Final

Supplemental Environmental Assessment

for

MILCON Projects P-749 and P-750
Bachelor Enlisted Quarters

Marine Corps Base Hawaii – Kaneohe Bay
Island of O‘ahu, Hawai‘i

August 2011

Prepared for:

Naval Facilities Engineering Command Pacific
and
Marine Corps Base Hawaii – Kaneohe Bay

FINDING OF NO SIGNIFICANT IMPACT

Pursuant to the Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) implementing the National Environmental Policy Act and the Marine Corps Order P5090.2A, Environmental Protection and Compliance Manual, the United States Marine Corps gives notice that a Supplemental Environmental Assessment (SEA) has been prepared. The SEA evaluates the environmental impacts of a proposed parking lot for implementation of MILCON projects P-749 and P-750, Bachelor Enlisted Quarters (BEQs), at Marine Corps Base Hawaii - Kaneohe Bay, Oʻahu, Hawaiʻi. Based on the findings of this SEA, it is anticipated that the Proposed Action would result in minimal impact to the environment and an Environmental Impact Statement (EIS) is not required

PROPOSED ACTION

The Proposed Action is to construct an open, paved parking lot to provide approximately 54 additional parking spaces needed to satisfy the increased parking requirement for the BEQs being constructed under MILCON projects P-749 and P-750. The parking lot is currently an open field (partially covered by grass and other weedy vegetation and partially paved) and would be located across the Mōkapu Central Drainage Channel (MCDC) from the proposed BEQ complex.

The Proposed Action would extend from an existing parking lot that serves BEQs 7004, 7005, 7006, and 7007, and run parallel to the MCDC toward building 4014 and the existing pedestrian bridge that would provide access to the P-749/P-750 BEQs. The Proposed Action includes a parking lot and sidewalk, and would cover approximately 20,752 square feet (1,923 square meters) or 0.48 acre.

EXISTING CONDITIONS

The project site is currently an open field—partially covered by grass and weedy vegetation and partially covered by a paved surface that was once used for recreation.

ALTERNATIVES ANALYZED

Alternative Action 1 (No Action)

Alternative Action 1 is the No Action alternative. Under this alternative, no additional parking would be provided for the P-749/P-750 BEQs and parking accommodations for the BEQs would remain at approximately 55%.

Alternatives Eliminated From Further Study

Alternative Action 2: BEQ Complex Parking Garage

This alternative evaluated building a multiple-story parking garage adjacent to the P-749/P-750 BEQ site. The parking garage would have replaced the parking lot designed for the BEQs. This alternative was eliminated from further consideration because it would have significantly altered and delayed design and construction of P-749/P-750 due to site constraints and prohibitive costs. At this time, construction of the BEQs and

the infrastructure required to support them, including the on-site parking lot, is already underway, making construction of a parking garage at the site no longer possible.

Alternative Action 3: Parking Lot at Pollock Field

This alternative reviewed other potentially suitable sites for construction of an open parking lot. Very little developable space is available within the vicinity of the P-749/P-750 BEQ site. South of the Proposed Action, adjacent to Pollock Field, off of 3rd Street, is a small, undeveloped area that is currently being used as un-paved parking. This area could accommodate the 54 parking spaces needed; however, after further assessment it was determined that this site would be too far from the P-749/P-750 site for BEQ residents to walk. Such a distance could encourage residents to park in other lots nearer to the BEQ. These lots serve other facilities and their use by BEQ residents would cause congestion and displace vehicles that currently park there.

Furthermore, this site is already being used for parking by persons using Pollock Field and the adjacent armory. It is reasonable to assume that should the site be developed into a paved parking area, current site users would continue to park there, rendering the lot inadequate for the needs of the Proposed Action. Should controls be put in place to ensure that only BEQ residents parked in the lot, it would reduce the amount of available parking to users of Pollock Field and the adjacent armory. In turn, these displaced parkers could potentially create traffic and parking impacts elsewhere on the base.

ANTICIPATED ENVIRONMENTAL EFFECTS

The Proposed Action is not expected to result in any significant short- or long-term adverse environmental impacts. Implementation of Best Management Practices during construction and compliance with the Navy's Low Impact Development mandate would ensure that any potential impacts remain below a level of significance.

Due to the proposed site's proximity to the MCDC, site design strategies and components of the Proposed Action would reduce and filter any runoff that enters the channel, thereby minimizing potential impacts to water flow and water quality, and minimizing indirect impacts on associated biological resources, including the vegetated corridor along the MCDC and sensitive downstream areas. Any impacts on water or biological resources are anticipated to be less than significant.

The Proposed Action is located on lands identified as Archaeologically Sensitive Zone (Medium). Archaeological monitoring during construction would be conducted in areas where sand fill are identified due to the possibility of finding human remains in the fill. Impacts to archaeological or cultural resources are anticipated to be less than significant.

FINDING

Based on information gathered during preparation of this SEA, the Proposed Action—to provide approximately 54 paved parking spaces by constructing an open parking lot located across the MCDC from the MILCON P-749 and P-750 BEQs complex—would not have significant adverse environmental impacts. Consequently, an EIS is not required.

POINT OF CONTACT

The EA addressing this action is on file at, and interested parties may obtain a copy from: Naval Facilities Engineering Command Pacific, 258 Makalapa Dr, Suite 100, Pearl Harbor, Hawaii 96860-3134 (Attention: EV21/JB), telephone (808) 472-1196. A limited number of copies on compact disk are available to fill single-copy requests.

20110824

J. R. WOODS
Colonel, U.S. Marine Corps
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Date

COVER SHEET

Proposed Action	To provide approximately 54 paved parking spaces by constructing an open parking lot located across the Mōkapu Central Drainage Channel from the MILCON P-749 and P-750 Bachelor Enlisted Quarters complex.
Type of Document	Supplemental Environmental Assessment
Lead Agency	United States Marine Corps
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Abstract

In April 2009, an environmental assessment (EA) was completed to address proposed Military Construction (MILCON) Projects P-749 and P-750 Bachelor Enlisted Quarters (BEQs) at Marine Corps Base Hawaii - Kaneohe Bay, which resulted in a Finding of No Significant Impact (FONSI). During the design-build phase for the project, the number of living units within the BEQ complex was increased from 128 units to 150 units, which also increased the requirement for parking spaces. Site constraints precluded the provision of additional parking spaces to meet the increased parking requirement.

This Supplemental Environmental Assessment (SEA) evaluates potential environmental impacts that could result from the Proposed Action—construction of an open parking lot to satisfy parking requirements to support P-749/P-750. The parking lot would be located on the opposite side of the Mōkapu Central Drainage Channel (MCDC) from the BEQ site, would be accessed by an existing pedestrian bridge over the channel, and would provide approximately 54 additional parking spaces.

Environmental impacts evaluated in this SEA include impacts to the MCDC that could result from an increase in stormwater runoff, such as increased sedimentation and turbidity in the channel and the potential for flooding. The Proposed Action could result in a net increase of approximately 0.43 cubic feet per second of stormwater runoff, which represents a 0.06% and a 0.04% increase in the 10-year and 100-year stormwater flow in the MCDC, respectively. Under normal circumstances, a change of less than 0.5% is not considered a significant difference. Design-build phase mitigation measures in compliance with Low Impact Development standards should reduce that amount of runoff, further ensuring that runoff entering the MCDC remains below a level of significance. There are no anticipated impacts to soils, groundwater, surface water, or other natural or man-made environments from the Proposed Action.

This SEA tiers to the *Final Environmental Assessment for MILCON Projects P-749 and P-750, Bachelor Enlisted Quarters, Marine Corps Base Hawaii - Kaneohe Bay, Island of Oʻahu, Hawaiʻi* (April 2009), prepared for the Naval Facilities Engineering Command Pacific.

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ACRONYMS AND ABBREVIATIONS

BEQ	Bachelor Enlisted Quarter(s)
BMP	best management practices
CFR	Code of Federal Regulations
cfs	cubic feet per second
CWA	Clean Water Act
CZM	Coastal Zone Management
DBEDT	Department of Business, Economic Development, and Tourism
DOD	U.S. Department of Defense
EA	environmental assessment
EISA	Energy Independence and Security Act
EIS	environmental impact statement
EO	Executive Order
FONSI	Finding of No Significant Impact
ft	feet
GTF	Grow the Force
HPE	Hawaii Pacific Engineers
INRMP	Integrated Natural Resources Management Plan
LID	low impact development
LOS	level of service
m	meter(s)
MBTA	Migratory Bird Treaty Act
MCDC	Mōkapu Central Drainage Channel
MCW	Mōkapu Central Watershed
MDB	Mōkapu Drainage Basin
MILCON	military construction
NAVFAC	Naval Facilities Engineering Command
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System
POH	U.S. Army Corps of Engineers, Honolulu Engineer District
SAIA	Sikes Act Improvement Amendments
SEA	supplemental environmental assessment
SHPD	State Historic Preservation Division
sqft	square feet
sqm	square meters
U.S.	United States
USFWS	United States Fish and Wildlife Service
WCP	Wil Chee – Planning & Environmental

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SUMMARY

This Supplemental Environmental Assessment (SEA) examines potential environmental impacts resulting from the construction of a new parking lot proposed to be located across the Mōkapu Central Drainage Channel (MCDC) from Military Construction (MILCON) Project P-749 and P-750 Bachelor Enlisted Quarters (BEQ). The new parking lot is needed to provide additional parking to support design changes to MILCON P-749/P-750.

The Proposed Action is to provide approximately 54 additional paved parking spaces for MILCON P-749/P-750 by constructing an open parking lot across the MCDC from the new BEQs, currently under construction. The proposed parking lot would cover approximately 20,752 sq ft (1,923 sq m) or 0.48 acre. P-749 and P-750 were proposed to replace existing BEQs that did not meet the 2+0 BEQ living unit standard and to provide Marines with modern living quarters at Marine Corps Base Hawaii - Kaneohe Bay. Provision of vehicle parking is required in BEQ design, with the number of parking spaces prescribed by a formula based on the number of personnel a given BEQ is designed to accommodate.

The original design for P-749/P-750 called for a total of 128 rooms at double-occupancy, or 256 residents. With the parking requirement at 70% of the total number of BEQ occupants, 180 stalls were needed. However, site constraints were such that the provision of 180 parking stalls was not possible. The design team was able to provide approximately 164 stalls, or 64%, and received a waiver from the base command on the 70% requirement.

During the design-build process for P-749/P-750, the requirement for the total number of living units within the BEQ complex increased twice—first to 140 units, then to 150 units—due to evolving overall Marine Corps requirements, which also increased the requirement for parking. The parking requirement rose to 210 spaces (70% of 300 occupants). Without the ability to accommodate more than approximately 164 spaces on-site, the percentage of spaces provided dropped to about 55%, which was felt to be inadequate, unsuitable and, thus, non-waiverable.

This SEA addresses potential environmental impacts resulting from construction of an off-site supplementary parking lot, which would provide the BEQ complex with the addition of approximately 54 parking spaces and bring the BEQ complex in compliance with design standards. A summary of environmental impacts addressed in this SEA is provided below.

Topography and Soils: Marine Corps Base Hawaii - Kaneohe Bay is relatively flat, particularly in the vicinity of the Proposed Action. There would be no impacts to topography resulting from the Proposed Action. Impacts to soils would be short-term and associated with construction activities. The use of Best Management Practices (BMPs), including the use of silt fences, berms, cut-off ditches, dust barriers, ground cover vegetation, or the application of water and/or soil stabilization and protection materials during the construction period, would mitigate against any adverse impacts to soils.

Natural Resources (Terrestrial and Aquatic): There would be no impacts to terrestrial or aquatic resources. There are no natural occurrences within the Proposed Action site of plants pending, or currently listed, as threatened or endangered under the Federal Endangered Species Act.

Water Resources (Groundwater and Surface Water): The Proposed Action is not over or near any potable groundwater resources. There would be no impact to groundwater resources. Surface water in the vicinity of the Proposed Action is limited to the MCDC. Implementing BMPs and low-impact development (LID) design standards that slow and filter stormwater runoff before it enters the MCDC would ensure that no significant impacts to surface water would result from the Proposed Action.

Flood Hazard: The Proposed Action is not located in the 10-year or 100-year flood plain, nor would the Proposed Action contribute to flooding on adjacent or downstream properties. Therefore, there would be no adverse environmental impacts related to flood hazards from the Proposed Action.

Surrounding Land Use: The Proposed Action is located on land designated for Troop Housing. This land use is compatible with the Proposed Action and surrounding land use. Implementing the Proposed Action would support current and future land use.

Traffic, Circulation, and Parking: The Proposed Action is necessary to support MILCON P-749/P-750 BEQs and improve parking availability. The BEQ complex that the Proposed Action supports is proposed to replace substandard housing. The future BEQ residents are already residing on base. Therefore, there would be no change in traffic volume, only a slight change in traffic circulation from the Proposed Action, which is not anticipated to be significant.

Archaeological and Cultural Resources: The Proposed Action is located in an Archaeologically Sensitive Zone (Medium). It is possible, but highly unlikely, that any archaeological or cultural resources would be inadvertently discovered during the project's construction. If any resources are inadvertently discovered during digging or grading, the standard operating procedures (SOPs), as enumerated in the Integrated Cultural Resources Management Plan, would be implemented. SOPs include, but are not limited to, immediately ceasing land-disturbing work, protecting the resource from damage or loss, and contacting the base Cultural Resources Manager.

As previously noted, this document tiers to the *Final Environmental Assessment for MILCON Projects P-749 and P-750, Bachelor Enlisted Quarters, Marine Corps Base Hawaii - Kaneohe Bay, Island of O'ahu, Hawai'i* (WCP 2009). As such, mitigation measures and standard procedures outlined in the original EA would be adopted for this project.

1.0 INTRODUCTION AND PROJECT DESCRIPTION

1.1 INTRODUCTION

This SEA addresses the construction of a parking lot to support the parking requirements of the MILCON P-749 and P-750 BEQs, and was prepared pursuant to the National Environmental Policy Act (NEPA) as amended (42 U.S.C. 4321 et seq.) and its implementing regulations issued by the Council on Environmental Quality (40 CFR Part 1500 - 1508). Furthermore, this document was prepared in accordance with Department of Defense (DOD) Directive 6050.1 *Environmental Effects in the United States of DOD Actions,* Department of Defense Instruction 4715.9 *Environmental Planning and Analysis,* and 32 CFR Part 775 *Procedures for Implementing the National Environmental Policy Act*.

The goal of this SEA is to ensure that comprehensive and systematic consideration is given to potential impacts that may result from implementing the Proposed Action, as well as a range of reasonable alternative actions, upon the natural, man-made, and social environments. The findings presented in this SEA will result in either a FONSI, lead to preparation of an Environmental Impact Statement (EIS), or no action on the proposal.

1.2 PROPOSED ACTION

The Proposed Action is to construct an open parking lot to provide approximately 54 additional parking spaces needed to satisfy the increased parking requirement for the BEQs being constructed under MILCON projects P-749 and P-750. The parking lot would be located across the MCDC from the BEQ complex at a site that is currently an open field, partially covered by grass and other weedy vegetation and partially paved.

The Proposed Action would extend from an existing parking lot that serves BEQs 7004, 7005, 7006, and 7007, and run parallel to the Mōkapu Central Drainage Channel (MCDC) toward building 4014 and the existing pedestrian bridge that would provide access to the P-749/P-750 BEQs. The Proposed Action includes a parking lot and sidewalk, and would cover approximately 20,752 square feet (sq ft) [1923 square meters (sq m)] or 0.48 acre.

1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to provide additional parking spaces to support the P-749/P-750 BEQs. The Proposed Action is needed to satisfy the minimum parking requirements stipulated in UFC 4-721-10 Ch 3 (February 2010).

1.3.1 *PROJECT BACKGROUND*

MILCON projects P-749 and P-750 were proposed to replace existing BEQs that did not meet the 2+0 living unit standard and to provide Marines with modern living quarters at Marine Corps Base Hawaii - Kaneohe Bay. Provision of vehicle parking is required in BEQ design, with the number of parking spaces prescribed by a formula based on the number of personnel a

given BEQ is designed to accommodate. The original design for the BEQ complex called for a total of 128 rooms at double-occupancy, or 256 residents, which would require 180 parking stalls. However, site constraints were such that the provision of 180 parking stalls was not possible, and the design team was only able to provide approximately 164 stalls. The project received a waiver for the parking requirements due to site constraints.

During the design process, the requirement for the total number of living units within the BEQ complex increased twice—first to 140 units, then to 150 units—which also increased the requirement for parking to 210 stalls. Without the ability to accommodate more than approximately 164 spaces on-site, the percentage of spaces provided dropped to about 55%, which is felt to be inadequate and unsuitable, making the project ineligible for a waiver.

1.4 PROJECT LOCATION

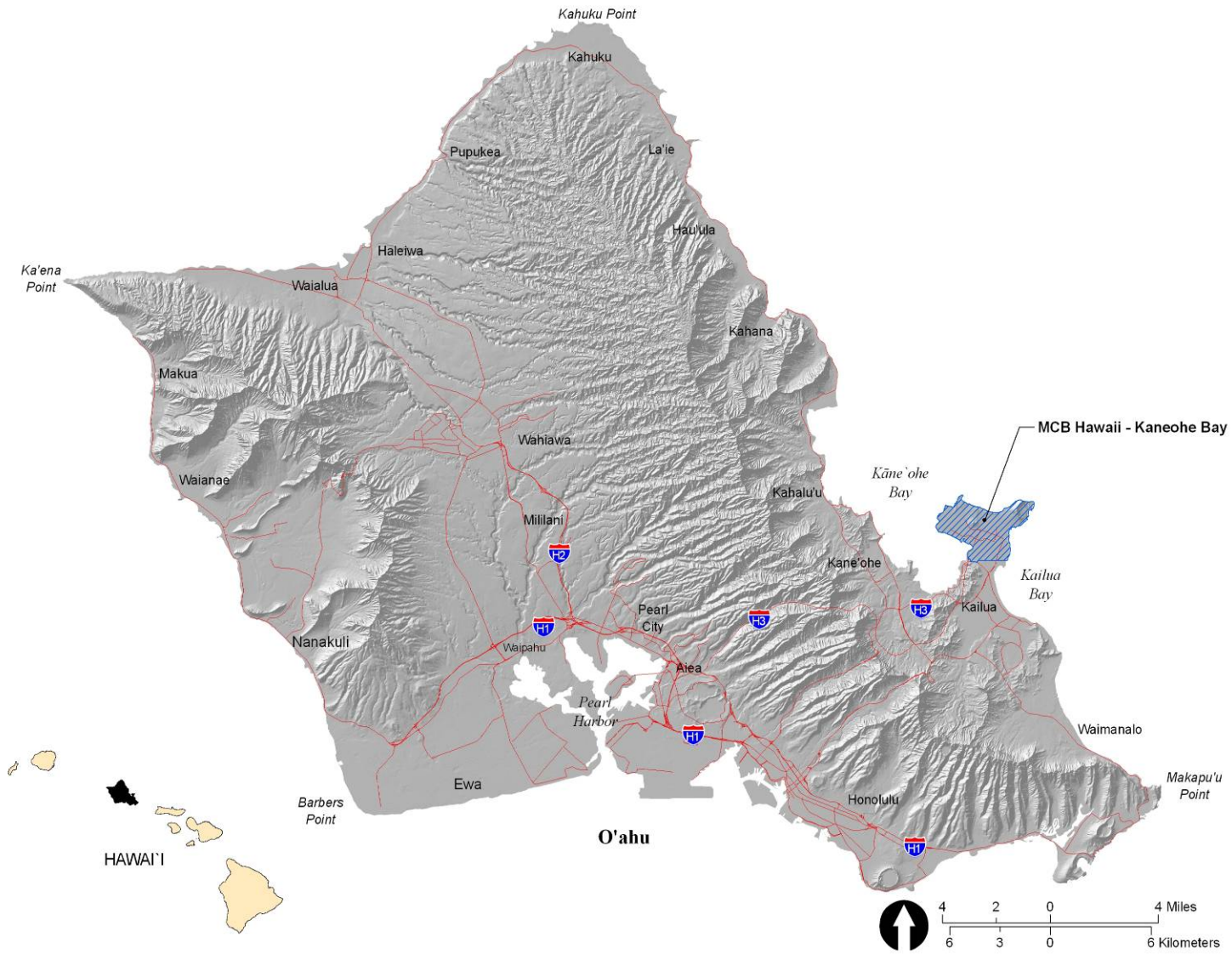
The Proposed Action is located at Marine Corps Base Hawaii – Kaneohe Bay, which is on Oʻahu's northeastern shore on Mōkapu Peninsula (Figure 1). Mōkapu Peninsula encompasses 2,951 acres and is bounded by Kāneʻohe Bay to the west, the Pacific Ocean to the north, Kailua Bay to the east, and private residential developments to the south. Kailua and Kāneʻohe are the nearest communities to Marine Corps Base Hawaii - Kaneohe Bay. The site of the Proposed Action is across the MCDC from the P-749/P-750 BEQ complex, between Mōkapu Road and Selden Street (Figure 2).

1.5 CURRENT AND PROPOSED SITE CONDITIONS

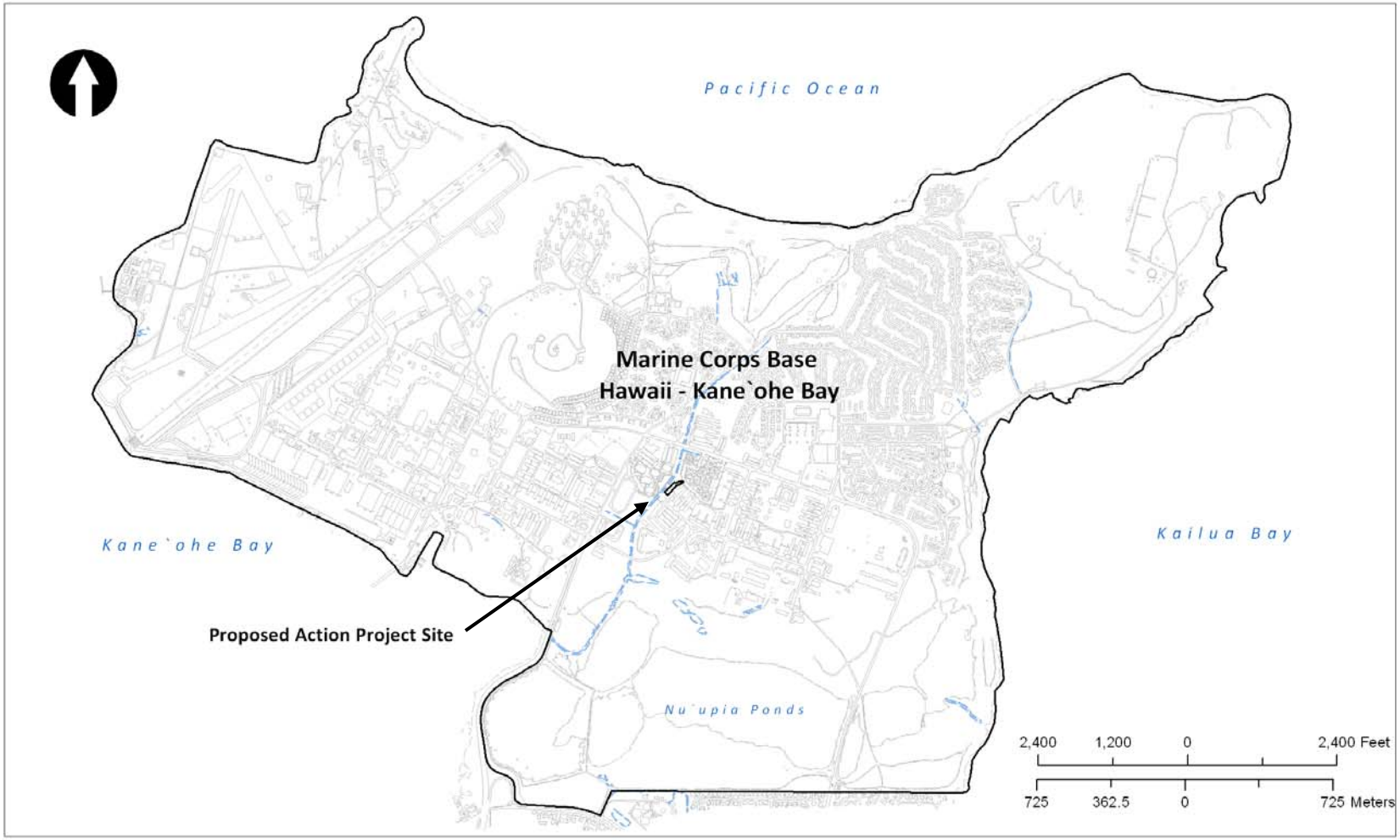
The project site is currently an open field—partially covered by grass and weedy vegetation and partially covered by a paved surface that was once used for recreation (Plates 1 and 2). The Proposed Action would cover a portion of the undeveloped open field, remove the paved recreation area, and create a new parking area designed to accommodate approximately 54 parking spaces.

1.6 ENVIRONMENTAL PERMITS

Permits are not anticipated for the Proposed Action as the project site occupies less than one acre; however, if during the design phase it is determined that 1 acre or more would be disturbed, an NPDES permit would be required.



SEA for P-749 andP-750 Bachelor Enlisted Quarters	Location Map	**Figure 1**



SEA for P-749 andP-750 Bachelor Enlisted Quarters	Marine Corps Base Hawaii - Kaneohe Bay, Site Map	**Figure 2**

Plate 1. Proposed Action Site, Looking East

Looking east at the Proposed Action site from the MCDC toward the site of a future mess hall. Vehicle access to the Proposed Action, marked by Point 1, would be through the adjoining parking lot viewed on the left. The proposed parking area would cover the grassy field shown in this view from Point 1 to approximately Point 2. Pedestrian access to the parking lot from the BEQ site is provided by a pedestrian bridge over the MCDC, which is located just outside this view by Point 3. The Points represented in this plate are approximate locations. (Photo taken 8 September 2010.)

Plate 2. Proposed Action Site, Looking West

Looking west at the Proposed Action site from the site of a future Mess Hall toward the MCDC. The proposed parking lot would cover approximately half of this paved area and the grassy field shown in Plate 1, extending from the existing parking lot, shown as Point 1, to the base of the palm tree on the left, shown as Point 2. The pedestrian access bridge is located at approximately Point 3. The Points represented in this plate are approximate locations. (Photo taken 8 September 2010.)

Plate 3. MCDC, Facing North From Proposed Action Project Site

The Mōkapu Road bridge over the MCDC can be seen in the distance. On the left-hand (west) side of the MCDC are existing BEQs. (Photo taken 18 June 2010.)

Plate 4. MCDC, Facing South From Proposed Action Project Site

The pedestrian access bridge can be seen in the distance. Beyond the bridge, on the right-hand (west) side of the MCDC is the P-749/P-750 BEQ site (beyond the existing BEQ with green roof) and on the left-hand (east) side of the MCDC are B4014 and other BEQs. (Photo taken 18 June 2010.)

Plate 5. Pedestrian Access Bridge over the MCDC

This pedestrian access bridge would provide the primary connection between the Proposed Action site and MILCON P-749 and P-750 BEQs. (Photo taken 18 June 2010.)

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 DETAILED DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action is to increase the amount of parking stalls available to support MILCON projects P-749 and P-750 with the addition of approximately 54 paved parking spaces. The additional parking spaces would be provided by constructing an open parking lot located across the MCDC from the P-749/P-750 site, between other BEQs located off Mōkapu Road, and north of Selden Street (Figure 3).

Design and construction standards for the Proposed Action would follow U.S. Department of the Navy and Department of Defense (DOD) requirements for low-impact development (LID) for stormwater runoff and siltation avoidance. Mitigation against runoff pollution or interference with wildlife would be built into the Proposed Action following the same protocols outlined in the original EA for this project. Other built-in mitigation measures would also tier to protocols outlined in the original EA, including shielded outdoor lighting to reduce interference with endangered seabirds and shorebirds.

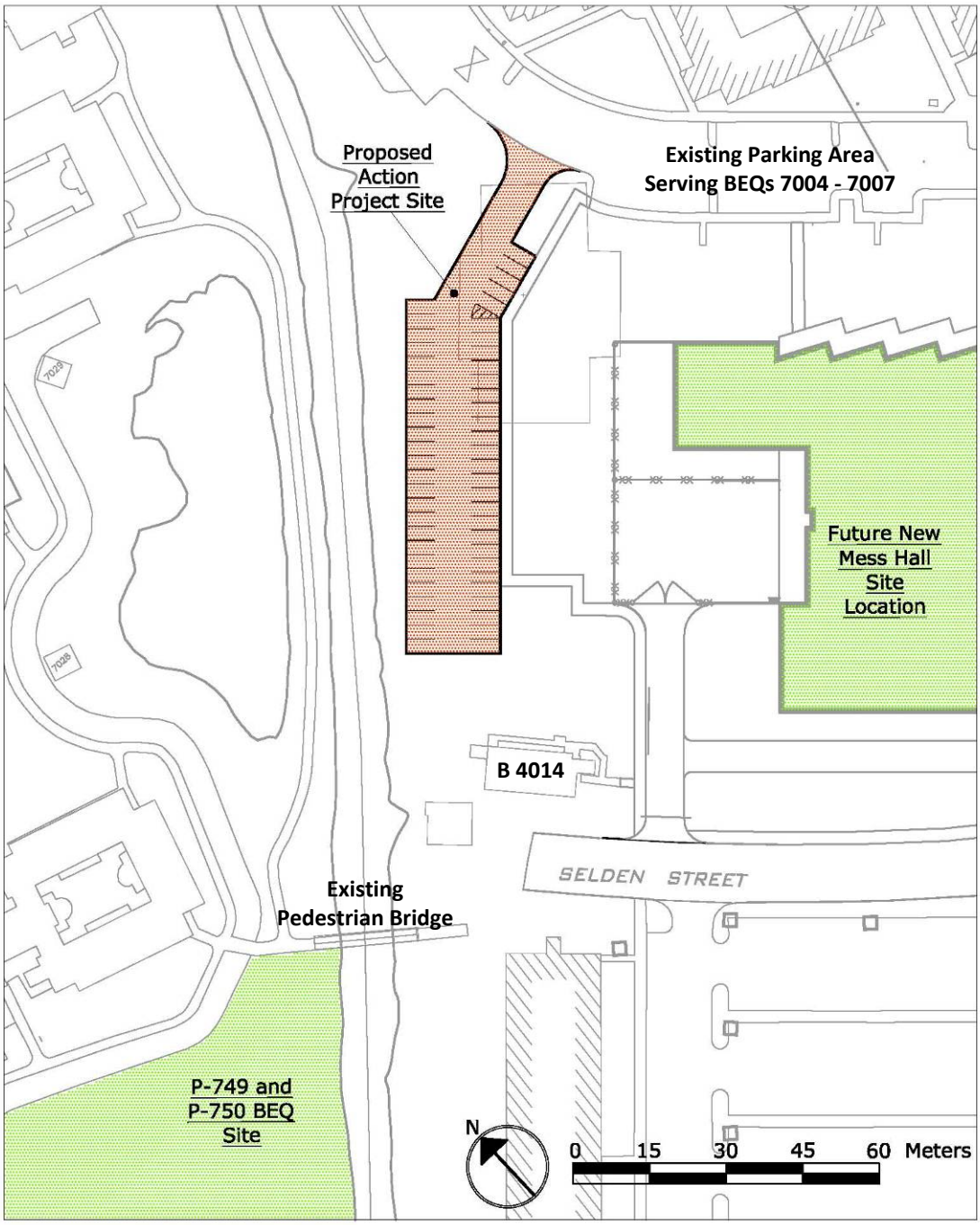
2.1.1 *PROPOSED ACTION LOCATION AND SELECTION PROCESS*

The Proposed Action would extend from an adjacent parking lot that currently serves BEQs 7004, 7005, 7006, and 7007. The parking lot would run parallel to the MCDC toward building 4014 and the existing pedestrian bridge that would provide access to the P-749/P-750 BEQs. The proposed parking lot and sidewalk would cover approximately 20,752 sq ft (1,923 sq m) or 0.48 acre.

This project site was selected due to its proximity to the P-749/P-750 site and the pedestrian bridge that would provide BEQ residents access between the BEQs and the supplementary parking area. Open space within reasonable walking distance of the P-749/P-750 site is extremely limited. The selected site for the Proposed Action has the fewest design constraints of the alternatives evaluated, presents no conflicts with surrounding land use, and is nearest to both the P-749/P-750 site and the pedestrian access bridge.

2.1.2 *POTENTIAL FUTURE ADDITIONS*

There is a possibility that the proposed parking lot would be modified in the future to add parking canopies that support photovoltaic panels. Currently, parking canopies with photovoltaic panels are being installed at existing parking lots at Marine Corps Base Hawaii - Kaneohe Bay. This program is part of an effort to supplement the base's sustainable energy sources. It also provides base residents with covered parking spaces. These structures are being installed as funding becomes available. The potential addition of parking canopies would not alter the affected environment of the Proposed Action or produce any negative environmental consequences. The covered parking structures would be installed within the footprint of the Proposed Action.



SEA for P-749 andP-750 Bachelor Enlisted Quarters	Proposed Action Site Plan	**Figure 3**

2.2 ALTERNATIVE ACTION 1: NO ACTION

Alternative Action 1 is the No Action alternative. Under this alternative, no additional parking would be provided for the P-749/P-750 BEQs and parking accommodations for the BEQs would remain at approximately 55%.

2.3 ALTERNATIVES ELIMINATED FROM DETAILED STUDY

The following discussion briefly summarizes the alternative actions that were examined, but eliminated from further consideration, and the reasons for their elimination. Figure 4 shows the approximate locations for each eliminated alternative.

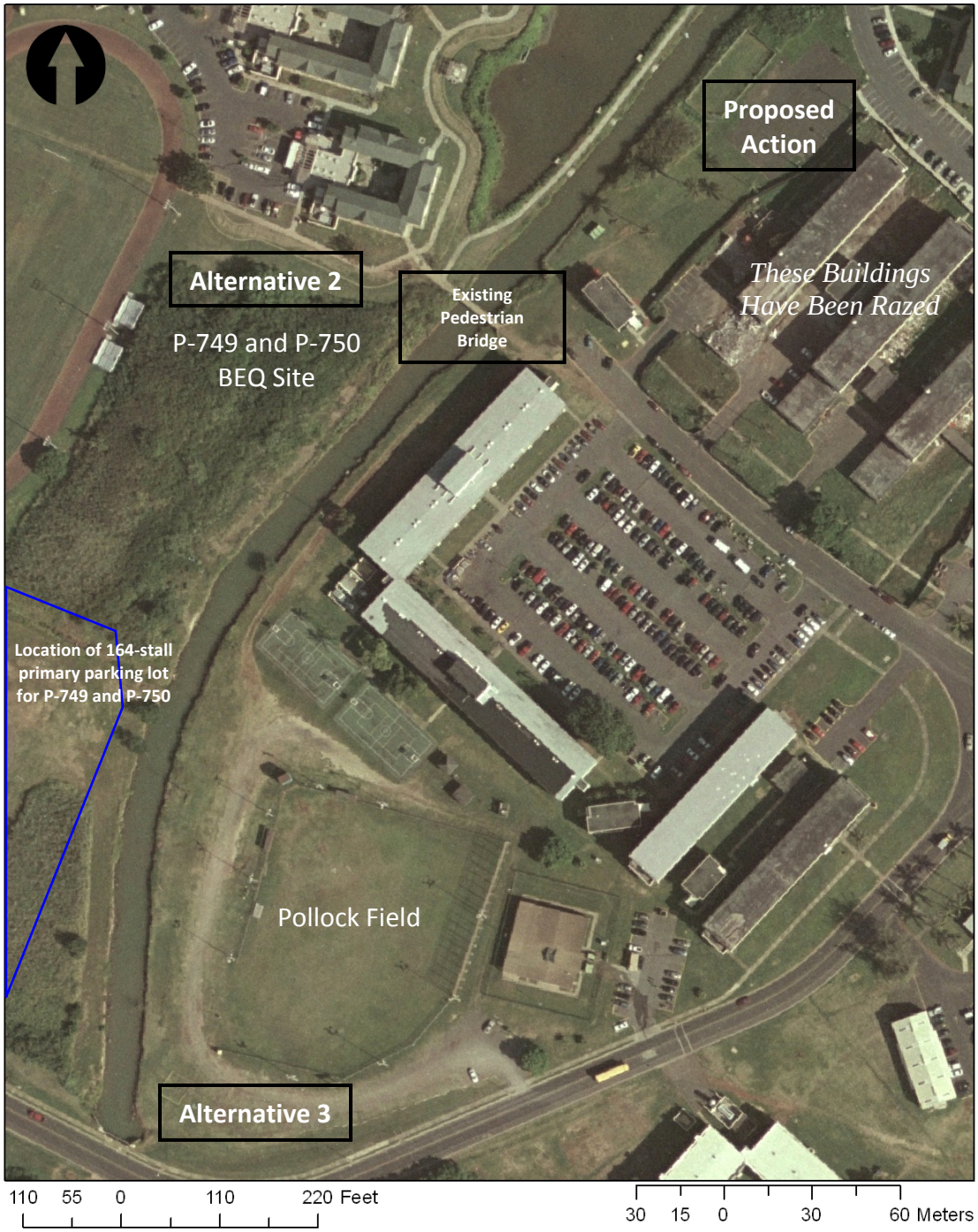
2.3.1 *ALTERNATIVE 2: BEQ COMPLEX PARKING GARAGE*

This alternative evaluated building a multiple-story parking garage adjacent to the P-749/P-750 BEQ site (Figure 4). The parking garage would have replaced the parking lot designed for the BEQs. This alternative was eliminated from further consideration because it would have significantly altered and delayed design and construction of P-749/P-750 due to site constraints and prohibitive costs. At this time, construction of the BEQs and the infrastructure required to support them, including the on-site parking lot, is already underway, making construction of a parking garage at the site no longer possible.

2.3.2 *ALTERNATIVE 3: PARKING LOT AT POLLOCK FIELD*

This alternative reviewed other potentially suitable sites for construction of an open parking lot. Very little developable space is available within the vicinity of the P-749/P-750 BEQ site. South of the Proposed Action, adjacent to Pollock Field, off of 3rd Street, is a small, undeveloped area that is currently being used as un-paved parking (Figure 4). This area could accommodate the 54 parking spaces needed; however, after further assessment is was determined that this site would be too far from the P-749/P-750 site for BEQ residents to walk. Such a distance could encourage residents to park in other lots nearer to the BEQ. These lots serve other facilities and their use by BEQ residents would cause congestion and displace vehicles that currently park there.

Furthermore, this site is already being used for parking by persons using Pollock Field and the adjacent armory. It is reasonable to assume that should the site be developed into a paved parking area, current site users would continue to park there, rendering the lot inadequate for the needs of the Proposed Action. Should controls be put in place to ensure that only BEQ residents parked in the lot, it would reduce the amount of available parking to users of Pollock Field and the adjacent armory. In turn, these displaced parkers could potentially create traffic and parking impacts elsewhere on the base.



SEA for P-749 andP-750 Bachelor Enlisted Quarters	Eliminated Alternatives 2 and 3 Location Map	**Figure 4**

3.0 AFFECTED ENVIRONMENT

The scope of the Proposed Action is to provide approximately 54 additional parking spaces for the MILCON P-749 and P-750 BEQ complex. As such, only those resources found to exist at the site of the Proposed Action or to be impacted by the Proposed Action, are discussed in this SEA. Best Management Practices (BMPs), design and construction guidelines, and adherence to federal, state, and local regulations for the Proposed Action will follow the guidance and recommendations outlined in the original EA.

Environments identified as warranting evaluation in this SEA include:

- Topography and Soils
- Natural Resources
- Water Resources
- Flooding Hazards
- Traffic, Circulation, and Parking
- Surrounding Land Use
- Archaeological & Cultural Resources

3.1 TOPOGRAPHY AND SOILS

Prior to development, the area of the Proposed Action was coastal marsh. During initial development of the base in the late 1930s early 1940s, the area of the Proposed Action was covered with fill and leveled to relatively flat topography. The project site elevation is approximately 10 ft (3 m) above mean sea level. Soil at the Proposed Action site is categorized as Fill Land (NAVFAC Hawaii 2006).

3.2 NATURAL RESOURCES

3.2.1 *TERRESTRIAL RESOURCES*

The project site is currently an open field, partially covered by grasses and weedy vegetation and partially paved. Flora at the site is dominated by nonnative, introduced grasses, such as California Grass (*Brachiaria mutica).* Interspersed throughout the site are various *Bidens* sp. and other weedy forbs. There are no natural occurrences within the Proposed Action site of plants pending, or currently listed, as threatened or endangered under the Federal Endangered Species Act.

The open grassy area of the project site is frequented by foraging birds, native and introduced alike, that scout the grounds for food, especially after a heavy rain. The predominant birds that would be observed in this grassy area include: Cattle Egret (*Bubulcus ibis*), Spotted Dove (*Streptopelia chinensis*), Zebra Dove (*Geopelia striata*), Common Myna (*Acridotheres tristis*), and the Northern Cardinal (*Cardinalis cardinalis*). The Kolea (Golden Plover, *Pluvialis dominica fulva*) is present seasonally, and very occasionally the endangered Aeʻo (Hawaiian stilt, *Himantopus mexicanus knudseni*) is observed in the area. Wedge-tailed shearwaters (*Puffinus pacificusi*) are known to frequent Mōkapu Peninsula and nesting grounds exist on the

peninsula, although not at this location (ECPD and SRG 2006, WCP 2009). Native black-crowned night herons (*Balearica pavonina*) are often seen foraging for fish along the shore of the MCDC.

Apart from shorebirds, there are a small variety of amphibians and small mammals that also may use the site. Bullfrogs (*Rana catesbiana*) and cane toads (*Bufo marinus*) occasionally may be observed, especially after rain. Rats (*Ratus ratus*) and mongoose (*Herpestes auropunctatus*) also may find cover in the weedy edges of the site.

3.2.2 *AQUATIC RESOURCES*

While the Proposed Action site does not encompass the MCDC or any aquatic flora or fauna, stormwater runoff from the site empties into the MCDC and thus the channel should be regarded as part of the affected environment.

The MCDC is an important corridor for ingress and egress of aquatic flora and fauna species between the marine and brackish water environments of Mōkapu Peninsula. The MCDC, which is a coastal estuary ecosystem, characteristically has a mud bottom, and soil banks with occasional outcrops of rock (basalt and limestone). Except in the recently improved watershed project location, the channel margins of the MCDC near the project site are mostly bare, but interspersed with invasive pickleweed (*Batis maritimus)*, an occasional milo tree (*Thespesia populnea*), and scatterings of invasive Indian fleabane (*Pluchea indica*).

The MCDC is host to a variety of aquatic fauna. Noted as present in the channel are a variety of zooplankton, which serve as an important food source for larger species of filter-feeders and crustaceans. Examples of filter-feeders and other crustaceans found in the channel are: barnacles (*Balanus* and *Chthamuls*), oysters (*Crasostrea* and *Ostrea*), ʻAlamihi or shore crab (*Metopograpsus thukuhar*), which are found in protected estuarine environments, and blue-claw swimming crabs (Family Portunidae, *Thalamita spp*.), which live submerged in sand-bottomed ponds (Wilcox et al. 1998 pg 6 - 8).

Many of the resident fish in the brackish waters of the MCDC are juvenile populations of oceanic fish that occur in the waters surrounding Oʻahu and enter the MCDC where it exits at Kāneʻohe Bay. The most commonly observed include: Mexican or Short-fin Mollies (*Poecilia mexicana*), Amaʻama or Striped Mullet (*Mugil cephalus*), Aholehole or Flagtail (*Kuhlia sandvicensis*), and Tilapia (*Oreochromis mossambica*) (Ibid pg 9).

3.3 WATER RESOURCES

3.3.1 *GROUNDWATER*

Mōkapu Peninsula is located within a basal groundwater area that is brackish. There are no potable groundwater wells on the base.

Soil borings taken at the P-749/P-750 BEQ site, during the project's preliminary design phase, encountered groundwater at depths ranging from 3.3 to 7.3 ft (1 to 2.2 m) below the existing grade (WCP 2009). It is surmised that groundwater levels fluctuate with the tide and rainfall levels. Groundwater conditions at the Proposed Action site are assumed to be similar to the nearby P-749/P-750 BEQ site.

3.3.2 *SURFACE WATER AND DRAINAGE*

The site for the Proposed Action is located within the Mōkapu Central Watershed (MCW), a coastal watershed that spans freshwater, marine, and estuarine ecosystems. The MCW is composed of two (2) distinct basins—Nuʻupia Basin, which makes up the southern half of the watershed, and Mōkapu Drainage Basin (MDB) to the north. The MCDC receives surface runoff from approximately 482 acres that comprise the MDB as delineated by a 2003 drainage study of the MCDC conducted by Hawaii Pacific Engineers (HPE). Figure 5 shows the delineation of the MDB as determined by HPE's 2003 study.

Drainage water in the overall MDB and at the Proposed Action site is comprised of natural surface runoff. Stormwater drainage from this area is regulated under Marine Corps Base Hawaii's Stormwater NPDES permit (Drigot 2005).

3.4 FLOOD HAZARD

The proposed project is immediately adjacent to the MCDC; however, the project location is outside of both the 10-year and 100-year flood zones for the channel (HPE 2003) (Figure 6). In 2005, Marine Corps Base Hawaii - Kaneohe Bay proposed implementing several improvements to the MCDC in order to "relieve localized flooding risk while restoring the historic landscape, wetland character, scenic, fish and wildlife habitat, and other valuable watershed functions along the Mokapu Central Drainage Channel" (Drigot 2005). The channel modifications were implemented and completed in 2007. Flood zone data for the channel has not been updated since channel improvements have been implemented; however, it is probable that these improvements further reduce the risk of flooding at the Proposed Action site, along the MCDC corridor, and further downstream. The proposed parking lot is not located within a tsunami inundation zone nor a Federal Emergency Management Area (FEMA)-designated flood zone.

3.5 TRAFFIC, CIRCULATION, AND PARKING

Vehicles enter Marine Corps Base Hawaii - Kaneohe Bay through one of two guarded gates. The primary entrance is through the gate located on G Street, which is accessible from the H-3 Freeway. The other entrance is through Mōkapu Gate, located at the end of Mōkapu Boulevard in the Aikahi Park area of Kailua.

Vehicle access to the Proposed Action would be provided through an existing parking lot that serves BEQs 7004, 7005, 7006, and 7007, which is accessed from Mōkapu Road. Approximately 164 parking spaces will be provided at the P-749/P-750 BEQ site. The Proposed Action would provide approximately 54 additional spaces in the supplemental lot. BEQ residents would either park in the lot at the BEQ site, or the proposed parking lot.

Traffic engineers describe traffic conditions using a six-tiered Level of Service (LOS) classification system that classifies conditions based on how well traffic flows and what level of congestion a driver may experience on a road or at an intersection. The six LOS classifications range from A to F, with an A-rating used to describe minimal delays and an F-rating used to describe a longer delay. Table 1 provides the LOS classification that would be used to describe the conditions at

an intersection based on the average period of delay a vehicle will experience at that intersection. In urban areas an overall intersection LOS of D or better is considered acceptable during peak hours.

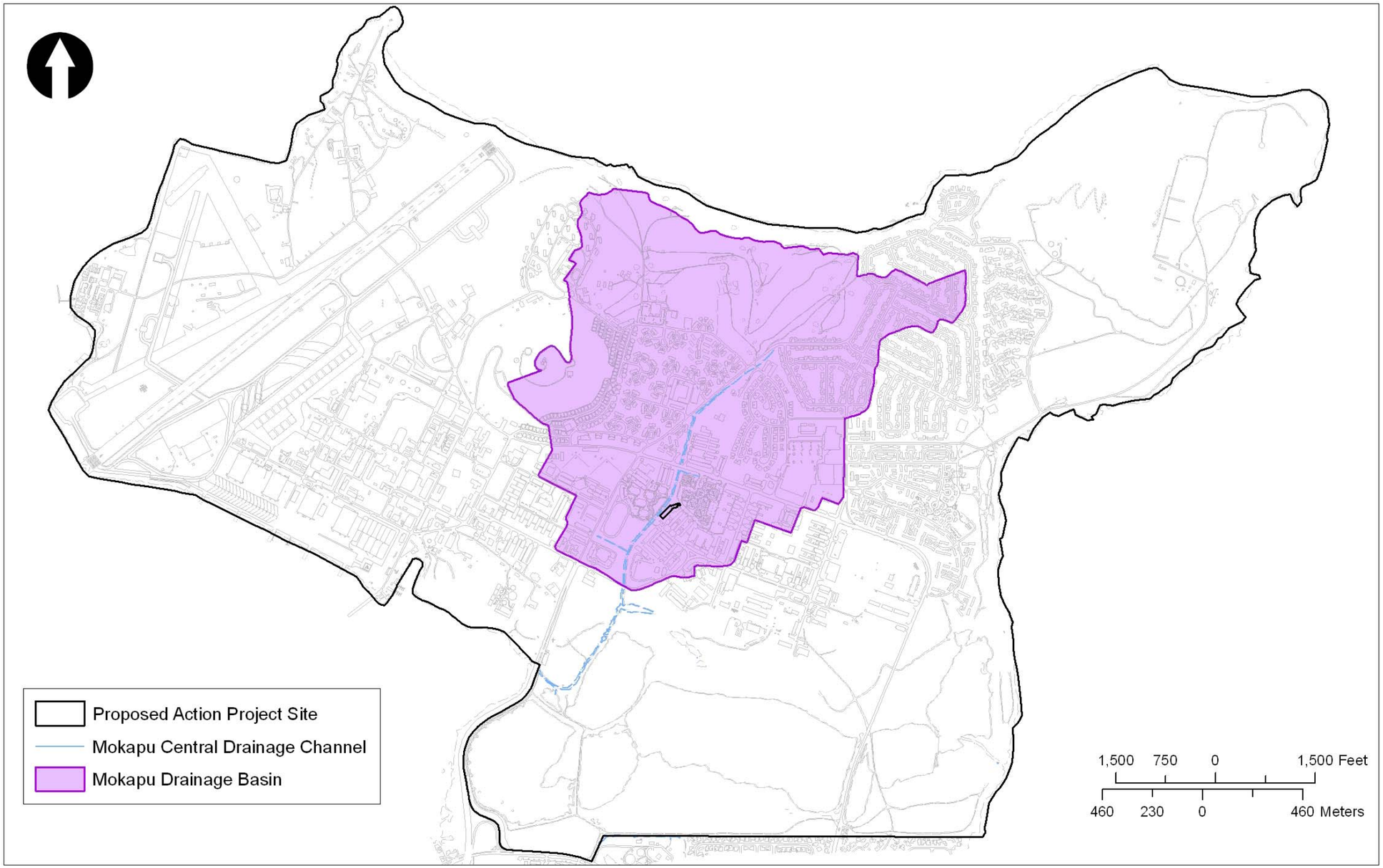
Table 1. LOS Classification System and Delays

Level of Service (LOS)	Average Delay Per Vehicle	
	at Unsignalized Intersections	at Signalized Intersections
A	up to 10 seconds	up to 10 seconds
B	> 10 and ≤ 15 seconds	> 10 and ≤ 20 seconds
C	> 15 and ≤ 25 seconds	> 20 and ≤ 35 seconds
D	> 25 and ≤ 35 seconds	> 35 and ≤ 55 seconds
E	> 35 and ≤ 50 seconds	> 55 and ≤ 80 seconds
F	> 50 seconds	> 80 seconds

(Source: Julian Ng, Inc. 2011)

In a recent traffic impact analysis conducted at Marine Corps Base Hawaii - Kaneohe Bay, traffic flow and delays were analyzed and LOS ratings were assigned for three peak traffic periods—morning peak, midday peak, and evening peak—for major intersections within the Base (Julian Ng, Inc. 2011). The intersection at Mōkapu Road and G Street/Lawrence Road, which would be the primary intersection between the P-749 and P-750 BEQ site and the Proposed Action, serves approximately 14,000 vehicles per weekday (Monday - Thursday). At the time vehicle counts were taken for this traffic study (September 2010), the Mōkapu Road and G Street/Lawrence Road intersection had an LOS rating of E, E, E during the morning, midday, and evening peak traffic periods, respectively. Since the vehicle counts were taken, this intersection was converted from a signalized intersection to an all-way stop intersection, which improved the LOS ratings to C, C, and D for each respective peak traffic period.

The main entrance to the Base was found to have the most severe traffic flow delays in the morning peak period. Average inbound traffic volumes at the main gate during a typical weekday (Monday - Thursday) are 1,050, 450, and 380 during the morning, midday, and evening peak traffic periods, respectively. The average daily traffic volume at the main gate is 7,840 vehicles. Average inbound traffic volumes for Fridays, Saturdays, and Sundays are 8,360, 5,730, and 5,000, respectively (Julian Ng, Inc. 2011).



SEA for P-749 and P-750 Bachelor Enlisted Quarters	**Mōkapu Drainage Basin** (Source: NAVFAC 2006)	**Figure 5**

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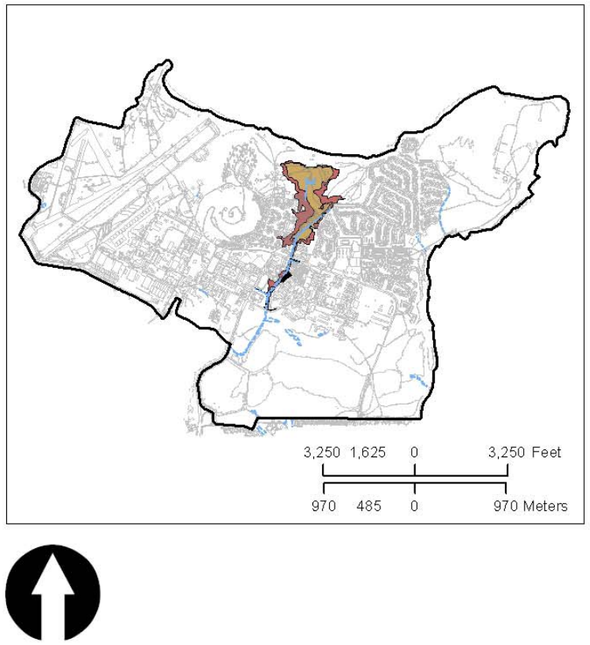

Legend

- Mokapu Central Drainage Channel
- 10-year Flood Zone
- 100-year Flood Zone
- Proposed Action Site

SEA for P-749 and P-750 Bachelor Enlisted Quarters	**Mōkapu Channel 10-Year and 100-Year Flood Zones** (Source: HPE 2003)	**Figure 6**

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3.6 SURROUNDING LAND USE

According to the Base Master Plan, the Proposed Action site is designated for Troop Housing (NAVFAC Hawaii 2006).

The land surrounding the Proposed Action site is also designated in the Base Master Plan for Troop Housing. Other adjacent and nearby land use includes Community Facilities to the southeast and Recreational to the southwest. Immediately to the north of the Proposed Action site are BEQs. To the west, across the MCDC, are the Navy BEQs and the Semper Fit gymnasium.

3.7 ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL RESOURCES

According to the Integrated Cultural Resources Management Plan (ICRMP), the Proposed Action is located within an Archaeological Sensitivity Zone (Medium) (POH 2006). Medium-sensitivity zones are areas where archaeological or cultural resources may exist; however, the probability of encountering archaeological and cultural resources is extremely low. There are no known findings of historic, archaeological, or culturally-sensitive resources at the project site.

Other areas on Mōkapu Peninsula, such as the Fishponds Complex and the Mōkapu Burial Complex, are designated as high sensitivity zones due to the presence of archaeologically significant findings or the presence of historical and/or culturally sensitive resources. Refer to Figure 7 for a map of the various archaeologically sensitive zones at Marine Corps Base Hawaii – Kaneohe Bay.

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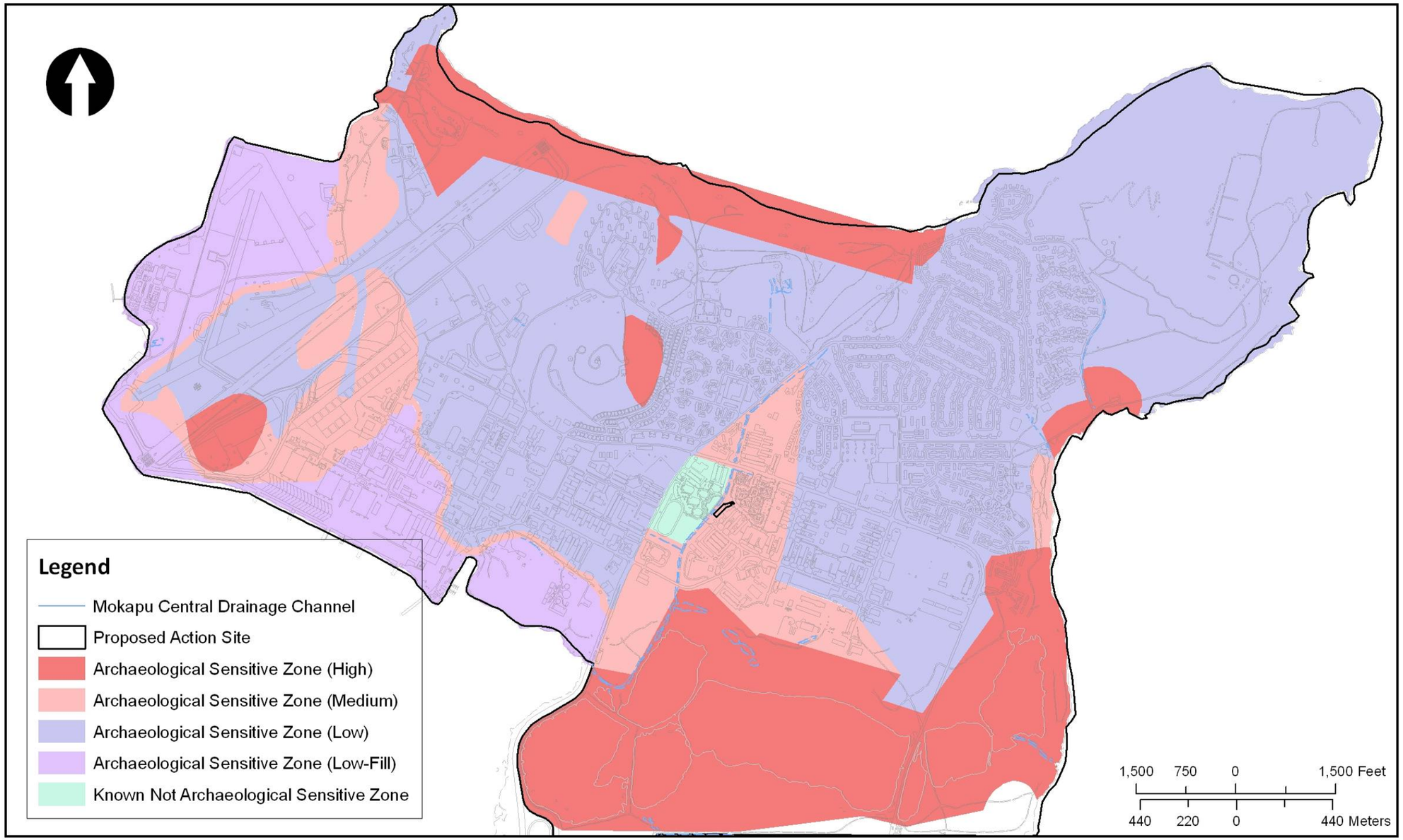

SEA for P-749 andP-750 Bachelor Enlisted Quarters	**Archaeological Sensitive Zones** (Source: NAVFAC 2006)	**Figure 7**

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 TOPOGRAPHY AND SOILS

SIGNIFICANCE CRITERIA

Project actions are determined to have a significant adverse environmental impact on soils if there is an increase in erosion and transport of soils and sediment off-site, particularly if the resulting transport of sediment would cause significant impacts to water quality or aquatic habitats. Project actions are determined to have a significant adverse environmental impact on topography if significant changes are made to the topography resulting from implementation of the Proposed Action. Significant topographical changes are those of such a degree that they adversely impact on-site or adjacent land use, infrastructure, or drainage patterns. Topographical changes may include such actions as creating excessively steep slopes that produce unstable ground conditions.

4.1.1 *POTENTIAL IMPACTS*

4.1.1.1 Proposed Action

No short- or long-term adverse impacts to topography are anticipated from the Proposed Action. The project site is relatively flat and implementing the Proposed Action would require no major changes to the site's topography. However, due to the Proposed Action's proximity to the MCDC, the site's existing drainage patterns may be modified slightly to slow down and facilitate the reduction and filtration of any surface runoff that discharges into the channel. Any changes to the site's drainage patterns are not expected to be significant and would not result in any spillover effect that would adversely impact drainage at adjacent sites. Site drainage and potential impacts to surface waters are discussed further in Section 4.3.1.

Any potential impacts to soils would be short-term and related to construction activities. However, with implementation of BMPs, any potential impacts resulting from construction activities are expected to be less than significant. Construction-related impacts could be caused by land-disturbing activities such as clearing, excavating, and grading. To address potential short-term impacts to soils, appropriate erosion and sedimentation control measures would be implemented in compliance with applicable federal, state, and county regulations. Standard construction-phase BMPS would include, among others, the use of silt fences, berms, cut-off ditches, dust barriers, ground cover vegetation, or the application of water and/or soil stabilization and protection materials. Silt-fences and other erosion control measures would be inspected and repaired to ensure that they operate as intended. Exposed soils are susceptible to erosion, especially if it rains heavily during site work periods. Wind erosion may result in some unavoidable soil loss and silt runoff.

No long-term adverse impacts to soils are anticipated. Landscaping and site management would be expected to control and minimize any sediment transport.

4.1.1.2 No Action

The No Action alternative would result in no significant impacts to topography or soils.

4.1.2 *MITIGATION MEASURES*

No mitigation measures are warranted or proposed.

4.2 NATURAL RESOURCES

Significance Criteria

Project actions are determined to have a significant adverse environmental impact on the flora environment if there are any disturbances to or removal of native vegetation, or threatened or endangered species. In determining the extent of impacts to fauna species, criteria such as the extent of habitat loss or gain, and the presence or absence of threatened, endangered or protected species, including migratory avifauna, are used. The loss of sensitive habitat would be indicative of significant impacts, whereas minor relocation and/or modification of habitats are indicative of adverse but not significant impacts.

4.2.1.1 Proposed Action

Terrestrial Resources.

The Proposed Action is not anticipated to have significant adverse effects on terrestrial flora or fauna occurring within or in the vicinity of the Proposed Action site. There are no naturally-occurring threatened or endangered plant species within the Proposed Action boundaries. The proposed site is not known to provide habitat for any threatened or endangered faunal species. Most of the fauna observed within or near the project site consist of introduced birds and small animals. During construction, normal bird activity in the area may be disrupted; however, this impact is expected to be short-term and temporary.

Aquatic Resources.

The Proposed Action, during both the construction phase and operational phase, has the potential to degrade water quality in the MCDC, which can have an adverse effect on aquatic wildlife, both in the channel and sensitive environmental areas downstream.

Short-term impacts from erosion and sediment runoff during construction would be mitigated by construction BMPs. Application of the appropriate mitigation measures already described for this project would reduce these potential impacts to minimal or none. In the long-term, additional impervious surfaces resulting from construction of the parking lot could result in increased surface runoff and pollutants entering the MCDC. However, design provisions in compliance with LID standards, would be incorporated into the Proposed Action and would minimize the amount of surface runoff and provide filtration of sediments and other pollutants prior to entering the MCDC, thereby maintaining the channel's water quality.

Due to LID design provisions, surface runoff and pollutants entering the MCDC are not expected to increase significantly. Overall, it is anticipated that the Proposed Action would not result in significant adverse impacts on aquatic flora or fauna in the channel, or indirect impacts to flora and fauna in the Nuʻupia Ponds or Kāneʻohe Bay.

4.2.1.2 No Action

There would be no impact on terrestrial or aquatic natural resources under this alternative.

4.2.2 *MITIGATION MEASURES*

There are no anticipated impacts to natural resources from the Proposed Action. No mitigation measures are warranted or proposed.

4.3 WATER RESOURCES

SIGNIFICANCE CRITERIA

Environmental consequences related to the hydrological characteristics of the MCDC include alterations in land use, drainage patterns, and changes in volumes and rates of runoff entering the channel. Project actions are determined to have a significant adverse environmental impact if any of the following result: 1) construction activities cause erosion of exposed soil into surface waters, thereby increasing turbidity and sedimentation in receiving waters; or, 2) the volume of stormwater runoff from the site increases substantially, thereby impacting the quality of receiving waters.

4.3.1 *POTENTIAL IMPACTS*

4.3.1.1 Proposed Action

Groundwater.

The Proposed Action site is not underlain by a potable groundwater source. There are no anticipated adverse affects to groundwater quality or groundwater recharge due to the Proposed Action.

Surface Water and Drainage.

As with all construction activities that involve the disturbance of soil, the potential to impact nearby water bodies through erosion, sedimentation, and runoff exists during storm events. Construction site BMPs would be implemented for stormwater runoff prior to and during construction activities. BMPs would identify the most effective control measures to reduce the amount of soil and sediment transported off-site as a result of construction activities.

In the long-term, construction related to the Proposed Action would slightly increase the amount of impervious surface, and thus, the potential amount of surface runoff and associated contaminants that could flow into the MCDC. However, this increase would not be significant. The new parking lot would result in approximately 7,900 sq ft of additional impervious surface at the Proposed Action site. Table 2 provides an overview of the existing and proposed square footage of impervious surfaces at the Proposed Action site.

Water quality in the MCDC would be protected and maintained through implementation of LID design standards that would capture contaminants, such as oil, grease, or other fluids that might leak from cars using the proposed lot. As with any parking or driving surface, release of some vehicle-derived contaminants is unavoidable; however, the use of bioswales and vegetation corridors between the proposed parking lot and the MCDC would provide filtration of these contaminants before surface runoff would reach the channel. Other filtration features

would be considered during the design phase including but not limited to, oil-water filter systems, or holding areas that filter contaminants before discharge into a water body.

Table 2. Impervious Surfaces at the Proposed Action Site

Area Evaluated	Square Footage to be Added[1]	Square Footage to be Demolished	Difference
Existing Paved Recreational Area		12,874	
Proposed Parking Lot	17,007		
Sidewalk to Proposed Parking Lot	3,745		
Total	**20,752**	**12,874**	**7,878**

The net increase in impervious surface for the site was used to generate approximate stormwater runoff calculations for the Proposed Action. These figures are for planning purposes only and are based on the preliminary site plan. The calculations quantify the existing and projected stormwater runoff flow rate that could result from implementing the Proposed Action. Table 3 below summarizes the stormwater runoff calculations.

Table 3. Stormwater Runoff Calculations

	Existing Conditions (sqft)	Existing Runoff (cfs)	Proposed Conditions (sqft)	Proposed Runoff (cfs)	Difference in Runoff (cfs)
Impervious Surfaces	12,874	0.95	20,752	1.52	0.57
Pervious Surfaces	7,878	0.14			0.14
TOTAL	**20,752**	**1.09**	**20,752**	**1.52**	**0.43**

The Proposed Action would result in an increase in runoff of 0.43 cubic feet per second (cfs) without the inclusion of built-in mitigation. This 0.43 cfs represents a 39% increase in runoff from existing conditions. Note that this estimation is for planning purposes only, is meant to represent a worst-case-scenario for stormwater runoff, and is based on a preliminary conceptual plan for the Proposed Action, which does not include any site engineering details

[1] Total square footage was calculated from the Proposed Action CAD file provided by MCB Hawaii - Kaneohe Bay Facilities Division.

relating to stormwater management. Specific project features for stormwater management will be developed during the design-build phase for this project.

Although the 0.43 cfs represents a 39% increase in stormwater runoff flow, this increase should be evaluated in the context of the stormwater flow rate within the section of the MCDC at the project site. The peak stormwater flow rate within the section of the MCDC at the project site was calculated to be 671 cfs and 1,006 cfs for the 10-year and 100-year storm event, respectively (HPE, 2003, p. 3-5). Therefore, the additional 0.43 cfs of stormwater runoff projected to result from the Proposed Action would represent a 0.06% increase from the existing peak 10-year stormwater flow rate in the channel and a 0.04% increase in the peak 100-year stormwater flow rate in the channel. Under normal circumstances, a change of less than 0.5% is not considered a significant difference. Therefore, while the proposed parking lot would increase the peak stormwater flow from the project site by 39%, that increase does not significantly change the total stormwater flow rate in the MCDC.

Note that these runoff flow rates do not take into account the effect that the recent widening of the MCDC (conducted as part of the watershed restoration project completed in 2007) would have to offset the increased runoff. Though quantitative data is not available at this time, qualitatively, widening the channel increases the MCDC's storage capacity while lowering the water surface level. As such, the MCDC is better able to accommodate the additional runoff that would result from implementing the Proposed Action.

As with all DOD construction projects, the Proposed Action would comply with LID standards to manage stormwater runoff to prevent erosion and sedimentation. Achieving LID design standards is mandated for DOD projects by the Energy Independence and Security Act (EISA) Section 438 (for more information about EISA, see section 5.2.5). Compliance with these standards would reduce or eliminate any increased stormwater runoff resulting from the proposed project, with design-phase goals of maintaining the site's predevelopment hydrology in terms of quantity and quality. The use of natural retention basins, directing stormwater runoff into natural areas, vegetated swales or any combination of techniques as deemed necessary to achieve LID standards and control the quantity and quality of runoff, would be implemented during the design and construction phases.

LID standards are defined as a set of stormwater management strategies for maintaining or restoring the natural hydrologic functions of a site (NAVFAC Atlantic 2010). The DOD and the U.S. Navy have developed tools and goals for achieving LID development specifications for all construction projects occurring on DOD properties (DOD 2010, NAVFAC Atlantic 2010). These include:

- Conservation: maintaining natural drainage patterns and protecting and preserving natural areas and ecosystems
- Small-Scale Controls: implementation of small-scale controls to mimic natural hydrology
- Customized Site Design: ensures that each project recognizes and protects entire watersheds in which they are located or impact

- Maintenance, Pollution Prevention, and Education: educates the public in order to achieve reduced pollution loads
- Directing Runoff to Natural Areas: encourages infiltration and recharge of streams, wetlands, and aquifers

4.3.1.2 No Action

The No Action alternative would result in no impacts to water flow or water quality.

4.3.2 *MITIGATION MEASURES*

No adverse impacts to groundwater or surface water are anticipated from implementation of the Proposed Action. No additional mitigation measures are warranted beyond the construction-phase BMPs and stormwater management features that will be included in the Proposed Action in compliance with LID standards.

4.4 FLOOD HAZARD

SIGNIFICANCE CRITERIA

Project Actions would be considered to have a significant adverse environmental impact if they contribute to the risk to human health or property posed from exposure to flood conditions caused from large flood events. Project Actions would also be considered to have a significant adverse environmental impact if they would cause flood hazards on adjacent or downgradient properties.

4.4.1 *POTENTIAL IMPACTS*

4.4.1.1 Proposed Action

The Proposed Action is not located within the 10-year or 100-year floodplain, neither would it cause flooding on neighboring or downgradient properties. Compliance with LID design guidelines would ensure that stormwater runoff would not contribute to the flood potential of the site, adjacent sites, or areas downstream.

4.4.1.2 No Action

There would be no risk of exposure to flood hazards under the No Action alternative.

4.4.2 *MITIGATION MEASURES*

No mitigation measures are proposed or warranted.

4.5 TRAFFIC, CIRCULATION, AND PARKING

SIGNIFICANCE CRITERIA

Project actions are determined to have a significant adverse environmental impact if the project results in an increase in traffic volume that is substantial in relation to the existing traffic load and capacity of the relevant street and parking systems.

4.5.1 *POTENTIAL IMPACTS*

4.5.1.1 Proposed Action

It is expected that there would be no long-term adverse impacts on traffic or circulation due to the Proposed Action. The BEQs that this parking lot is intended to serve was proposed as replacement housing for existing substandard housing for personnel already stationed at the base. Therefore, a slight redistribution of traffic is possible, but there would be no overall significant increase in traffic volume.

There maybe be a slight increase in traffic volume during construction; however, this impact will be short-term and should not significantly strain transportation corridors.

4.5.1.2 No Action

The No Action alternative would result in a negative impact to circulation and parking. Without the addition of approximately 54 parking spaces to support the P-749/P-750 BEQs, minimum parking requirements would not be met. This could result in adjacent parking facilities—including, among others, the Navy BEQs, the Enlisted Club and the Semper Fit gymnasium—experiencing overfill, displacement, and congestion.

4.5.2 *MITIGATION MEASURES*

No mitigation measures are warranted or proposed.

4.6 SURROUNDING LAND USE

SIGNIFICANCE CRITERIA

Project actions are determined to have a significant adverse environmental impact if they conflict with surrounding land use.

4.6.1 *POTENTIAL IMPACTS*

4.6.1.1 Proposed Action

The Base Master Plan designates Troop Housing as the land use for the area in which the Proposed Action is located. The site is currently not developed for this use. The Proposed Action is, however, consistent with the Base Master Plan and the Troop Housing land use, as parking is a supplementary use for Troop Housing. The site is surrounded to the north and south by parking areas serving other BEQs.

4.6.1.2 No Action

The No Action alternative would result in no impacts to the usage of surrounding land.

4.6.2 *MITIGATION MEASURES*

No mitigation measures are warranted or proposed.

4.7 ARCHAEOLOGICAL AND CULTURAL RESOURCES

SIGNIFICANCE CRITERIA

Project actions would be considered to have significant impacts if: 1) they adversely affect any known archaeological or culturally-sensitive resources encountered at the site; or 2) they adversely affect the integrity of a historic property or result in the physical destruction, damage or alteration of visual, audible, or atmospheric elements that are out of character with the property or its setting.

4.7.1 *POTENTIAL IMPACTS*

4.7.1.1 Proposed Action

The Proposed Action site is located within an Archaeologically Sensitive Zone (Medium), where the probability of encountering archaeological or cultural resources is minimal. Further, there are no historic properties at the site or within the immediate vicinity. The Proposed Action is not expected to result in significant impacts to historic, archaeological or cultural resources. However, as with any construction activity that involves ground disturbance, there exists the potential, although unlikely, to uncover previously unidentified subsurface resources. If inadvertent discoveries of cultural resources or cultural remains are found during construction, appropriate mitigation measures shall be undertaken as discussed below.

Marine Corps Base Hawaii has determined that the Proposed Action would have no effect on archaeological or cultural resources. This determination was based on the Proposed Action being located on filled land which has been previously disturbed, and on archaeological monitoring being conducted as described in Section 4.7.2 below. In a letter dated April 14, 2011, Marine Corps Base Hawaii initiated Section 106 consultation with the State Historic Preservation Division (SHPD). The 30-day response period for Section 106 consultation has elapsed with no response from SHPD; therefore, it is assumed that SHPD concurs with Marine Corps Base Hawaii's determination. Section 106 correspondence is attached to this EA as Appendix B.

4.7.1.2 No Action

The No Action alternative would result in no impacts to archaeological, cultural or historic resources.

4.7.2 *MITIGATION MEASURES*

Since the project site is in an Archaeologically Sensitive Zone (Medium) archaeological monitoring during construction would be required in areas where sand fill are identified due to the high possibility of finding human remains in the fill.

4.8 CUMULATIVE IMPACTS

Cumulative impacts are two or more individual effects, which, when considered together, compound or increase the overall impact on a resource or ecosystem. Cumulative impacts can arise from the individual effects of a single action or from the combined effects of past, present

or future actions. Therefore, cumulative impacts can result from individually minor actions which collectively produce significant impacts over time.

Projects that were considered in conducting the cumulative impacts analysis include all planned projects that were located within the Mōkapu Drainage Basin. The MDB was designated as the boundary by which to limit the scope of the cumulative impact analysis due to the sensitivity of the Mōkapu Central Drainage Channel and the fact that this is the only environment the Proposed Action would have the potential to affect based on the results and analysis of this Supplemental Environmental Assessment. Table 4 provides a list of projects included in the cumulative impacts analysis and a brief description of each project.

Table 4. Cumulative Impacts, Potential or Pending Projects

Title	Description
New Mess Hall	A new mess hall would be constructed immediately adjacent to the east of the Proposed Action. The existing mess hall and parking would be demolished. Three small parking lots that served recently demolished BEQs would also be removed. These parking lots occupy the area where the new mess hall is to be constructed. Features of the new mess hall include an indoor and outdoor dining area, landscaping, and parking.
MILCON P-749 and P-750 BEQ Complex	This BEQ complex is the project to which this SEA tiers and supports. It will provide 150 living units.
P-847 Artillery Battery Complex and Company Command Post	A portion of P-847 would construct a Company Command Post adjacent to Mōkapu Elementary School. The Artillery Battery Complex component of this project is located outside of the MDC and is not included in the cumulative analysis.
P-778 Armory Addition	This project includes renovating and constructing an addition to an existing armory.

Topography and Soils

No cumulative impacts on topography or soils are expected to result from the Proposed Action, either individually or when viewed cumulatively with any of the projects included on the above list. Most of Marine Corps Base Hawaii - Kaneohe Bay is relatively flat. All projects completed on DOD properties are required to implement construction BMPs that would avert any long-term or cumulative impact to soils.

Water Resources

As discussed in section 4.3.1.1, under a worst-case-scenario, without the aid of built-in mitigation features to reach LID design standards, the Proposed Action could result in a total increase in runoff into the MCDC of 0.43 cfs. Table 5 provides the estimated runoff for projects planned within the same sub-drainage basin as the Proposed Action. Calculations for

cumulative stormwater runoff were based on changes to impervious/pervious surfaces for each respective project areas.

Table 5. Cumulative Stormwater Runoff

	Existing Runoff (cfs)	Future Runoff (cfs)	Difference in Runoff (cfs)
Proposed Action	**1.09**	**1.52**	**0.43**
Future Mess Hall and parking and Old BEQ Parking Lots (3 lots)	9.18	8.22	-0.96
MILCON P-749 and P-750 BEQ Complex[a]	7.91	10.69	2.78
P-847 Company Command Post	0.30	1.19	0.89
P-778 Armory Addition[b]	0.08	0.32	0.24
TOTAL	**18.56**	**21.94**	**3.38**

[a] The existing and future runoff for P-749 and P-750 represents the runoff from the BEQ site itself. These numbers differ from those shown in Table 2 of the original EA for P-749 and P-750 as that table reflects runoff from the entire drainage basin in which the BEQ site is located. However, the difference in runoff (change in flow) remains the same as Table 2, since the difference in runoff for the drainage basin is entirely attributable to development of P-749 and P-750. The BEQ site is represented by Drainage Areas 3 and 4 in the stormwater runoff calculations, attached as Appendix C in the original EA. Refer to the original EA and its Appendix C for the calculations used to derive the runoff for the P-749/P-750 BEQ site.

[b] The boundary of the MDB crosses through the P-778 site; therefore, only the portion of the proposed Armory Addition—approximately 4,265 sqft or 25% of the square footage—that is located within the MDB is included in Table 4.

The total value presented in Table 5 represents the potential cumulative increase in stormwater runoff flowing into the MCDC during a storm event. Of the estimated cumulative increase in stormwater runoff into the MCDC of 3.38 cfs, the Proposed Action could potentially contribute 0.43 cfs, or approximately 13% of the increase. Cumulatively, the 3.38 cfs could potentially increase the 10-year and 100-year peak channel flow at section 1 (station 23+26.73)[2] by 0.49% and 0.33%, respectively.

Stormwater runoff figures are for planning purposes only and represent a worst-case-scenario. All projects occurring on DOD properties are required by EISA Section 438 to achieve LID design specifications for stormwater runoff, which requires that site conditions post-construction mimic the natural hydrological conditions of a site. Therefore, it is expected that actual stormwater runoff from each project site would be less than the numbers indicated here due to the implementation of design features in compliance with the LID mandate. LID design criteria

[2] The 2003 HPE study of the MCDC estimated the 10-year and 100-year peak channel flow at 14 key sections along the channel. Key Section No. 1 is the furthest downstream and accounts for the cumulative flow of the 13 other key sections. The 10-year and 100-year peak channel flow at Section 1 is 683 and 1,024 cfs, respectively.

would ensure that no adverse environmental impacts would result from any potential increase in stormwater runoff.

Existing and Surrounding Land Use

The Proposed Action, when viewed collectively with the projects listed in Table 4, is not expected to result in cumulative impacts to existing and surrounding land use. Collectively, this new land use supports future land use plans and mitigates potential problems with traffic, circulation, and parking by providing adequate parking accommodations for BEQ residents.

Archaeological, Cultural or Historic Resources

The Proposed Action is expected to have no impacts to archaeological, cultural, or historic resources and would, therefore, result no cumulative impacts.

Traffic, Circulation, and Parking

The Proposed Action is intended to provide adequate parking for future BEQ residents. No adverse cumulative impacts are anticipated to traffic, circulation, or parking from the Proposed Action when viewed individually or collectively with known future projects at Marine Corps Base Hawaii - Kaneohe Bay. The Proposed Action would serve as a preventive measure for traffic, circulation, and parking congestion in and around the BEQ complex.

4.9 UNAVOIDABLE ADVERSE IMPACTS

There are no unavoidable adverse impacts from the Proposed Action. Proper mitigation built into the Proposed Action, such as BMPs and implementation of LID guidelines, would ensure that no adverse impacts to natural or man-made environments would result from implementing the Proposed Action.

4.10 SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

The Proposed Action would result in long-term land use changes and represents the long-term loss of open space at Marine Corps Base Hawaii – Kaneohe Bay. Constructing a parking lot on the proposed site, however, does not preclude use of the site for other potential uses in the future. The Proposed Action would produce long-term benefits to BEQ residents and improve overall circulation and parking conditions in the vicinity of MILCON P-749 and P-750 BEQs.

4.11 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible resource commitments that would result from the Proposed Action include the raw materials that would be used to construct the proposed parking lot, the burning of fuels necessary to construct the parking lot, and the man-hours expended on design and construction. Irretrievable resource commitments that would result from implementation of the Proposed Action include the loss of approximately 20,000 sq ft (1858 sq m) of open space at Marine Corps Base Hawaii - Kaneohe Bay, until such time that the land use changes or that new open space becomes available. The amounts of each of these resources required to implement the Proposed Action are not considered significant or to produce adverse environmental impacts.

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5.0 CONSISTENCY WITH FEDERAL POLICIES AND EXECUTIVE ORDERS

5.1 FEDERAL POLICIES

5.1.1 *COASTAL ZONE MANAGEMENT ACT*

The Coastal Zone Management (CZM) Act of 1972, as amended (16 U.S.C. 1451 et seq.), is administered in Hawaiʻi by the Department of Business Economic Development and Tourism's (DBEDT) Office of Planning. The CZM program objectives and policies are to provide coastal recreational opportunities; preserve and protect historic, scenic and coastal ecosystem resources; provide economic uses; reduce coastal hazards; improve public awareness in coastal zone management; and manage development within the coastal zone.

The Proposed Action is located on federal land and is therefore excluded from the state (Hawaiʻi) coastal zone under the CZM Act. However, the CZM Act requires federal agencies to conduct their planning, management, development, and regulatory activities in a manner consistent with the State's CZM program.

The Proposed Action would have no potential for spillover (i.e., would not affect land, water use, or natural resources of the coastal zone subject to management under the CZM Act) into the coastal zone. Further, construction activities at Marine Corps Base Hawaii - Kaneohe Bay are included in the U.S. Navy and Marine Corps de minimis activities list; consequently, there is no requirement to submit a CZM Act consistency determination to the State of Hawaiʻi.

5.1.2 *THE NATIONAL HISTORIC PRESERVATION ACT*

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations (36 CFR 800), requires federal agencies, while reviewing and evaluating their programs, to identify and consider the potential effects of their Proposed Actions on historical, archaeological, and architectural resources.

The Proposed Action would have no effect on archaeological, cultural, or historic resources. Archaeological monitoring during construction would be conducted in areas where sand fill are identified due to the high possibility of finding human remains in the fill and adherence to standard operating procedures outlined in the original EA shall ensure that appropriate measures are undertaken in the unlikely event that inadvertent discoveries are found during construction.

5.1.3 *THE CLEAN WATER ACT*

The Clean Water Act (CWA), 33 U.S.C. 1251 et seq. is the major piece of federal legislation which makes it illegal for any person, including federal agencies, to discharge pollutants from a point source into waters of the U.S. without a permit. The CWA also provides for establishment of the NPDES program for issuance of such permits. The CWA Amendments of 1987 also require that the NPDES permitting program include permits for the discharge of stormwater (non-point sources of water pollution). Any construction activity that results in the disturbance of at least

one (1) acre, which includes clearing, grading and excavating, must apply for an NPDES general permit for the discharge of stormwater associated with construction activities.

Construction activities related to the Proposed Action are not anticipated to result in the disturbance of land greater than one acre. An NPDES Permit would not be required unless it is determined during the design phase that an area greater than one acre would be disturbed..

5.1.4 *FISH AND WILDLIFE COORDINATION ACT*

The Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e et seq.), provides that whenever waters of a stream, river, channel, or any other body of water are proposed to be impounded, diverted, controlled or modified by a department or agency of the U.S., the party shall first consult with the U.S. Fish and Wildlife Service (USFWS).

The Mōkapu Central Drainage Channel (MCDC) is the only body of water near the Proposed Action. Although the Proposed Action is within close proximity of the eastern bank of the MCDC, implementation of the Proposed Action would not result in modification of the channel itself. Built-in mitigation measures would be incorporated in the Proposed Action to address surface drainage and filter runoff prior to discharge into the channel so that no adverse impacts to the MCDC result from the Proposed Action.

5.1.5 *SIKES ACT*

The Sikes Act seeks to promote effectual planning and coordination of wildlife, fish, and game conservation and rehabilitation on military lands. It provides for cooperation from the Departments of the Interior and Defense with state agencies in planning, development and maintenance of fish and wildlife resources on military reservations throughout the U.S.

In compliance with the Sikes Act Improvement Amendments (SAIA) of 1997, an Integrated Natural Resources Management Plan (INRMP) was developed for Marine Corps Base Hawaii in 2001 and underwent a required five-year review and update in 2006 (ECPD and NRG 2006). The Proposed Action would incorporate LID features to reduce the volume and increase the quality of runoff entering the MCDC from the project site. Therefore, no adverse impacts on the MCDC's water quality or the fish and wildlife habitats that it supports are expected. The Proposed Action complies with the guidelines of the INRMP and supports "no net loss" in the base's lands and waters to support training while not adversely impacting fish and wildlife or other natural resources covered by the INRMP's implementation program (ECPD and NRG 2006).

5.1.6 *ENERGY INDEPENDENCE AND SECURITY ACT (EISA) SECTION 438*

Section 438 of the EISA mandates stormwater runoff requirements for federal development projects, and states: "the sponsor of any development or redevelopment project involving a federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

The Proposed Action would implement design techniques to achieve LID standards that adhere to DOD and U.S. Navy requirements for stormwater management and would eliminate or ensure that any increase in stormwater runoff resulting from the proposed project remains below significant levels. The use of natural retention basins, directing stormwater runoff into natural areas, or any combination of approved techniques to achieve LID design standards would be designed and implemented during the project's design and construction phase.

5.2 EXECUTIVE ORDERS (EOS)

5.2.1 *EO 11988 - FLOOD PLAIN MANAGEMENT*

EO 11988 provides floodplain management direction to federal agencies to avoid direct and indirect support of floodplain development and long-term and short-term adverse impacts of altering and occupying floodplain areas wherever practicable. The EO requires that actions taken reduce the risk of flood loss, minimize the impacts of floods on human safety, health, and welfare, as well as preserve and restore the natural and beneficial functions served by floodplains. Federal agencies are required to evaluate the potential effects of their actions that may occur in a floodplain to ensure that planning and budget considerations take into account flood hazards and floodplain management, and to prescribe procedures to implement policies and requirements of this EO. The Proposed Action is not located within the MCDC's 10-year or 100-year floodplain.

5.2.2 *EO 11990 - PROTECTION OF WETLANDS*

EO 11990 necessitates that Federal agencies implement measures that prevent the degradation of a wetland and that construction in a wetland be the last option if no other practical alternatives can be taken. Although the Proposed Action site is not located in or near a wetland, surface runoff from the site does flow into the MCDC, which traverses the wetlands within the Nu'upia Ponds Wildlife Management Area.

Design features incorporated into the Proposed Action that minimize and filter surface runoff before entering the MCDC would preserve the water quality of receiving waters, which include the Nu'upia Ponds downstream of the project site. In addition, the Proposed Action would not adversely impact the watershed improvement areas along the western bank of the MCDC and in turn, contributes to the maintenance of the site's natural capabilities of floodplain management, managing sediment runoff and erosion, while enhancing its natural and aesthetic beauty.

5.2.3 *EO 12898 - ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS*

EO 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* requires federal agencies to identify and address disproportionately-high and adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. A Presidential Memorandum that accompanied EO 12898 specified that federal agencies "shall analyze the environmental effects, including human health, economic and social effects, of federal actions, including effects on

minority communities, when such analysis is required by the NEPA of 1969, 42 U.S. Code Section 4321 et seq." The memorandum further stated that federal agencies "shall provide opportunities for community input in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of meetings, crucial documents, and notices."

No significant environmental impacts are anticipated as a result of the Proposed Action. The Proposed Action would take place entirely within Marine Corps Base Hawaii – Kaneohe Bay. Due to the limited scope and location of the Proposed Action, no significant or adverse impacts, including human health, economic or social effects, on minority or low income communities are expected to result from the Proposed Action.

5.2.4 *EO 13045 - Protection of Children from Environmental Health Risks and Safety Risks*

On April 20, 1997, EO 13045 was issued. EO 13045 requires that federal agencies make it a priority to identify and assess environmental health and safety risks that may disproportionately affect children. It also requires that agencies ensure that their policies, programs, activities, and standards address such risks. The Proposed Action is located in an area of the base, amidst BEQs and administrative facilities, where children are not likely to frequent. Further, the nature of the Proposed Action—an open parking lot—poses no risk to the health or safety of children attributable to products or substances that children are likely to come into contact with or ingest. Therefore, the Proposed Action would be in compliance with EO 13045.

5.2.5 *EO 13186 - Responsibilities of Federal Agencies to Protect Migratory Birds*

EO 13186 was issued to assist federal agencies with their efforts to comply with the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-711). It should be noted that the EO does not constitute any legal authorization that in any way supersedes the requirements outlined in the MBTA. The EO directs federal agencies undertaking actions that have, or are likely to have, a measurable adverse impact on migratory bird populations, to develop and implement a Memorandum of Agreement with the USFWS addressing the conservation of these populations.

The implementation of the Proposed Action is not anticipated to negatively impact migratory bird species. Migratory sea birds at Marine Corps Base Hawaii – Kaneohe Bay are found mostly along the peninsula's shoreline and in the Nuʻupia Wildlife Management Area. Any displacement or disturbance of individual birds by implementing the Proposed Action would not result in measurable adverse impacts on their populations. To further mitigate any impacts to migratory and local bird populations, downward-shielded outdoor lighting would be used in order to deter collisions between birds and the lighting structures.

5.2.6 *EO 13243 - Strengthening Federal Environmental, Energy, and Transportation Management*

EO 13423 provides federal agencies direction on environmental, energy, and transportation management to promote environmental, economic, and financial efficiency and sustainability. Implementation objectives a federal agency needs to observe include: 1) improving energy efficiency and reducing greenhouse gas emissions, 2) ensuring the use of renewable energy, 3)

reducing water consumption, 4) utilizing sustainable environmental practices in acquisition, 5) promoting pollution and waste prevention and recycling, 6) reducing or eliminating acquisition and use of toxic or hazardous chemicals and materials, 7) complying with standards of high performance construction, lease, operation, and maintenance of buildings, 8) managing vehicle fleets, and 9) managing electronic equipment. Federal agencies are required to periodically monitor, report, and evaluate agency implementation of this order.

The Proposed Action would incorporate design components that achieve LID standards for stormwater runoff. Other project features that meet objectives for EO 13243 are incorporated into the P-749/P-750 BEQs and are discussed in the original EA to which this document tiers.

5.2.7 *EO 13514 - Federal Leadership in Environmental, Energy, and Economic Performance*

On October 5, 2009 EO 13514 was issued. EO 13514 expands on the energy reduction and environmental performance requirements for federal agencies identified in EO 13423. The goal of EO 13514 is to make reduction of greenhouse gas emissions a priority for federal agencies by increasing renewable energy consumption and generation, use of low greenhouse gas vehicles, implementing water-use and stormwater management strategies that are environmentally sustainable, and to minimize the acquisition, use, and disposal of hazardous materials, among other objectives.

Objectives of EO 13514 that are relevant to the Proposed Action include implementing and achieving objectives in the EPA's Stormwater Management Guidance, which advocates implementation of LID design standards to restore natural watershed function through small-scale treatment at the source of runoff. The goal of the EPA's Stormwater Management Guidance is to design sites such that their post-development conditions mimic pre-development hydrological conditions. DOD and the U.S. Navy have developed LID standards for all projects occurring on their respective properties. The Proposed Action would meet LID standards to manage stormwater runoff, will be in compliance with DOD, U.S. Navy, and EPA guidelines for LID, and thereby, with EO 13514.

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6.0 CONSULTATION AND COORDINATION

6.1 AGENCIES CONSULTED

State

Hawai‘i State Department of Land and Natural Resources, Historic Preservation Division

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7.0 LIST OF PREPARERS

This SEA was prepared for the Naval Facilities Engineering Command Pacific, Pearl Harbor, Hawaiʻi by Wil Chee - Planning, Inc. pursuant to contract N62742-06-D-1869 Amendment No. 30.

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8.0 LIST OF REVIEWERS

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9.0 REFERENCES

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Appendix A

Calculations for Stormwater Runoff

The storm water (drainage) hydrologic calculations were made using the "Rational" method, Q=CIA, where:

Q = Flow rate in cubic per second (cfs)
C = Runoff coefficient:
Existing soil/yard C = 0.2
Roof/pavements C = 0.8
I = Rainfall intensity in inches per hour for a duration equal to the time of concentration.
1-Hour Rainfall for T_m-10 yr = 2.0 inches, and
Assumed Time of Concentration (Tc) is 15minutes
With the assumed Tc, the correction factor = 2; therefore, I = 4.0 inches/hour
A = Drainage area in acres

Summary

Site	Area (acres)	Existing Flow "Q" (cfs)	Proposed Flow "Q"(cfs)	Change in Flow (cfs)
P-749/P-750 parking lot	0.48	1.09	1.52	0.43
Mess Hall	2.87	9.18	8.87	-0.31
P-847 Company Command Post	0.37	0.30	1.19	0.89
P-778 Armory Expansion	0.10	0.08	0.32	0.24
Total	**3.82**	**10.65**	**11.9**	**1.25**

Existing Drainage

Site	Area (acres)	Runoff Coefficient	Character of Ground	Flow "Q" (cfs)
P-749/P-750 parking lot	0.30	0.8	paved	0.95
	0.18	0.2	grassed	0.14
Total	**0.48**			**1.09**
Mess Hall	2.87	0.8	paved	9.18
Total	**2.87**			**9.18**
P-847 Company Command Post	0.37	0.2	grassed	0.30
Total	**0.37**			**0.30**
P-778 Armory Expansion	0.10	0.2	grassed	0.08
Total	**0.10**			**0.08**

Proposed Drainage

Site	Area (acres)	Runoff Coefficient	Character of Ground	Flow "Q" (cfs)
P-749/P-750 parking lot	0.48	0.8	paved	1.52
Total	**0.48**			**1.52**
Mess Hall	2.33	0.8	paved	7.47
	0.41	0.4	grass cell pavers	0.65
	0.13	0.2	grassed	0.10
Total	**2.87**			**8.22**
P-847 Company Command Post	0.37	0.8	paved	1.19
Total	**0.37**			**1.19**
P-778 Armory Expansion	0.10	0.8	paved	0.32
Total	**0.10**			**0.32**

Appendix B

Consultation and Coordination Letters

UNITED STATES MARINE CORPS
MARINE CORPS BASE HAWAII
BOX 63002 KANEOHE BAY, HAWAII 96863-3002

IN REPLY REFER TO:
5090
Ser LE/177-11
April 14, 2011

CERTIFIED MAIL NO.: 7008 2810 0002 1219 7035

Mr. William Aila
State Historic Preservation Officer
Department of Land and Natural Resources
Kakuihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Mr. Aila:

SUBJECT: SECTION 106, MARINE CORPS BASE HAWAII
UPDATE CONSTRUCTION OF BACHELOR ENLISTED QUARTERS
CONSULTATION LETTER WITH ADDITION OF A NEW PARKING LOT
MARINE CORPS BASE HAWAII, KO`OLAUPOKO DISTRICT,
AHUPUA'A OF KĀNE'OHE, ON THE ISLAND OF O'AHU, TMK 1-4-4-08:001.

Marine Corps Base (MCB) Hawaii is consulting with your office in compliance with Section 106 of the National Historic Preservation Act regarding the proposed project to construct a new parking lot for the five-story Bachelor Enlisted Quarters (BEQ) that was previously consulted on (LE 291/08 dated 24 July 2008 [Enclosure (1)] and Log No 2008.3153/Doc No 0809ED04 [Enclosure 2]). This letter initiates our Section 106 consultation for this project.

PROJECT DESCRIPTION

The proposed project consists of constructing a parking lot adjacent to the five-story BEQ that is currently undergoing construction at MCB Hawaii north of the Enlisted Club and west of Mokapu Central Drainage Canal [Enclosure 3]. The proposed parking area would be located on the east side of the canal and accessible to the BEQ via an existing footbridge.

The proposed parking lot would provide an additional 54 parking spaces and cover an area approximately 20,752 square feet or 0.48 acre. This area currently consists of an open field that is partially covered by grass and other weedy vegetation and partially paved [Enclosures 4 and 5].

IDENTIFICATION OF HISTORIC PROPERTY

Although the proposed project is in an area designated as a medium archaeological sensitivity zone, this location was part of a coastal marsh that was filled in with very large basalt boulders during initial development of the base in the late 1930s early 1940s [Enclosure 6].

AREA OF POTENTIAL EFFECT

The area of potential effect (APE) has been determined to include only the footprint of the new BEQ parking area adjacent to the Mokapu Central Drainage Canal at MCB Hawaii.

5090
Ser LE/177-11
April 14, 2011

DETERMINATION OF AFFECT

MCB Hawaii has determined that the proposed project to install a new parking lot at MCB Hawaii will result in no historic properties affected in accordance with Section 106 Implementing Regulations at 36 CFR 800.4(d)(1) based on the following: 1) the proposed project is located in an area that was previously disturbed; 2) the area of the proposed parking lot consists of filled lands; and 3) archaeological monitoring will be conducted during excavation in areas that contain coralline beach sand.

We request your review of and concurrence with our determinations of effect and of the APE as stated above. As defined in 36 CFR 800.5(c) we will assume your concurrence if no objection is received from your office within 30 days of receipt of this letter. Should you or your staff have any questions or concerns please contact the MCB Hawaii Cultural Resources Management staff, Ms. June Cleghorn at 257-7126 or via email at june.cleghorn@usmc.mil or Coral Rasmussen at 257-7134 or via email at coral.rasmussen@usmc.mil.

Sincerely

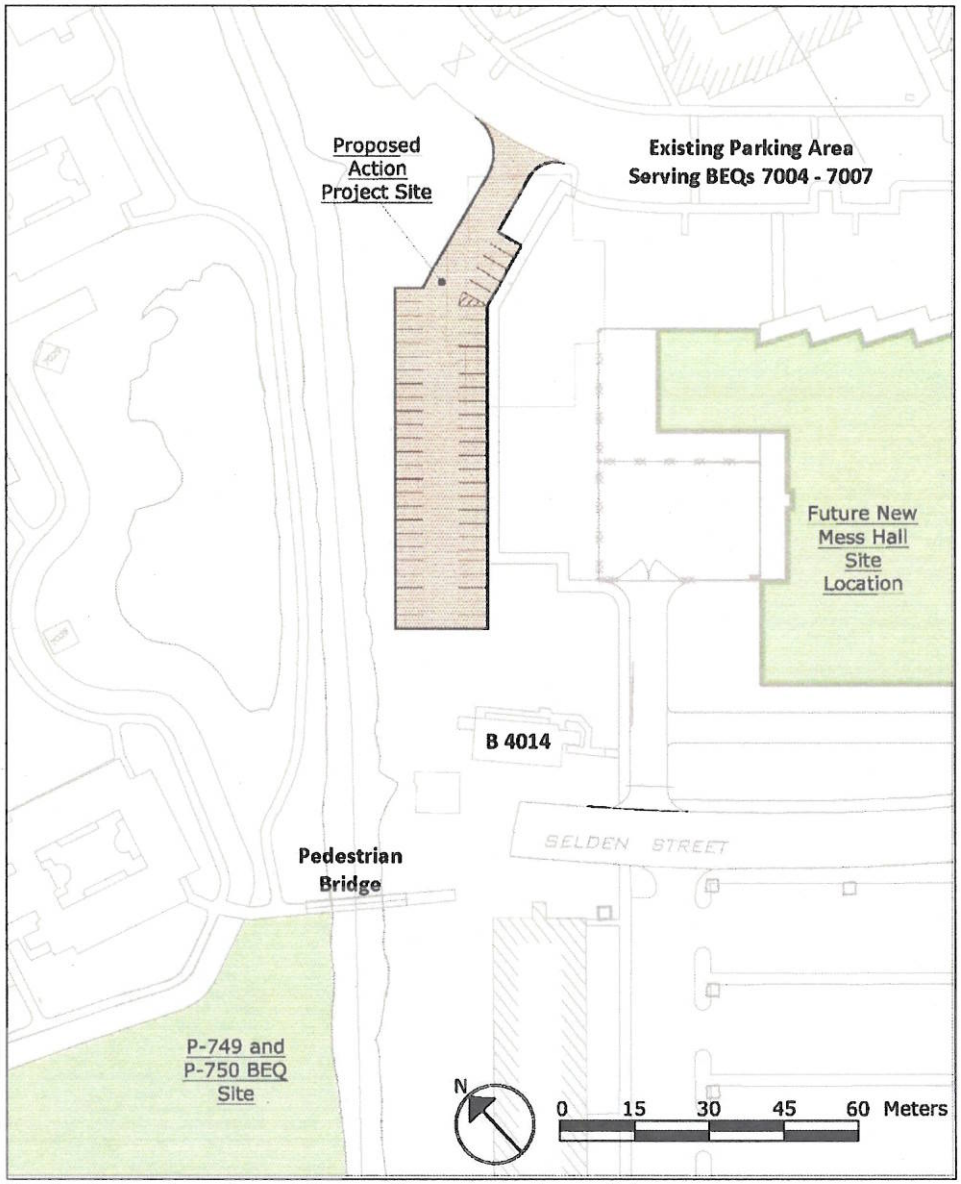
D. R. GEORGE
Captain, U. S. Marine Corps
Director, Environmental Compliance and Protection Department
By direction of the Commanding Officer

Enclosures:
1. Section 106 letter (LE 291/08 dated 24 July 2008) to SHPO for construction of the BEQ along Mokapu Central Drainage Canal.
2. Section 106 letter from SHPO concurring with the BEQ project along Mokapu Drainage Canal (Log No 2008.3153/Doc No 0809ED04).
3. Location of proposed BEQ parking lot at MCB Hawaii.
4. Location of proposed parking area.
5. Photo showing proposed BEQ parking area.
6. Approximate location of the proposed BEQ parking area overlaid onto an oblique aerial from 20 April 1941.

Reference:

U.S. Army Corps of Engineers
2006 *Integrated Cultural Resources Management Plan (ICRMP), Marine Corps Base Hawaii, O'ahu, Hawai'i.* Prepared for Installation Commander, Marine Corps Base Hawaii. U.S. Army Corps of Engineers, Honolulu Engineer District, Fort Shafter, Hawai'i.

Enclosure 3. Location of proposed BEQ parking lot at MCB Hawaii (Geofiwest Imagery 2011).



Enclosure 4. Location of proposed parking area.

Enclosure 5. Photo showing proposed BEQ parking area. Mokapu Central Drainage Canal located outside photo to right (west).

Enclosure 6. Approximate location of the proposed BEQ parking area overlaid onto an oblique aerial from 20 April 1941. View to east.

UNITED STATES MARINE CORPS
MARINE CORPS BASE HAWAII
BOX 63002 KANEOHE BAY, HAWAII 96863-3002

IN REPLY REFER TO:
5090
Ser LE/291-08
24 JULY 2008

Ms. Laura Thielen
State Historic Preservation Officer
Department of Land and Natural Resources
Kakuihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

RE: Section 106, Marine Corps Base Hawaii
Construction of Bachelor Enlisted Quarters

Dear Ms. Thielen:

Marine Corps Base (MCB) Hawaii is continuing consultation with your office in compliance with Section 106 of the National Historic Preservation Act regarding the proposed project to construct Bachelor Enlisted Quarters (BEQ) aboard Marine Corps Base (MCB) Hawaii. Following receipt of your letter dated 27 September 2007 (Log No. 2007.2415/Doc No. 0709AL32), MCB Hawaii has decided to build the new BEQ on an unimproved parcel of land near the existing Enlisted Club along Mōkapu Central Drainage Channel (MCDC) rather than demolishing Buildings (Bldg) 225-230.

Project Description

The proposed project consists of constructing a reinforced concrete building on an unimproved expanse of land that is situated north of 3rd Street and the existing Enlisted Club (Bldg 1629), east of G Street and the recreational track and field (Bldg 1259), south of existing BEQs (Bldg 7021, 7022, 7023, 7024, 7025), and immediately west of the MCDC, which borders the site's eastern perimeter [Enclosure 1]. The proposed BEQ will consist of a 5-story structure on an approximately 16,187 square meters (sqm) (4 acres) parcel of land on MCB Hawaii [Enclosure 2]. The gross building area encompassed by the entire BEQ facility is roughly 6,200 sqm or 66,736 square feet (sf) and will provide 140 rooms or 280 man-spaces. In addition, the conceptual site plan also includes supporting structures such as equipment washdown stations, recreational pavilions, bike storage shelters and an on-site parking lot to accommodate 180 parking stalls. No pre-demolition is needed because the proposed site is a vacant, unimproved parcel that is situated along the western bank of the Mōkapu Central Drainage Channel (MCDC).

Identification of Historic Property

The proposed project to construct the new BEQs is located within the boundary of the area known not to be archaeologically sensitive (ICRMP 2006:Fig. B-1) [see Enclosure 1]. This area is fill land that consists of very large boulders and loam similar to the fill material recorded during archaeological monitoring for the percolation ditch (Athens et al. 2006). Prior to realignment of the MCDC, this area was part of the channel and associated marshy area [Enclosure 3].

The proposed parking area will be located within a medium archaeological sensitive zone. This area has already been graded and part of the area is

currently used for parking at the Enlisted Club. The remainder of the area is open, manicured lawn. Previous archaeological projects conducted in the area did not uncover any cultural or archaeological deposits or sites (Schilz et al. 1996; Jiminez et al. 1998).

Area of Potential Effect

The area of potential effect (APE) has been determined to include only the footprint of the proposed project area for the BEQs aboard MCB Hawaii.

Determination of Affect

Based on the proposed scope of work to construct a new BEQ on a parcel identified as known not to be archaeologically sensitive that is currently an unimproved field without buildings, it is our determination that this undertaking will result in no historic properties affected.

We request your review of and concurrence with our determinations of effect and of the APE as stated above. As defined in 36 CFR 800.5(c) we will assume your concurrence if no objection is received from your office within 30 days of receipt of this letter.

Should you or your staff have any questions or concerns please contact the MCB Hawaii Cultural Resources Management staff, Ms. June Cleghorn at 257-6920 extension 254 or via email at june.cleghorn@usmc.mil or Ms. Coral Rasmussen at 257-6920 extension 252 or via email at coral.rasmussen@usmc.mil.

Sincerely,

Randall M Hu for

D. M. HUDOCK
Major, U. S. Marine Corps
Director, Environmental Compliance and Protection Department
By direction of the Commanding Officer

Enclosures:
(1) Location of proposed new Bachelor Enlisted Quarters aboard MCB Hawaii.
(2) Preliminary plan map of the proposed new Bachelor Enlisted Quarters aboard MCB Hawaii.
(3) Proposed parcel for the new BEQ shown on a 1940s aerial photograph.

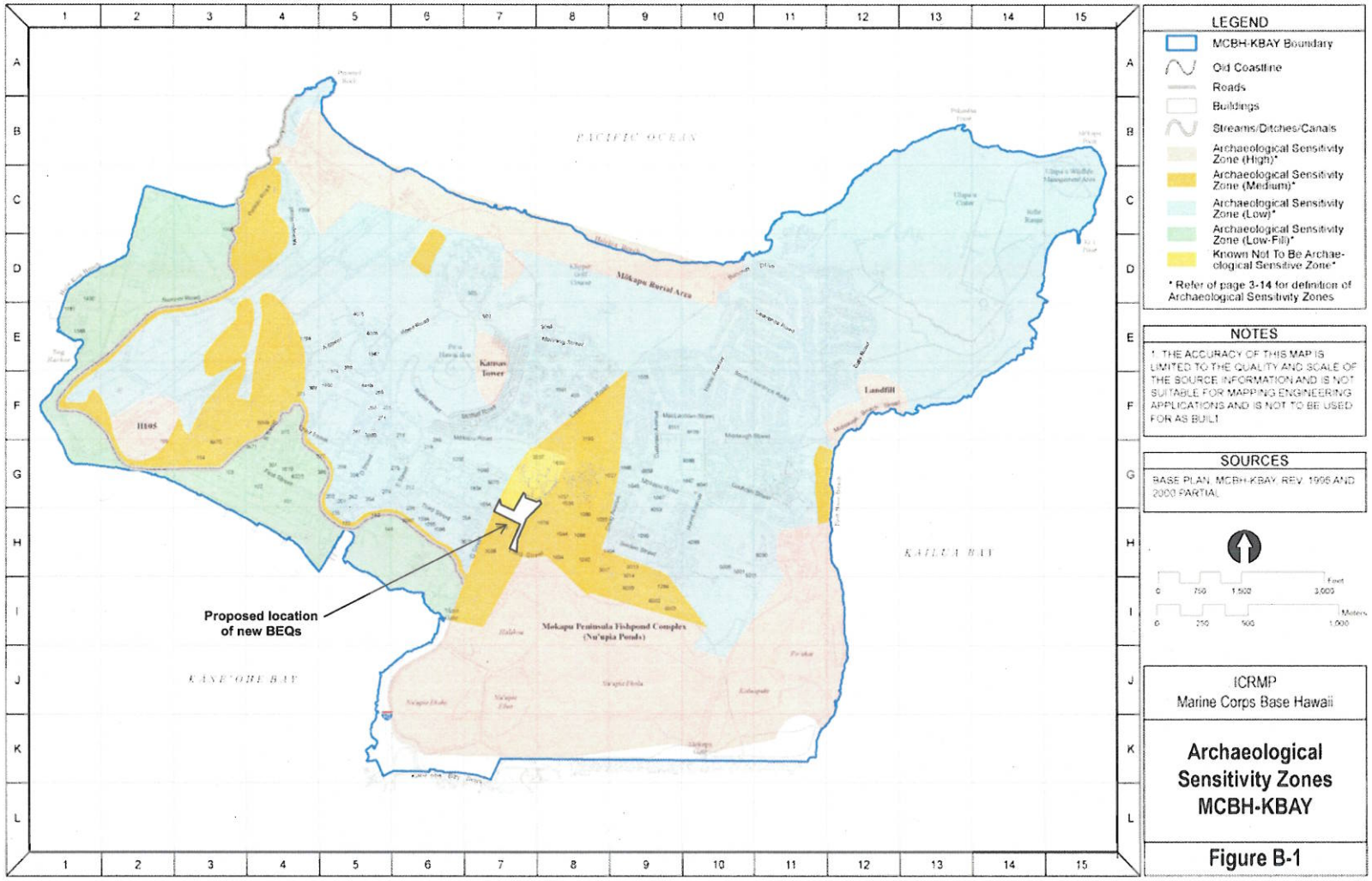
References:

Athens, J. Stephen, Jerome V. Ward, and Coral M. Rasmussen
2006 *Archaeological Monitoring and Coring for Wetland Restoration/ Percolation Ditch Replacement, Marine Corps Base Hawaii, Kaneohe Bay, O'ahu, Hawai'i.* Prepared for Commander, Navy Region Hawaii, Department of the Navy, Naval Facilities Engineering Command, Pacific, Pearl Harbor, Hawai'i. International Archaeological Research Institute, Inc., Honolulu.

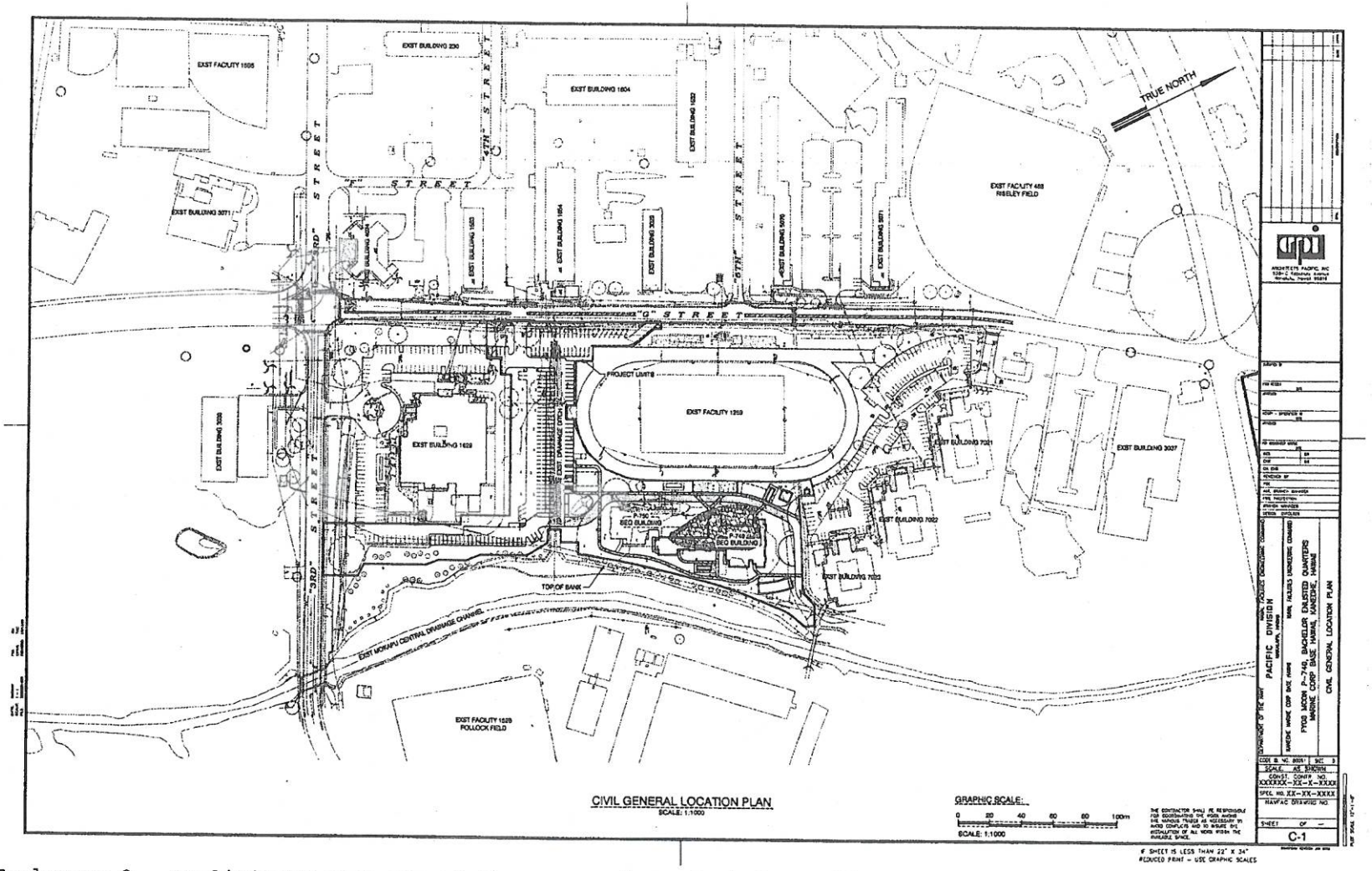
Jiminez, Joseph A., Thomas R. Wolforth, Robert B. Rechtman, and Alan E. Haun
1998 *Archaeological Monitoring of Trench Excavations for Phase II (KB356MS) Repairs to Sanitary Sewer System, Marine Corps Base Hawaii Kaneohe Bay, O'ahu.* Prepared for Commander, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii. Paul H. Rosendahl, Ph.D., Inc., Hilo, Hawai'i.

Schilz, Allan J., Jim Landrum, and Jane Allen
1996 *Archaeological Monitoring within the Project KB970MS, Grading, Dredging, and Drainage Control (DREDGING) Corridor, Marine Corps Base Hawaii Kaneohe Bay, O'ahu Hawai'i.* Prepared for U.S. Naval Facilities Engineering Command, Pearl Harbor, Hawai'i. Ogden Environmental and Energy Services, Honolulu.

U.S. Army Corps of Engineers
2006 *Integrated Cultural Resources Management Plan (ICRMP), Marine Corps Base Hawaii, O'ahu, Hawai'i.* Prepared for Installation Commander, Marine Corps Base Hawaii. U.S. Army Corps of Engineers, Honolulu Engineer District, Fort Shafter, Hawai'i.



Enclosure 1. Location of proposed new Bachelor Enlisted Quarters aboard MCB Hawaii (U.S. Army Corps of Engineers 2006:Fig. B-1).



Enclosure 2. Preliminary plan map of the proposed new Bachelor Enlisted Quarters aboard MCB Hawaii.

Enclosure 3. Proposed parcel for the new BEQ shown on a 1940s aerial photograph. The Mōkapu Central Drainage Channel located just west (above) the parcel. Note: in the photograph, the MCDC has not been realigned.

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

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 4, 2008

D.M. Hudock, Major, U.S. Marine Corps
Director, Environmental Compliance and Protection Department
Marine Corps Base Hawai'i
BOX 63002
Kāne'ohe Bay, Hawai'i 96863-3002

LOG NO: 2008.3153
DOC NO: 0809ED04
Archaeology

Dear Major Hudock:

SUBJECT: National Historic Preservation Act (NHPA) Section 106 Review – Proposed Construction of Bachelor Enlisted Quarters (BEQ) Kāne'ohe Ahupua'a, Ko'olaupoko District, Island of O'ahu TMK: (1) 4-4

Thank you for the opportunity to comment on the aforementioned project. We received the submittal on July 25, 2008 and we apologize for the delayed response. The proposed undertaking involves construction of a 6,200 square meter, 5-story reinforced concrete structure and supporting structures (equipment washdown stations, recreational pavilions, bike storage shelters, and a parking lot) on an approximately 4-acre parcel.

We concur that **no historic properties will be affected** by this undertaking because:

- ☐ Intensive cultivation has altered the land
- ☐ Residential development/urbanization has altered the land
- ☐ Previous grubbing/grading has altered the land
- ☐ An accepted archaeological inventory survey (AIS) found no historic properties
- ☐ SHPD previously reviewed this project and mitigation has been completed
- ☒ Other: *There are no known archaeological resources located within the project area. The project area is fill land known not to be archaeologically sensitive that is an unimproved parcel with no historic buildings.*

Please contact Teresa Davan at (808) 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Nancy A. McMahon

Nancy A. McMahon, Deputy
State Historic Preservation Officer

ED

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

GUY H. KAULUKUKUI
FIRST DEPUTY

WILLIAM M. TAM
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
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAHUHIHEWA BUILDING
601 KAMOKILA BLVD, KAPOLEI HI 96706

DATE: April 29, 2011

LOG: 2011.1070
DOC: 1104RS126
Archaeology and Architecture

TO: D. R. George
Captain, US Marine Corps
Director, Environmental Compliance and Protection Department
Marine Corps Base Hawaii
Box 63002 Kaneohe Bay, HI 96863-3002

SUBJECT: **National Historic Preservation Act (NHPA) Section 106 Consultation** / Development of 54 Stall Parking Lot to Service New BEQ
Permit # (None)
Building Owner: US Marine Corps
Location: Adjacent to Mokapu Central Drainage Canal and Enlisted Club
Tax Map Key: (1) 4-4-008:001

This letter is in response to a communication dated April 1, 2011, received by our office on April 4, 2011, regarding the proposed construction of a 54 stall ground level parking lot to accommodate residents of a new BEQ building under construction. The project would be located north of the BEQ site, parallel along the Mokapu Central Drainage Canal and near the Enlisted Club. The area is currently vacant and partially covered with grass. The area of potential effect would be the footprint of the parking lot and, during work, areas immediately adjacent.

The area was originally part of a coastal marsh that was filled in with large basalt boulders during original development of the base in the late 1930s and early 1940s. The area has been identified as a medium archaeological sensitivity zone.

We acknowledge receipt of historic photographs and maps of the area.

For archaeology: This project area has been designated to be a medium archaeological sensitivity zone, as this location was part of a coastal marsh that was filled in during the initial development of the base in the late 1930's and early 1940's. Coastal wetlands often act as environments of deposition that can retain charcoal from nearby habitation and clearing fires. These deposits are likely significant under criterion 'D' as they often contain valuable information on the chronology of Native Hawaiian coastal habitation. Because this wetland was filled in, it is likely that any cultural deposits would retain their integrity of materials and location. At this point, we are unable to provide a determination on the effects of this project because there has been an insufficient effort to identify historic properties within the area of potential effects. Our office believes that an Archaeological Inventory Survey (AIS) is necessary in order to adequately identify the location of historic sites pursuant to 36 CFR 800.4. In order to fully access the impacts of this project we need to know whether or not there is cultural material contained in this filled wetland deposit, how deep below the surface this cultural material is found, and whether or not the excavation for this project will proceed to death that could encounter any cultural material. Therefore **we request additional information** that would allow us to adequately assess the impact of this project on historic sites.

Any archaeology questions should be addressed to Michael Vitousek, Oahu Archaeologist, at (808) 692-8029 (office) or michael.vitousek@hawaii.gov.

For architecture: SHPD concurs that the project will have no adverse effect on historic resources.

Any architecture questions should be addressed to Ross W. Stephenson, SHPD Historian, at (808) 692-8028 (office), (808) 497-2233 (cell) or ross.w.stephenson@hawaii.gov.

Mahalo for the opportunity to comment.

Angie Westfall
Architecture Branch Chief

In the event that historic resources, including human skeletal remains, lava tubes, and lava blisters/bubbles are identified during construction activities, all work should cease in the immediate vicinity of the find, the find should be protected from additional disturbance, and the State Historic Preservation Division should be contacted immediately at (808) 692-8015.

UNITED STATES MARINE CORPS
MARINE CORPS BASE HAWAII
BOX 63002 KANEOHE BAY, HAWAII 96863-3002

IN REPLY REFER TO:
5090
LE/358-11
June 24, 2011

CERTIFIED MAIL NO.: 7010 1870 0002 7901 0025

Mr. William Aila
State Historic Preservation Officer
Department of Land and Natural Resources
Kakuihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Mr. Aila:

SUBJECT: SECTION 106, MARINE CORPS BASE HAWAII
UPDATE CONSTRUCTION OF BACHELOR ENLISTED QUARTERS CONSULTATION LETTER WITH ADDITION OF A NEW PARKING LOT
MARINE CORPS BASE HAWAII, KO`OLAUPOKO DISTRICT,
AHUPUA'A OF KĀNE'OHE, ON THE ISLAND OF O'AHU, TMK 1-4-4-08:001.

Marine Corps Base (MCB) Hawaii is in receipt of a letter from the State Historic Preservation Officer (SHPO) signed by Angie Westfall, Architecture Branch Chief (Log: 2011.1070/Doc: 1104RS126) that is dated 29 April 2011 but received at MCB Hawaii on 19 May 2011. This letter was sent in response to a National Historic Preservation Act (NHPA) Section 106 letter from MCB Hawaii (LE/177-11 dated 1 April 2011 and received by SHPO on 4 April 2011) for the proposed project to construct a parking lot adjacent to the five-story bachelor enlisted quarters (BEQ) that is currently undergoing construction north of the Enlisted Club and west of Mokapu Central Drainage Channel aboard MCB Hawaii. Thank you for your response and your thoughtful comments regarding this proposed action.

Your letter indicates that SHPO would like clarification on the previous archaeological projects, sedimentary data, and the likelihood of encountering buried cultural material within the area of the proposed parking lot.

The proposed project consists of constructing a paved surface with 54 marked stalls. Grading of the ground surface will be to a depth of approximately 6 inches. The area currently consists of an area that is partially paved with grasses and other weedy vegetation in areas without paving. Three Bachelor Enlisted Quarters (BEQ) (Buildings 1035, 1036, and 1037) were previously located in this area; however, they were demolished about six years ago. The minimum depth of demolition activities was approximately 2 ft.

Archaeological monitoring in the area indicates that there is a substantive amount of imported fill, consisting primarily of extremely large boulders, that were brought to fill in the wetland that once existed in this area (please refer to Enclosures (5) and (6) of our 1 April 2011 dated letter (LE/177-11) that show the original wetland and what the area looks like today). The imported boulders would have disturbed any of the silts and gleyed sediments that were part of the original wetland and thus destroyed the paleo-pollens that may have once been located in the sediment (Athens et al. 2006; Jiminez et al. 1998; Schilz et al. 1996; see U.S. Army Corps of Engineers 2006 for identification of archaeological sites eligible for the

National Register of Historic Properties at MCB Hawaii). Schilz et al. indicated that "No significant cultural resources were encountered during the project [along the drainage channel between 1991 and 1992], and important paleo-environmental evidence was difficult to collect in the channel… no datable evidence for layers predating the modern fill was encountered" (Schilz et al. 1996:33).

In addition to the information provided above regarding previous archaeological work in the area proposed for the new parking stalls, please note that MCB Hawaii will ensure archaeological monitoring is provided for the duration of the project (stated in our 1 April 2011 letter). Furthermore, the monitoring will ensure mitigation of any archaeological resources that may be inadvertently encountered during the project even though there is an extremely low likelihood of such an occurrence as we have noted above.

Please note, a Section 106 letter about this project was sent to the following Native Hawaiian organizations: Diamond 'Ohana, Ortiz 'Ohana, Keohokalole 'Ohana, Ka Lahui Hawaii, Paguyo 'Ohana, Prince Kuhio Hawaiian Civic Club, Boyd 'Ohana, Paoa Kea Lono 'Ohana, Office Of Hawaiian Affairs, Kekumano 'Ohana, Kekoolani 'Ohana, Oahu Island Burial Council, Koolauloa Hawaiian Civic Club, Hui Malama I Na Kupuna O Hawaii Nei, Temple Of Lono, and Olds 'Ohana.

Thus, as a result of the above explanation combined with the previous information submitted to your office with our original Section 106 review letter (dated 1 April 2011, LE/177-11), MCB Hawaii believes that our Section 106 responsibilities for the subject undertaking are complete (pursuant to 36 CFR 800.4(d)(1)(i)). Additionally, please note that MCB Hawaii did not receive any objection to this proposed undertaking within 30 days of the SHPO's receipt of our letter; our records indicate that your office received our 1 April letter (LE/177-11) on 4 April 2011, and MCB Hawaii did not receive your written response (Log: 2011.1070/Doc: 1104RS126) until 19 May 2011.

At this time, we wish to proceed with the proposed construction of a parking lot adjacent to the five-story BEQ on Mokapu Peninsula. As a courtesy, however, if you still require more information before you can complete your review of this proposed undertaking, please contact the MCB Hawaii Cultural Resources Management staff, Ms. June Cleghorn at 257-7126 or via email at june.cleghorn@usmc.mil or Ms. Coral Rasmussen at 257-7134 or via email at coral.rasmussen@usmc.mil.

Sincerely,

D. R. GEORGE
Captain, U. S. Marine Corps
Director, Environmental Compliance and Protection Department
By direction of the Commanding Officer

References:

Athens, J. Stephen, Jerome V. Ward, and Coral M. Rasmussen
2006 *Archaeological Monitoring and Coring for Wetland Restoration/ Percolation Ditch Replacement, Marine Corps Base Hawaii, Kaneohe Bay, O'ahu, Hawai'i.* Prepared for Commander, Navy Region Hawaii, Department of the Navy, Naval Facilities Engineering Command, Pacific, Pearl Harbor, Hawai'i. International Archaeological Research Institute, Inc., Honolulu.

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1996 *Archaeological Monitoring within the Project KB970MS, Grading, Dredging, and Drainage Control (DREDGING) Corridor, Marine Corps Base Hawaii Kaneohe Bay, O'ahu Hawai'i.* Prepared for U.S. Naval Facilities Engineering Command, Pearl Harbor, Hawai'i. Ogden Environmental and Energy Services, Honolulu.

U.S. Army Corps of Engineers
2006 *Integrated Cultural Resources Management Plan (ICRMP), Marine Corps Base Hawaii, O'ahu, Hawai'i.* Prepared for Installation Commander, Marine Corps Base Hawaii. U.S. Army Corps of Engineers, Honolulu Engineer District, Fort Shafter, Hawai'i.