamination (trash or debris disposal, alien species introductions, etc.) of adjacent marine/aquatic environments (reef flats, channels, open ocean, stream channels, wetlands, etc.) shall result from project-related activities.
9) Fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored on-site, if appropriate, to facilitate clean-up of accidental petroleum releases.
10) Any under-layer fills used in the project shall be protected from erosion with stones (or core-loc units) as soon after placement as practicable.
11) Any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric, etc.) after exposure and stabilized as soon as practicable (with vegetation matting, hyrdroseeding, etc.).
12) Section 106, of the National Historic Preservation Act (NHPA), consultation requirements must be met. Also, follow guidelines in the area-specific Integrated Cultural Resources Management Plan (ICRMP) if applicable.
13) Navy/Marine Corps shall evaluate the possible impact of the action on species and habitats protected under the Endangered Species Act (ESA). If the Navy/Marine Corps determines that no such species or habitats will be affected by the action, neither U.S. Fish and Wildlife (FWS) Service nor National Oceanic and Atmospheric Administration (NOAA) concurrence is required. Should it be determined by the Navy/Marine Corps, FWS, or NOAA that the action may affect any such species or habitat, informal or formal consultation will be initiated by the Navy/Marine Corps as required by section 7 (Interagency Cooperation) of the ESA.
14) The National Environmental Policy Act (NEPA) review process will be completed.
15) The training, testing and evaluation will be conducted in accordance with applicable standard operating procedures protective of the environment.
16) Navy or Marine Corps staff shall notify State CZM of de minimis list usage for projects which require an Environmental Assessment (EA). Notification can be sent via email: to JNakagaw@dbedt.hawaii.gov