

APPENDIX A REGULATORY SETTING

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Appendix A: Regulatory Setting

The Marine Corps has prepared this Environmental Assessment (EA) based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the proposed action:

- American Indian Religious Freedom Act (42 United States Code [U.S.C.] 1996)
- Archeological and Historic Preservation Act (54 U.S.C. §§ 312501–312508)
- Archaeological Resources Protection Act (16 U.S.C §§ 470aa–470mm)
- Chapter 344, State Environmental Policy
- Clean Air Act (42 U.S.C. §§ 7401–7671q)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)
- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Council on Environmental Quality National Environmental Policy Act Regulations, 40 CFR §§ 1500-1508
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Energy Independence and Security Act, United Facilities Criteria 3-210-10
- Executive Order (EO) 11988, Floodplain Management (42 Federal Register 26951)
- EO 11990, Protection of Wetlands (42 Federal Register 26961)
- EO 12088 as amended, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, and the Migratory Bird Treaty Act (66 Federal Register 3853, 16 U.S.C. §§ 703–712)
- EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management (72 Federal Register 3919)
- EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (86 Federal Register 7037)
- EO 14008, Tackling the Climate Crisis at Home and Abroad (86 Federal Register 7619)
- EO 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability (88 Federal Register 70935)
- EO 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All (88 Federal Register 25251)
- Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. section 136 et seq.)
- Hawai'i Coastal Zone Management Program
- Hawai'i State Plan
- Marine Corps Environmental Compliance and Protection Program (Marine Corps Order 5090.2)
- Migratory Bird Treaty Act (16 U.S.C. section 703 et seq.)
- National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370h
- National Environmental Policy Act (NEPA); Council on Environmental Quality (CEQ) NEPA implementing regulations; Navy procedures for implementing NEPA (42 U.S.C. § 4331; 40 CFR parts 1500–1508; 32 CFR part 775)
- National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change (88 Federal Register 1196)
- National Historic Preservation Act of 1966, as amended (54 U.S.C. 100101 et seq.)

- Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001-3013)
- Noise Control Act (42 U.S.C. §4901 et seq.)
- O'ahu General Plan
- Policies and Responsibilities for Implementation of the National Environmental Policy Act Within the Department of the Navy (32 Code of Federal Regulations [CFR] part 775)
- Pollution Prevention Act (NPA), 42 U.S.C. §§ 13101-13109
- Protection of Historic Properties, 36 CFR Part 800
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Safe Drinking Water Act (42 U.S.C. section 300f et seq.)
- State of Hawai'i Energy Goal
- Toxic Substances Control Act (15 U.S.C. sections 2601 et seq.)

APPENDIX B

PUBLIC COMMENTS AND RESPONSES

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Appendix B: Public Comments and Responses

ENVIRONMENTAL ASSESSMENT

GROUND-BASED FORCES MODERNIZATION MARINE CORPS BASE

HAWAII

O’AHU, HAWAI’I

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Abbreviations and Acronyms

EA	Environmental Assessment	MCTAB	Marine Corps Training Area
ESA	Endangered Species Act		Bellows
FONSI	Finding of No Significant Impact	NHPA	National Historic Preservation Act
MCB	Marine Corps Base	Pu'uloa RTF	Pu'uloa Range Training Facility

Appendix B: Public Comments and Responses

1.1 Overview of Comments and Responses

1.1.1 Timing and Methods of Comment Submittal

The 30-day public comment period provided an opportunity for government agencies, interest groups, and the general public to comment on the Draft Environmental Assessment (EA) for ground force modernization of infrastructure, equipment, and training for Marine Corps ground forces in Hawaii. The proposed action occurs at Marine Corps Base (MCB) Hawaii Kaneohe Bay, Marine Corps Training Area Bellows (MCTAB), and Pu‘uloa Range Training Facility (Pu‘uloa RTF) in O‘ahu, Hawai‘i.

There were two primary methods to submit comments: (1) written comments by mail and (2) written comments by email. The Marine Corps published a notice of availability for the review of the Draft EA in the *Honolulu Star-Advertiser* on December 26, 2023. The public had 30 days to comment on the EA as well as the Section 106 finding of no effect.

This appendix contains all comments received during the public comment period. All received comments were assessed and considered individually and collectively during development of this Final EA and in the Finding of No Significant Impact (FONSI). Based on the comments, clarifications and improvements were made in the Final EA. Written responses were prepared for all comments and are included in this appendix.

1.1.2 Comment Responses Process

The Marine Corps implemented the following process for reviewing and responding to all comments received during the public comment period for the Draft EA:

- The Marine Corps carefully reviewed all comments and assigned a unique identifier to each. Comment letters for which distinct and separable points could be identified and addressed were delineated and, where appropriate, subdivided into numbered “sub-comments.” In certain cases, the commenter subdivided their own letter into sub-paragraphs.
- Resource specialists and Marine Corps authorities considered all comments and prepared written responses.
- As a result of the comments, the Marine Corps modified the Final EA to improve or clarify the analysis presented in the Draft EA.

1.1.3 Summary of Draft EA Public Comments

A total of 20 comments were received in response to the Draft EA. Table B-1 shows a breakdown of the number of comments received by agency, organization, and the public. None of the commenters requested that their personal information be redacted.

Table B-1 Summary of Comments Received During Public Review of the Draft EA

<i>Commenter</i>	<i>Number of Comments Received</i>
Agency	0
Organization	1
Windward Coalition	1
General Public	19
Total	20

1.1.4 Summary of Revisions to the Final EA in Response to Public Comments

The main revisions to the Final EA in response to public comments are summarized below.

- Section 1.6: revised to update status of the EA and associated consultations.
- Section 2.1: updated acronym definitions.
- Section 2.2: clarification of Alternative 2 training tempo, identification of a preferred alternative for construction and for training.
- Section 3.1: clarification of Alternative 2 training tempo, additional information on training noise.
- Section 3.2: additional information on training equipment engine characteristics.
- Section 3.4: updated with information from archaeological testing, revised to include input from the Section 106 National Historic Preservation Act (NHPA) process and to update status of consultation.
- Section 3.5: updated information and analysis of barbed wire, updated taxonomy information, clarification of Alternative 2 training tempo, revised to update status of section 7 Endangered Species Act (ESA) consultation.
- Section 3.6: clarification of Alternative 2 training tempo, information on potential for existing munitions constituents to migrate off range.
- Section 3.7: clarification of Alternative 2 training tempo.
- Section 4.4: updated information for barbed wire.
- Appendix B: included public comments and responses.
- Appendix C: updated with Section 106 NHPA consultation documentation.
- Appendix D: updated with section 7 ESA consultation documentation.
- Appendix E: updated with refined air emissions calculations.

Appendix B – Responses to Public Comments

Comment 001

Comment

From: conggers-banobos0m@icloud.com
To: MCRH-EA
Subject: Public Comments on DRAFT ENVIRONMENTAL ASSESSMENT FOR GROUND FORCES MODERNIZATION AT MARINE CORPS BASE HAWAII
Date: Tuesday, December 26, 2023 1:43:01 PM

I urge careful consideration of the environmental impact caused by military training and military development projects on Hawaiian lands. The displacement of native plants, animals, and people is evident, with native Hawaiian plants notably scarce on military bases. To mitigate this, all landscaping efforts should prioritize indigenous flora, fostering biodiversity and preserving our delicate ecosystems.

Furthermore, it is crucial to protect native seabird habitats on base and provide alternative locations off base for the seabirds affected. This ensures the preservation of our unique wildlife while allowing for military operations.

In respect of Hawaiian culture, granting access to the lands for traditional practices such as praying, fishing, surfing, kilo, ike Kapuna, housing, and work is paramount. The establishment of cultural centers on military bases dedicated to honoring native peoples' lands is a positive step towards acknowledging and preserving Hawai'i's rich heritage.

To enhance community engagement, providing job opportunities and preferences to Hawaiians in hiring processes is essential. Additionally, constructing housing for Hawaiians displaced by military activities is crucial for maintaining community integrity.

Finally, hiring Hawaiians for stewardship roles, responsible for managing and caring for Hawaiian resources on bases, ensures a sustainable and respectful approach to our shared environment. Let's work towards a harmonious coexistence between military activities and the preservation of Hawai'i's natural and cultural treasures.

Response to Comment

Thank you for your comment. Relative to the use of native species, the proposed action includes a best management practice for native plant vegetation restoration and landscape repair with native vegetation (see Section 2.2.6 of the EA). The proposed action includes procedures to avoid or minimize the potential for impacts to seabirds (see Table 2-4 and Section 3.5.2.2 of the EA). This includes:

- specifications for use of lights;
- ensuring all exterior lights would meet or exceed Marine Corps Base (MCB) Hawaii, United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and/or International Dark-Sky Association standards for exterior lighting;
- minimizing potential for bird fallout through use of tinted windows, elimination of lighting on the top of buildings, and relocating lights as close to the ground as possible; and
- ensuring all on-site contractors are briefed on how to conduct construction in the presence of light-attracted bird species.

MCB Hawaii is developing potential locations for siting a cultural repository. Hawaiian culture, local jobs, and housing are important to the Marine Corps and your comment has been shared with MCB Hawaii leadership. MCB Hawaii Kaneohe Bay has been a part of the local community for over a century, and we prioritize being good partners with the local community and recognize the importance of Hawaiian history and culture.

Appendix B – Responses to Public Comments

Comment 002

Comment

From: [Tani-Ann K Iida](#)
To: [MCBH-EA](#)
Cc: [Tani-Ann Iida](#)
Subject: NOISE from KMCAS
Date: Wednesday, December 27, 2023 9:50:07 AM

Attachment available until Jan 26, 2024

Dear KMCAS,

While we do appreciate the service of all our Armed Service members, we do not like living with the exquisite noise of the jets roaring directly over our homes almost every lunch and dinner time.

To come home from work, to sit down to dinner...to be interrupted in our relaxation by the blasts of jet noise - it's pretty awful, and raises tension in individuals and in the family.

Same at lunch.

To use us as a practice lane for newer, or even seasoned pilots, is actually cruel to the health of us civilians below.

This is a public health and noise safety issue, and should be measured by NIOSH standard decibels when they fly over our houses to assure they meet Residential code.

Further, your flying over our homes is a HUGE safety issue - if another one of your pilots goes awry, as evidenced by the recent landing in the Bay, they could end up on our homes rather than in the Bay, next time.

Can your pilots not be taught to land from an ocean approach instead?

Perhaps that would have prevented there being a jet landing in and further polluting what was once a beautiful and vibrant Bay, creating further environmental damage to our unique and overwhelmed Hawaii.

Please don't be like the Navy, and NOT CARE about Hawaii people.

I hope you are able to do your maintenance to the Station, as that is always needed, but with an eye to actually balancing that with some care to the surrounding community.

If you have plans for expanding further flight time, numbers or range over any of our residences, I am adamantly against that.

Tani-Ann Iida
808-372-1309

Sound on this video nowhere near the loudness in person, and this plane isn't even the closest they come over our homes, but you can at least get a small idea, also not just one plane comes over, but they come in waves.

Response to Comment

Thank you for your comment. This proposed action does not include any additional aircraft activities at MCB Hawaii or elsewhere, so there is no change to aircraft operations or aviation related noise resulting from the proposed action. As part of the local community for over a century, our operations have evolved through a variety of mission and equipment changes, with adjustments to aircraft operations defined by the requirements of the military aviation mission and sensitivity to community concerns. Where possible, our training operations address these concerns. For example, wherever possible we seek to shift operations, as you have suggested, over unpopulated areas and maximize use of "ocean approaches," although operations such as runway approaches are dictated by prevailing wind patterns and are developed to ensure safe aircraft operations. We appreciate the longstanding support of the community and make every effort to coordinate with the community and be a good neighbor. We will continue community outreach to discuss these topics, including participation in neighborhood board meetings.

Appendix B – Responses to Public Comments

Comment 002 (continued)

Comment

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Response to Comment

Appendix B – Responses to Public Comments

Comment 003

Comment

From: [Tamra Hayden](#)
To: [MCBH-EA](#)
Subject: No Military upgrades
Date: Thursday, December 28, 2023 12:19:17 AM

After the Red Hill disaster and how it was handled. I do not trust any military operations on the island of Oahu. I am disgusted with the way our land is used and destroyed by a military that bills the tax payers for their errors. If they basically have the use of our lands for free, and they treat our aina and people with contempt, disregard and complacency I do not want them here at all or to upgrade their facilities. Especially since our people cannot afford the cost of living here. The people of Oahu, the tax payers, should come before the military.

Tamra

Response to Comment

Thank you for your comment. MCB Hawaii Kaneohe Bay has been a part of the local community for over a century and has been through a variety of mission changes. We prioritize being good partners with the local community and respect the diversity of opinion regarding national priorities. The Marine Corps also understands the public's concerns about incidents that involve contamination or the potential to affect public safety. MCB Hawaii Kaneohe Bay takes its responsibilities as good stewards of the environment very seriously. Comprehensive environmental instructions detailing procedures to meet federal, state, and local requirements, including the safe handling of hazardous materials, govern our activities on the installations, and we conduct routine training and drills to prepare for natural disasters and emergencies.

Appendix B – Responses to Public Comments

Comment 004

Comment

From: concerned.citizen.hi
To: MCBH-EA
Subject: Public Comments for the Environmental Assessment for Ground Forces Modernization at Marine Corps Base Hawaii
Date: Sunday, January 21, 2024 5:32:28 PM

Aloha,

I write to share my concerns regarding the Environmental Assessment (EA) for Ground Forces Modernization at Marine Corps Base Hawaii. In my examination of the document, I find notable issues concerning the thoroughness and transparency in evaluating potential environmental impacts.

The EA focuses prominently on upgrades to equipment and weapon systems like NMESIS, MADIS, L-MADIS, and G/ATOR. However, it lacks substantive insight into the potential impacts stemming from the use of these systems or alterations in training procedures associated with the modernization of ground forces. The equipment and training analysis relies extensively on claims of similarity yet fails to provide sufficient information or data to substantiate these assertions, raising significant doubts about the assessment's robustness and truthfulness. I request detailed information on the assessment methodologies employed, a quantified definition of "similar," and the specific impacts considered for these aspects to be integrated into the assessment.

The inclusion of infrastructure projects seemingly unrelated to ground forces modernization, such as the armory expansion for the 3rd Marine Littoral Regiment (MLR), new compounds for the Low Altitude Air Detachment (LAAD) and Littoral Anti-Air Battalion (LAAB), and a Consolidated Secure Communications Facility for the 3rd MLR, raises questions about procedural regularity and compliance with the National Environmental Policy Act (NEPA). These projects, tied to the recent activation of the 3rd MLR, should have been reasonably foreseeable requirements, necessitating a prior evaluation for the 3rd MLR activation. This oversight questions the reliability of the assessment and parallels the Navy's experience with inadequate infrastructure planning at Marine Corps Base Hawaii. In light of these concerns, I respectfully seek detailed clarification on the absence of prior evaluation for the infrastructure and facility projects before the activation of the 3rd MLR. Additionally, I request a detailed explanation for their inclusion in this document for ground forces modernization and how these specific infrastructure projects support the stated purpose and need of modernizing the forces and enhancing combat capability.

Furthermore, I question the omission of the Medium-Range Intercept Capability (MRIC), a new cruise missile defense capability highlighted in the Defense News article [[US Marines rush to field two air defense systems amid global threats \(defensenews.com\)](https://www.defensenews.com)], from the analysis, especially given its projected fielding to the Low Altitude Air Defense Battalion at Marine Corps Base Hawaii in June 2025. The assessment overlooks the cumulative effects of Marine Corps ground forces modernization efforts, failing to analyze how the MRIC, MADIS, and L-MADIS

Response to Comment

Thank you for your detailed and wide-ranging comment. You are correct in that we have characterized the modernized, replacement equipment as "similar" to existing legacy equipment. We believe this characterization is amply supported by the analysis in the document, but have expanded the data pertaining to emissions, noise, and weight in (Section 2.1.3.1) to better illustrate this comparison. This similarity in equipment results in similarity in training. As the EA states at Section 2.1.3.1, Paragraph 2: "Because these [modernized] systems would replace and upgrade legacy equipment, the operational employment...would be similar to the tactics employed by the equipment within the ranges."

The facility construction projects analyzed in Section 2.1.2 are not "tied" to the activation of the 3d Marine Littoral Regiment (MLR). Like the modernization of equipment analyzed in Section 2.1.1, the analysis of infrastructure projects in Section 2.1.2 primarily represents a replacement and upgrade of existing infrastructure to support Hawai'i based Marine Corps ground forces. As detailed in the No-Action Alternative discussion for each proposed facility (sub-bullets (b) throughout Section 2.2.2.1), the "No-Action" Alternative is inefficient for the 3d MLR Armory Expansion, the 1st Low-Altitude Air Defense (LAAD) Headquarters & Service (H&S) Battery Compound, the consolidated secure communications facility, the 3d Anti-Air Battalion (LAAB) Air Control Battery Compound, the Live Virtual Training Complex, and the Consolidated Paraloft/Dive shop. New construction was required under either facility option for the Navy-Marine Expeditionary Ship Interdiction System (NMESIS), which will not be fielded until the analysis in this EA is complete. Only one facility option was provided for the Ground/Air Task-Oriented Radar (G/ATOR). At the time of the 3d MLR activation, the delivery timelines for these two systems were only estimates, and there was not enough data or certainty about the delivery, employment, and fielding of these systems to conduct meaningful National Environmental Policy Act (NEPA) analysis at that time. Now that these systems are more mature and fielding and training plans are finalized, the Marine Corps is conducting the analysis needed for the necessary infrastructure to support these weapons systems and Hawai'i-based Marine Corps ground forces.

Comment 004 (continued)

Comment

interact, as mentioned in the article. The units fielding these specific systems will undergo "significant training events" prior to fielding. This implies dissimilar training from existing training at MCBH and is in direct conflict with the information included in the Environmental Assessment. An Environmental Impact Statement (EIS) should be undertaken to comprehensively address the impacts associated with Marine Corps Ground Forces Modernization from a Force Design perspective, as mentioned in the article by Lieutenant General Karsten Heckl who serves as the Commanding General, Marine Corps Combat Development Command, and the Deputy Commandant for Combat Development and Integration. Table 4-1 outlines reasonably foreseeable future actions but it appears to be limited to infrastructure projects but clearly the Marine Corps has intentions to change weapon systems, training and other operational requirements at Marine Corps Base Hawaii in the near future which remain unaccounted for in this document. Please include all other proposals that are not quite ready for environmental analysis - long-term plans that are uncertain to occur, or plans that haven't been finalized, for example, as reasonably foreseeable actions with a specific explanation for why they are not included in a single planning document.

Finally, I highlight the inconsistency in the acronym LAAD, referring to both Low Altitude Air Defense Battalion and Littoral Anti-Air Detachment in this document and on Marine Corps Base Hawaii's website. This exemplifies a lack of attention to detail, diminishing trust in the analysis. How can the people of Hawaii trust an evaluation from an organization that cannot consistently utilize acronyms for its own organizational sub-units?

Mahalo
A Concerned Citizen of the State of Hawaii

Response to Comment

Prior to this proposed action and EA analysis, 3d MLR was operating in these facilities, using legacy equipment, and, if the No-Action Alternative is selected, this status quo will continue.

The Medium Range Intercept Capability (MRIC) program is currently under testing and development by the Marine Corps and will not be fielded to operational Marine Corps units until that process has concluded. Until this process is complete, neither the data or even the certainty of fielding required to conduct NEPA analysis exist. When this data is developed and a final fielding and employment decision is made, the Marine Corps will conduct appropriate NEPA for any new proposed action.

An EA is prepared to assess impacts and determine whether there is a significant impact and, therefore, the need for an Environmental Impact Statement (EIS). Just like an EIS, Chapter 2 of the EA describes the project components and alternatives that meet the purpose and need for the proposed action; Chapter 3 includes a full analysis of impacts; and Chapter 4 identifies and analyzes projects that have the possibility to contribute cumulatively to the impacts of the proposed action. The Marine Corps addressed all projects with the potential to contribute to cumulative impacts in Chapter 4 of the EA. These projects are listed in Table 4-1, and the impacts are analyzed in Section 4.4 of the EA. The cumulative effects of future modernization efforts will be addressed in future NEPA analyses once these systems, including MRIC, are ripe for analysis. As documented in the EA, there were no significant impacts resulting from the proposed action, even when added to foreseeable past, present, and future projects, which will occur almost entirely on developed areas within MCB Hawaii Kaneohe Bay. Like an EIS, publication of the Draft EA for public comment allows the public the opportunity to provide input on the proposed action and the analysis presented in the EA. The Marine Corps will consider these comments in making its final decision.

Comment 004 (continued)

Comment

Response to Comment

Finally, the LAAD acronym is used for two organizations within the Marine Corps, each with different names. LAAD for this EA is the Low-Altitude Air Defense defined on page vii and referenced on pages 2-6 and 2-13 in the discussion of facilities. The document has been reviewed to ensure consistency in use of these acronyms.

Appendix B – Responses to Public Comments

Comment 005

Comment

From: Pat Filbert
To: MCBH-EA
Cc: kbaz_commstrat@usmc.mil; Koolaupoko Hawaiian Civic Club; Mahalo Mahealani; James Heu; "Nicole Petri"; Doreen Vann
Subject: Comments on the Draft Environmental Assessment for Ground Forces Modernization Marine Corps Base (MCB) Hawaii O'ahu, Hawaii" (GFM EA).
Date: Monday, January 22, 2024 5:16:59 PM

Aloha,

My name is Pat Filbert and I'm a member of the Ko'olaupoko Hawaiian Civic Club. I'd like to provide the following comments/questions for the GFM EA.

1. Throughout the Draft GFM EA the Navy-Marine Expeditionary Ship Interdiction System (NMESIS) live fire is identified as not occurring on O'ahu; where will it occur and what are the potential land and sea impacts of the missiles and the materials used in their construction during live fire operations?
2. Throughout the Draft GFM EA Marine Air Defense Integrated System (MADIS) live fire is identified as not occurring on O'ahu; where will it occur?
3. No mention of debris from the demolition operations contaminated by PFAS ("forever" chemicals) noted; if they are encountered, where will they be sent and how will they be transported?
4. Page 2-6, paragraph 2.1.2.3 The addition of controlled environment (humidity) facilities (e.g., the NMESIS facility, the 3d Littoral Anti-Air Battalion (LAAB) Air Control Battery Compound, and G/ATOR Climate Controlled Warehouse) may cause an increase in power requirements and the potential for runoff; how does the potential increase in power requirements affect current base power requirements and a possible effect on the towns of Kane'ohe and Kailua? Also, and how will humidity runoff be disposed of, will it be filtered/drained into Kane'ohe or Kailua Bays, or will an additional treatment facility be required to contain/treat this run off?
5. It's noted throughout the Draft GFM EA that a reduction in live fire training will occur as NMESIS is fielded to MCB Hawaii Kane'ohe Bay. This implies, but does not specify, the removal of cannon batteries and associated support equipment; will cannon systems be removed from O'ahu and are the systems returning to the Continent?

Mahalo,

Pat Filbert
(702) 738-0231

Response to Comment

Thank you for your comment. At this point it has not been determined if and when any live fire of the NMESIS or Marine Air Defense Integrated System (MADIS) systems by Marine Corps ground forces in Hawai'i will occur. To the extent such live fire exercises take place, they will be covered by appropriate NEPA documentation covering such actions on Navy and/or Department of Defense (DoD) land and water ranges, or appropriate coverage under Executive Order (EO) 12114 should such actions occur in the environment outside the geographical borders of the United States (U.S.) and its territories. Relative to the possible environmental impacts of missile systems on the marine environment, please see the Hawaii-Southern California Training and Testing EIS – <https://www.nepa.navy.mil/Completed-Projects/At-Sea-Ranges/Hawaii-Southern-California-Training-and-Testing-Environmental-Planning/Documents>.

No demolition operations involving Per- and Polyfluorinated Substances (PFAS)-contaminated materials are proposed in this analysis. To the extent that this comment seeks information about the handling of PFAS generally, the Marine Corps will comply with all applicable Federal requirements for handling PFAS.

Because the majority of proposed facility construction is planned as replacement for aging and inefficient infrastructure, the net additive load to the electric grid as a result of the proposed facilities is not anticipated to be significant. All construction would comply with the MCB Hawaii Kaneohe Bay Municipal Separate Storm Sewer System (MS4) permit governing stormwater and non-stormwater discharges from industrial sites into ocean and nearby drainage channels and wetlands. Water, sewer, and electrical utilities would be improved, as necessary, within the proposed construction footprints.

Finally, as with all operational equipment, the Marine Corps will develop a redistribution plan for the cannon battery equipment located on O'ahu. Redistribution can include transfer to other operational units, to Reserve units, or national war reserves. When redistribution plans are finalized for equipment, the appropriate level of NEPA analysis will occur.

Appendix B – Responses to Public Comments

Comment 006: Windward Coalition

Comment

From: windwardcoalition@gmail.com
To: [MCBH-EA](#)
Subject: Please see attached
Date: Monday, January 22, 2024 9:34:54 PM
Attachments: [WC Response to Navv 2023 EA Modernization.pdf](#)

Attached please find comments regarding the EA draft for GROUND FORCES MODERNIZATION from the Windward Coalition.

Please confirm receipt.

Mahalo,

Eileen Hilton

Windward Coalition



Virus-free www.avast.com

Response to Comment

Thank you for your comment. We recognize community concern with the timing of the EA release at the winter holiday. The Marine Corps values public input on this Draft EA and opened a 30-day public comment period to ensure the community had adequate time to read and consider the proposal. To ensure broad awareness of this action, the Marine Corps provided advance notice of the public review period in neighborhood meetings and publications such as the *Honolulu Star-Advertiser*, a *Civil Beat* article, and an MCB Hawaii press release. The Marine Corps will continue to share information with communities on this and future projects.

With regard to your question about baseline conditions for impervious surface, the baseline amount of impervious area on the installation is approximately 410 acres, which includes impervious surfaces analyzed in recently completed NEPA documents such as the 2022 KC-130J and MQ-9A Home Basing EA and the ongoing C-40 Aircraft Maintenance Hangar EA. In response to your comment, the Marine Corps has expanded our description of the impacts of impervious surface in Section 3.3. The Marine Corps is in compliance with and will continue to update the National Pollutant Discharge Elimination System (NPDES) General Permit Waste Discharge Requirements for Discharges of Storm Water Associated with the Industrial General Permit in coordination with U.S. Environmental Protection Agency (USEPA) and the Hawai'i State Department of Health (HDOH). [*Note: need to confirm this with Thomas Santos, Larae Bishop, and Steve Tome.*] The proposed action and all future construction projects at MCB Hawaii Kaneohe Bay would include appropriate stormwater quality and Low Impact Development (LID) features identified in Section 2.4 to reduce the potential for off-site transport of pollutants. While a minor increase in impervious surfaces of 3 acres would occur for the proposed action, the small amount of additional impervious surface, coupled with the location of future projects within the highly developed portion of the installation, would result in negligible increases in stormwater runoff, which would be managed in accordance with the Storm Water Pollution Prevention Plan (SWPPP) for industrial activities, as required by the NPDES General Permit Waste Discharge Requirements for Discharges of Storm Water Associated with the Industrial General Permit.

Appendix B – Responses to Public Comments

Comment 006 (continued)

Comment



Peer Amble
Stantec GS Inc.
737 Bishop Street, Suite 3050
Honolulu HI, 96813

January 22, 2024

Dear Maj McWhirter,

We have reviewed the most recent Navy EA Draft for GROUND FORCES MODERNIZATION (Dec 2023). It appears the new equipment will add another effective layer in our country's defense. We recognize, especially in these uncertain times, the need for a well-equipped and trained armed forces to protect our democracy. Below are some comments and questions. The NEPA process is intended to be a disclosure document to inform the public of proposed changes using clear understandable language and timed to provide an adequate response.

- The **timing of release** of the EA during Christmas week was not optimal and should be avoided in the future. Many residents were off island or unable to review the information. This problem was pointed out in the past and at recent neighborhood board meetings.
- The language and methodology used to determine **cumulative effects** is confusing. For example, regarding runoff and bay pollution, the proposed reconstruction describes an impervious surface increase of *approximately 3 acres (1%) from the baseline*. **What is the baseline?** How many acres of impervious surface existed before the last series of 3 EAs. Does the "baseline" include the April 2023 EA which added up to 8 acres **plus** the April 2022 EA which added 4.25 acres of new impervious surface? **Please describe how you calculated the cumulative effects of runoff.**
- **Piecemealing** - Did you consider combining the recent EAs in one EIS? The impact of proposed changes with overlapping time frames and unclear language makes cumulative impact assessments difficult if not impossible to determine.
- The **format** of alternatives differs from previous EAs. We are used to seeing a specific proposal and discussion of alternatives and why they were rejected. In the EA, there are alternatives without statement on which one the Navy prefers.
 - Alternative 1: New equipment but no change from previous annual average of approximately 1,500 training events on Oahu.
 - Alternative 2: New equipment with a 20% increase in training activity from previous levels.
 - No specifics of whether these are air/ground/sea activities. The document suggests an increase only in ground transportation activities.
 - Claim only a 1 dB DNL increase in noise but a 20% increase in daily exposure time.

Thank you for taking the time to consider our comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Eileen".

Eileen Hilton, M.D.
President, Windward Coalition
PO Box 342102
Kailua, HI 96734
808-254-8088

Response to Comment

The Marine Corps analyzed several disparate actions through separate EA documents because each action has proceeded independently and became ripe for review at different times. Planning associated with aircraft basing was well advanced while discussions about MLR composition and equipment sets remained uncertain, and the Navy's proposal for hangar replacement proceeded independently of both Marine Corps-led actions. Although these actions are analyzed in separate NEPA documents, the cumulative effects of all three actions are considered in this document.

With regard to the lack of a Preferred Alternative in the draft EA, the Marine Corps adopted training Alternative 1 (baseline training) as the basis for informal consultation with the USFWS (see Section 3.5 of the EA) and, as such, has selected Alternative 1 as the preferred alternative for training in the Final EA.

Alternative 2 involves the same training and equipment as Alternative 1. The only difference is the training tempo. All other training (e.g., small arms fire) at the three Marine Corps training areas would remain unchanged by the proposed action. Under Alternative 2, the increase in the frequency of ground training events associated with the modernized equipment would be an average of only 2.5 additional ground equipment training events per week for MCB Hawaii Kaneohe Bay and MCTAB and an average of only 0.7 additional ground equipment training events per week for Pu'uloa Range Training Facility (RTF). This minimal increase in training tempo equates to an increase in military-generated noise of less than 1 decibel (dB) Day-Night Average Sound Level (DNL) as neither the existing or proposed modernized ground equipment generate high noise levels in comparison to the more dominant types of training activities that currently occur at the three Marine Corps training areas, such as aircraft activities and small-arms firing.

Appendix B – Responses to Public Comments

Comment 007

Comment

From: [Camille Nalua-Rios](#)
To: [MCBH-EA](#)
Subject: Pu'uloa Range Training Facility,
Date: Tuesday, January 23, 2024 9:13:02 PM

I oppose the continued use of live fire training facility at Pu'uloa.

I oppose the 20% expansion in training days at Pu'uloa Range Training Facility,

-I oppose current lead testing plans for PRTF which only test a tiny portion of the range and do not test the nearby beach park, homes, or marine life.

Response to Comment

Thank you for your comment. Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa, and the Marine Corps will not increase the training days at Pu'uloa RTF as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at levels currently conducted at Marine Corps ranges on O'ahu.

The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

Appendix B – Responses to Public Comments

Comment 008

Comment

From: JOHN PAUL JONES
To: MCBH-EA
Subject: Re: Pu'uloa Range proposal of increased shooting days
Date: Tuesday, January 23, 2024 9:34:27 PM

Aloha,

I am a long time resident of Ewa Beach. A 30 year Army veteran/retired MSG. A concerned community member. It has been brought to my attention as well as my community leaders and homeowners that it has been proposed to increase the current number of range days by 20%.

This increase will only add to the current noise AND increase the levels of lead, both airborne and along our coastline and properties throughout the area. While I am understanding of the need to train to keep our troops and service members fit to fight, I protest the location and continued use of this range as it is not conducive to being a good neighbor nor showing care and concern for the people of Ewa Beach.

I'm sure that you will receive many more emails of concern in the future. I as well as my community members are asking only for you to be considerate of people who live here, not visiting or using Ewa Beach as a "tour of duty" location.

If needed or required, I can be contacted at the below email address for further comment.

Mahalo for your time, consideration and aloha.

John Paul Jones, US Army Retired

The Marine Corps is currently doing a Ground Forces Modernization "Environmental Assessment" (EA) , and amazingly they are proposing to **increase the number of shooting days by 20% at Pu'uloa Range**. The EA also does not mention anything about managing lead contamination or the many other threats the community has repeatedly raised. They have set a deadline of January 25th to submit comments on their proposed plan. This is outrageous given they never mentioned the EA at the Ewa Neighborhood board meetings. However, its critical that we get community input on the official record, so can you please provide a very quick 2 or 3 sentences saying:

- You oppose the 20% expansion in training days at Pu'uloa Range Training Facility,
- You oppose current lead testing plans for PRTF which only test a tiny portion of the range and do not test the nearby beach park, homes, or marine life.

Response to Comment

Thank you for your comment. Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment

Appendix B – Responses to Public Comments

Comment 009

Comment

From: Sue
To: [MCBH-EA](#)
Subject: Environment Assessment at Pu'uloa Range
Date: Tuesday, January 23, 2024 10:23:10 PM

Dear Sir/Madam,

We oppose the 20% expansion in training days at Pu'uloa Range Training Facility,
We oppose current lead testing plans for PRTF which only test a tiny portion of the range and do not
test the nearby beach park, homes, or marine life.

Sincerely,

Sue and Greg Hansen
91-135 Ewa Beach Road

Response to Comment

Thank you for your comment. Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment

The Marine Corps is partnering with HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

Appendix B – Responses to Public Comments

Comment 010

Comment

From: [scott021415](#)
To: [MCBH-EA](#)
Subject: Puuloa range
Date: Wednesday, January 24, 2024 12:46:05 AM

I'm a retired Airforce veteran who understands the need for ranges for the military. I don't think having a range in the community, or next to a park where families go to relax, or next to a elementary school where children hear gun fire while trying to get an education is logical. I don't see ranges on Kaneohe Marine base in their community near parks, or the ocean. As a member of this community, I don't appreciate the smell, which contains lead, and the noise with the loud speaker for the firing line chief.

There are many ranges at other military bases that can accommodate you.

USE THEM, Please.

Scott Cummings

Sent from my Galaxy

Response to Comment

Thank you for your comment. Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment

Training outside Hawai'i is considered in the development of alternatives in Section 2.2.1 of the EA.

Appendix B – Responses to Public Comments

Comment 011

Comment

From: [Ingrid Lissette](#)
To: [MCBH-EA](#)
Subject: Comment on Ground Forces Modernization "Environmental Assessment"
Date: Wednesday, January 24, 2024 9:01:58 AM

Hello Marine Corps Base Hawaii,

I have recently learned about your upcoming planned activities, and I would like to comment that:

- I oppose the 20% expansion in training days at Pu'uloa Range Training Facility,
- I oppose current lead testing plans for PRTF which only test a tiny portion of the range and do not test the nearby beach park, homes, or marine life.
- I oppose the lack of the community involvement.

Thank you for your attention.

Ingrid Yanez
Ewa Beach Neighbor

Response to Comment

Thank you for your comment.

Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment .

The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

The Marine Corps values public input on this Draft EA and opened a 30-day public comment period to ensure that the community had adequate time to read and consider the proposal. To ensure broad awareness of this action, the Marine Corps provided advance notice of the public review period in neighborhood meetings and publications such as the *Honolulu Star-Advertiser*, a Civil Beat article, and an MCB Hawaii press release. The Marine Corps will continue to share information with communities on this and future projects.

Appendix B – Responses to Public Comments

Comment 012

Comment

From: [Karen Luke](#)
To: [MCBH-EA](#)
Subject: Dear Neighbor
Date: Wednesday, January 24, 2024 11:29:34 AM

Please be a good neighbor and DO NOT expand in training days at Pu'uloa Range Training Facility by a huge 20%. I oppose current lead testing plans for PRTF which only test a tiny portion of the range and do not test the nearby beach park, our homes, or adjacent marine life. I will protect my family and our environment. Your unhealthy ways do not a good neighbor make.

Mahalo,
Karen Luke
Ewa Beach Road

Response to Comment

Thank you for your comment. Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment

The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

Appendix B – Responses to Public Comments

Comment 013

Comment

From: [Mikiala Lidstone](#)
To: [MCBH-FA](#)
Subject: Public comment on PRTF proposed shooting increase
Date: Wednesday, January 24, 2024 12:47:51 PM

Aloha,

This is to inform you that I **oppose** the 20% expansion in training days at Pu'uloa Range Training Facility. And I **oppose** current lead testing plans for PRTF which only test a tiny portion of the range and do not test the nearby beach park, homes, or marine life.

me ka 'oia'i'o,
Miki'ala M. Lidstone

--

A world where communities are rooted, knowledgeable about and engaged in the place they live. Ulu A'e.

Miki'ala M. Lidstone
Ulu A'e Learning Center
91-1080 Saratoga Avenue
Kapolei, HI 96707
(808) 722-3036
www.uluae.org
Register for programs [here](#)
Rent facility [here](#)

Response to Comment

Thank you for your comment. Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment .

The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

Appendix B – Responses to Public Comments

Comment 014

Comment

From: [Michael Plowman](#)
To: [MCBH-EA](#)
Cc: [ed.case@mail.house.gov](#); [Santana, Carlos \(Hirono\); Dale_Hahn@schatz.senate.gov](#); [ed.case@mail.house.gov](#); [Santana, Carlos \(Hirono\); Dale_Hahn@schatz.senate.gov](#); [senfevella@capitol.hawaii.gov](#); [Rep. Rose Martinez; repalcos@capitol.hawaii.gov](#); [Sen. Mike Gabbard](#)
Subject: Comments for the Draft ENVIRONMENTAL ASSESSMENT for GROUND FORCES MODERNIZATION MARINE CORPS BASE HAWAII O'AHU, HAWAII December 2023
Date: Wednesday, January 24, 2024 3:42:02 PM
Attachments: [GFM_EA_comments.pdf](#)

Please find the following attached document with comments and related questions for the Draft ENVIRONMENTAL ASSESSMENT for GROUND FORCES MODERNIZATION MARINE CORPS BASE HAWAII O'AHU, HAWAII December 2023

Respectfully submitted,

Michael Plowman
'Ewa Beach, HI

Response to Comment

Thank you for your comment. The Marine Corps welcomes input from the public on this Draft EA. The Marine Corps provided advance notice of the public review period in neighborhood meetings and publications such as the *Honolulu Star-Advertiser*, a Civil Beat article, and an MCB Hawaii press release. The public comment period started on December 26 pursuant to schedule and ran for 30 days, ending on January 25. While 1 week was the week between Christmas and New Year, there were three more weeks until January 25, satisfying the public participation requirements of NEPA. The Marine Corps will continue to share information with communities on this and future projects.

All prior actions received the appropriate level of NEPA analysis and are reflected in either baseline conditions or cumulative effects. The projects addressed in the cumulative impact analysis address past, present, and reasonably foreseeable future actions. Older past projects are included as part of baseline conditions and thus not mentioned individually in Table 4-1. Future projects with a reasonable likelihood of occurring are included in Table 4-1. Projects that are speculative (e.g., long-term planning concepts), lacking specific information, or are unlikely to occur are not included in Table 4-1.

The preferred alternative for training is Alternative 1, which involves training with modernized equipment at current training levels with legacy equipment. The Marine Corps is not pursuing Alternative 2 for training. Neither training alternative impacts any aspect of the facilities modernization component. Both training alternatives consist of the same size force and equipment conducting the same training; only the tempo of training with modernized equipment changes under Alternative 2. While the Marine Corps did identify preferred alternatives for the infrastructure (infrastructure alternatives are common to both training alternatives as there is no difference in equipment type or number under either training alternative), it did not formally designate a preferred alternative for training intensity in the Draft EA. The Marine Corps adopted training Alternative 1 (baseline training) as the basis for informal consultation with the USFWS (see Section 3.5 of the EA) and, as such, has selected Alternative 1 as the preferred alternative for training activities in the Final EA.

Appendix B – Responses to Public Comments

Comment 014 (continued)

Comment

Michael Plowman
‘Ewa Beach, HI
23 January 2023

Peer Amble
Stantec GS Inc.
737 Bishop Street, Suite 3050
Honolulu HI, 96813

Please find the following comments and related questions for the Draft ENVIRONMENTAL ASSESSMENT for GROUND FORCES MODERNIZATION MARINE CORPS BASE HAWAII O‘AHU, HAWAII December 2023

In short, this Environmental Assessment (EA):

1. Fails to include all relevant, recent past actions cumulatively impacting the Pu‘uloa Range Training Facility and surrounding ‘Ewa Beach Community.
2. Fails to adequately explain and justify Alternative 2.
3. Fails to make a diligent and equitable effort to include ‘Ewa Beach Public Involvement.

Given the factors related to #3 above, an extension to the Public Comment window is requested.

Alternative 2 appears to have no relationship to the Preferred Alternative and warrants its own NEPA action.

Respectfully submitted,

Michael Plowman
‘Ewa Beach, HI

Response to Comment

The EA addresses transit from MCB Hawaii Kaneohe Bay to other Marine Corps ranges on O‘ahu. The origin of these units is not necessary to characterize the potential impacts of the proposed action.

The Ulupa‘u Range and other ranges at MCB Hawaii Kaneohe Bay do not have the capacity or required infrastructure to support all training required with modernized equipment, necessitating transit to other Marine Corps ranges on O‘ahu to conduct required training. The proposed action does not change live-fire activities, including small arms live-fire activities, conducted at any of the Marine Corps ranges on O‘ahu, including the Pu‘uloa RTF.

MCB Hawaii is working with U.S. Army Corps of Engineers (USACE) regarding future projects for the Pu‘uloa RTF shoreline. The shoreline stabilization project was removed from Table 4-1 because it is still in the preliminary planning stage and is not currently a reasonably foreseeable project.

The structure to which you are referring was not specifically identified because it is not eligible for listing in the National Register of Historic Places. The pit target wall and a firing line are remnants of an old carbine range closed in the 1950s. The range impact berm was also removed. These remnants have no structural integrity or operational functionality.

The Marine Corps reviewed all public comments, including those relating to Environmental Justice. The impact analysis and conclusions did not change; the proposed action and alternatives would not have significant impacts to environmental resources. Consequently, proposed training would not result in disproportionate adverse human health or environmental impacts to low-income, minority populations, or over-burdened populations (see introduction in Chapter 3).

Comment 014 (continued)

Comment

CUMULATIVE IMPACTS ASSESSMENT INCOMPLETE

The Cumulative Impacts assessment in this EA fails to identify two past actions which resulted in a continued cycle of environmental injustice due to actions resulting in significant negative impact to the low-income, minority, and over-burdened population of 'Ewa Beach surrounding the Pu'uloa Range Training Facility (PRTF).

1. Alpha range expansion and sniper training relocation to PRTF

In the early 2010's, Marine Corps Base Hawaii (MCBH) approximately doubled the length of the Alpha Range to 1000 yds and relocated sniper training from Kaneohe to PRTF without conducting an Environmental Assessment and thus failed to gauge the significant negative impact this environmental injustice would impose on the 'Ewa Beach community.

One significant negative impact of this action came in the form of expanded noise contours impacting a larger number of receptors experiencing the excessive noise levels imposed on the community surrounding the range.

Another significant negative impact of doubling the distance of the Alpha Range was the geometric expansion of the Surface Danger Zone (SDZ), which encroaches upon the neighboring community.

MCBH claims that shallow earthen berms negate the need to observe the full "Batwing" SDZ, which is mandatory per the DA-PAM 385-63 Range Safety manual, "when designing or conducting training on ranges that involve fire and movement, fire and maneuver, flanking fire, and/or *when ricochet hazards outside the range boundary may endanger nonparticipating personnel.*" Furthermore, "deviations applied to danger zones extending beyond authorized range impact area(s)/installation boundaries must be based on the ability to sufficiently contain projectiles, hazardous fragments, laser beams, and both vertical and horizontal ricochets within the authorized range impact area(s)/installation boundaries and areas under military control."¹

PRTF is an open-air, non-baffled range with no ability to sufficiently contain projectiles other than shallow berms surrounding the perimeters of each range, and therefore the full batwing SDZ must be considered a ricochet hazard zone within which, all persons are at risk of death.

Figure 1 is a batwing SDZ as properly applied to the 1000-yard, PRTF Alpha range for the 7.62mm small arms, direct-fire weapons, calculated using input data from the USMC/US Army Range Safety manual¹. There are clear overlaps with the neighboring community, and extensive public areas are within the danger zone to include Ewa Beach and Kapilina neighborhoods, Iroquois Pt Elementary School, Pu'uloa Beach Park, Ewa International Golf Course, public beaches/surf/fishing spots, and a planned Department of Hawaiian Homeland (DHHL) residential development. Figure 2 is a zoomed aspect of the same batwing SDZ. The batwing SDZ for the Bravo Range covers a similar footprint.

¹ [DA PAM 385-63](#) 1-4 {1}(a) {2014}

Response to Comment

Appendix B – Responses to Public Comments

Comment 014 (continued)

Comment



Figure 1.



Figure 2.

Response to Comment

Comment 014 (continued)

Comment

2. Reconfiguration and Construction of Small Arms Ranges at the Ulupa'u Range Training Facility, Marine Corps Base Hawaii Kaneohe Bay

In approximately 2015-2016, MCBH eliminated the “known distance” range at Ulupa'u Crater where annual rifle training was conducted in favor of constructing an “Unknown Distance” range, even though the USMC had been successfully conducting Unknown Distance training on Schofield Barracks ranges and on Range 6 at Ulupa'u Crater. The project was evaluated by MCBH in the Environmental Assessment for the Reconfiguration and Construction of Small Arms Ranges at the Ulupa'u Range Training Facility, Marine Corps Base Hawaii Kaneohe Bay, March 2014. The EA stated that all Table 1 rifle marksmanship qualification training would move to PRTF. However, MCBH failed to include in that EA any assessment of the impact on the surrounding 'Ewa Beach community such an increase in training would impose.

The cumulative impacts of moving all annual requalification and sniper training that had previously been conducted on other Oahu Range Training Facilities (RTF) were staggering.

The senses of the community were dramatically assaulted by pre-dawn blasting of a Giant Voice PA system (also constructed without an EA), followed by continuous military rifle fire throughout the day with up to 240 shooters simultaneously². An unprecedented number of community noise complaints and requests for lowering of the PA system volume and observance of state and local noise laws went ignored and increased scrutiny of PRTF led to community discovery of:

- Significant lead contamination eroding into the sea—a hazard of which MCBH Hawaii was aware in 2013 yet took no corrective action for over decade until prompted by The Surfrider Foundation and the 'Ewa Neighborhood Board. MCBH's current action plan to address lead poisoning risk is being challenged by the community as inadequate for ensuring public safety.
- A destructive shoreline hardening plan which would armor the shared 'Ewa/Pu'uloa sandy shoreline with a massive steel sheet pile bulkhead against the advisement of a MCBH-commissioned study³ which cited a likely loss of the sand beach if built.
- SDZ encroachment on the surrounding community and Daniel K Inouye International Airport Approach/Transition surfaces and flight paths.

These factors culminated in the 'Ewa Neighborhood Board passing a 2023 resolution declaring PRTF incompatible with the surrounding community and requesting the USMC to relocate all live fire training away from PRTF. The Hawaii State Legislature concurred, introducing four and passing two companion resolutions requesting the same. The cumulative impacts of the Alpha Range lengthening and the Ulupa'u crater range reconfiguration and resultant increase in PRTF training significantly, and negatively impacted the historically disadvantaged 'Ewa Beach Community and exacerbated existing environmental injustices.

² Hawaii News Now PRTF reporting (May, 2023)

³ Pu'uloa Erosion Study (2015)

Response to Comment

Appendix B – Responses to Public Comments

Comment 014 (continued)

Comment

Failure to include these two previous projects in Cumulative Impacts for this proposed action EA renders the assessment significantly incomplete, especially given that this EA includes an alternative which further increases training volume by an additional 20%.

The assertion in this EA that “the slight increase in training would not be noticeable to community members in the area”⁴ is preposterous. An additional 7 weeks of training per year would be devastating to an ‘Ewa Beach community already pushed beyond their limits.

As stated in this EA, “Cumulative impacts arise when a relationship exists between a proposed action and other actions expected to occur in a similar location and/or during a similar time period. To identify cumulative effects, the analysis addresses the following three fundamental questions.

- Does a relationship exist such that affected environmental components of the proposed action might interact with the affected environmental components of past, present, or reasonably foreseeable actions?

- If one or more of the affected environmental components of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?

- If such a relationship exists, does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?”

The answer to all three of these questions from a PRTF and ‘Ewa Beach community standpoint for Alternative 2 is a resounding YES!

The proposed increased training vaguely referenced in Alternative 2 stacked on to the existing negative impacts resulting from actions 1 & 2 above, would undoubtedly result in further significant negative impact on the low-income, minority, and over-burdened population of ‘Ewa Beach, and requires further Environmental Justice analyzation in its own Environmental Impact Statement (EIS).

As it stands, a Finding Of No Significant Impact (FONSI) for this EA which proposes a potential 20% increase in training at PRTF is absurd.

INEQUITABLE PUBLIC INVOLVEMENT EFFORT

In the Q & A section provided on the MCBH website regarding the proposed action, MCBH states: “Since October 2023, Marine Corps representatives have engaged the community at Neighborhood Boards in Kailua, Waimanalo, Kahalu‘u, and Kaneohe to announce the forthcoming proposed action and Draft EA, answer questions, and provide resources for the community to conduct research in preparation for the public comment period. Public comment period begins December 26th, 2023, and ends on January 25th, 2024.”

⁴ GROUND FORCES MODERNIZATION MARINE CORPS BASE HAWAII O‘AHU, HAWAII EA December 2023

Response to Comment

Appendix B – Responses to Public Comments

Comment 014 (continued)

Comment

Conspicuously missing from the above list of communities engaged with respect to the forthcoming proposed action is 'Ewa Beach. This is consistent with MCBH's avoidance of notifying the 'Ewa Beach community of the 2019 Pu'uloa Shoreline Stabilization Project EA and associated Public Comment period. In similar fashion to MCBH's subtle advertisement of the Pu'uloa Shoreline Stabilization EA over Labor Day weekend of 2019, MCBH quietly placed the newspaper notification of the forthcoming proposed action on the day following Christmas Day, 2023. An X platform announcement was strategically timed for 6 PM on the Friday before Christmas—the notorious release time for press releases originators would prefer to go unnoticed.

The USMC is required by regulation to make a diligent effort to involve the public in NEPA actions. The effort put forth by MCBH to involve the 'Ewa Beach community in this proposed action cannot be described as diligent. To the contrary, MCBH appears to have made a diligent effort to conceal the proposed action from the 'Ewa Beach community.

Although MCBH was represented at the 'Ewa NB meetings in October and November 2023, January 2024, as well as a November 2023 Town Hall meeting hosted by Hawai'i State House Representative Martinez (Dist. 40), existence of the proposed action EA and public comment period was not disclosed by MCBH to the 'Ewa Beach community as it was in other impacted communities. This typical, selective concealment of the proposed action and opportunity for public comment is unacceptable and warrants a significant extension of the public comment period to afford the 'Ewa Beach community an equitable opportunity to conduct research in preparation for public comment.

INSUFFICIENT EXPLANATION AND JUSTIFICATION FOR ALTERNATIVE 2

It is noteworthy that in the limited public engagements by MCBH with Windward Oahu communities regarding the forthcoming proposed action, no disclosure was made at these meetings by MCBH with respect to a potential 20% increase in training. The increase in training is not adequately explained nor is a justification provided in this EA. The appearance given is that of the USMC attempting to sneak public evaluation of a significant increase in impactful operations by burying it as a secondary alternative in an assessment of an otherwise seemingly innocuous equipment and facilities update.

Questions:

1. Exactly which training events would see a 20% rise in occurrence and what is the justification for Alternative 2?
2. Which transiting units would be conducting the additional training and where are they based?
3. What prevents this increased training in Hawai'i by transiting marines from being conducted at their usual Range Training Facilities where they are based?
4. What are the statistics for annual number of shooter training events at PRTF for the periods:

Response to Comment

Appendix B – Responses to Public Comments

Comment 014 (continued)

Comment

- a. 2007-2009 (Pre Alpha range expansion)
- b. 2012-2014 (post Alpha expansion/Pre Ulupa'u Crater reconfiguration)
- c. 2021-2023 (Post Ulupa'u Crater reconfiguration/current rate)

Please provide data by range as presented at the 'Ewa Neighborhood Board meeting in March, 2023. Please list total number of shooters, not only USMC (reference slide Figure 3 follows).

5. How many total rounds were fired at PRTF for the same time periods in #4 above?
6. Why is the installation of sheet pile along the fast land boundary of PRTF Ranges A and B listed in 4.3 **Past, Present, and Reasonably Foreseeable Actions** given MCBH has repeatedly claimed for the past several years that this plan had been abandoned?
7. Given the myriad of promises made to the 'Ewa community to modify PRTF to address issues with its incompatible location until such time relocation can be implemented, why is section 4.3 devoid of such action over the next 8 years?
8. Please explain the absence of any reference to the structure in Figure 4 below in this or any previous EA/Section 106 reviews for PRTF in recent years. This structure has been colloquially referred to as "The Old Pistol Range" by 'Ewa Beach kupuna. It is believed to be WWI era, and eligible for inclusion in the National Register of Historic Places. It is located between the Alpha range and the western perimeter fence of PRTF approximately 30 meters landward of the highwater mark.

US Marine Corps personnel trained	
Range trained on	# of personnel trained (2021-2023)
Alpha Range (sniper range)	2,190
Bravo Range (rifle range)	46,252 ANNUAL RIFLE QUALIFICATION
Charlie Range (short distance range)	3,237
Delta Range (short distance range)	2,444
Echo Range (short distance range)	2,957
Foxtrot Range (short distance range)	6,436

*figures do not include Joint Force Training (Army, Navy, Airforce)

(# OF PERSONNEL TRAINED) = (INDIVIDUAL SHOOTER) X (# OF DAYS TRAINED ON SPECIFIC RANGE)

WEDNESDAY, MARCH 29, 2023 EWA NEIGHBORHOOD BOARD MEET

Figure 3.

Response to Comment

Appendix B – Responses to Public Comments

Comment 014 (continued)

Comment



Figure 4.

ⁱ [Department of the Army Pamphlet DA PAM 385-63 Range Safety](#) (2014)

Response to Comment

Appendix B – Responses to Public Comments

Comment 015

Comment

From: [Paul Puryear](#)
To: [MCBH-EA](#)
Subject: Call for Comments Response to Env Assmnt GFM MCB Oahu
Date: Wednesday, January 24, 2024 4:53:17 PM
Attachments: [CFC MCB Oahu 1-24-24.docx](#)

Maj. Travis McWHIRTER, MARFORPAC
C/O Peer AMBLE, Stantec GS Inc.
737 Bishop St., Ste 3050
Honolulu, HI 86813

Sirs,

Howdy!

Attached is a Word document with my response to the "Call for Comments" on the Environmental Assessment GFM for MCB Oahu.

I have also mailed a copy of this by US mail to the address provided...

Respectfully -

Paul E PURYEAR

Response to Comment

Thank you for your extensive comment, we appreciate your time and effort in reviewing our EA.

Appendix B – Responses to Public Comments

Comment 015 (continued)

Comment

Paul E PURYEAR
23 January 2024

Maj. Travis McWHIRTER, MARFORPAC
C/O Peer AMBLE, Stantec GS Inc.
737 Bishop St., Ste 3050
Honolulu, HI 86813

**Gentlemen -
Howdy!**

This is my input in response to your “*Call for Comments*” regarding the *Environmental Assessment - GFM - MCB Oahu*. I am submitting both by mail & Email.

I realize that you are primarily looking for comments regarding a series of changes - construction on base, training, operations, new equipment and weaponry. Some housing & base living conditions. And your focus is on mostly various environmental impacts of what is considered/proposed.

While your “*Call for Comments*” is anticipating more responses along the lines of people making critical statements about different parts of this package- either positive or negative, I don’t so much have comments to make about specific items. But more along thoughts/comments I would like to share. My input can be put at the end of the responses and looked at, if & when you have time.

Background –

Once upon a time I was Captain Paul Eldon PURYEAR, USMCR. A reasonably undistinguished career. I have never been on *MCB Oahu*. I have been on Oahu several times. Driven past the base.

I am currently working up a couple of submissions (one to the Warfighting Lab at MCB Quantico; the other to the Naval War College, Newport) and in reviewing other documentation this “*Call for Comments*” came across my desk. I could not resist.

I read the “*Call for Comments*” document top to bottom, front to back. I had to repeat a few parts a second time as I was unclear on what was presented. As an aside - There are some incredibly esoteric items included (“*Hoary Bats & Barbed Wire*,” I found humorous, for example - probably not as funny to the bats if they get caught in the Barbed wire).

I had already read the *2015 Security Environment Forecast (futures 2030-2045)* latest edition. Upon starting to review this “*Call for Comments*” I also looked up the 38th *Commandant of the Marine Corps Commandant’s Planning Guidance* - and - the latest organizational chart for The Corps.

Comments & Opinions –

I realize the “*Call for Comments*” primarily focuses on various environmental impacts of considered new construction, new equipment (mostly wheeled vehicles & the HIMARS), changes in training, base operations and living arrangements. While this item is directed more at respondents making critical statements about various parts of this product (particularly construction) either positive or negative I don’t so much have comments to make about specific items as some general review thoughts.

I do want to say having read the entire document (some parts more than once), I am fairly impressed with the product you have. You lay out your arguments well. I think you’ve discussed all situations

Response to Comment

Appendix B – Responses to Public Comments

Comment 015 (continued)

Comment

needing to look at - admittedly mostly involving construction activities but also training, traffic particularly of large vehicles (and the HIMARS) some operational considerations and living on base conditions. In my opinion you've done an excellent job of presenting the whole picture of what is proposed to be done at MCB Oahu. You considered potentially all alternatives (preferred & alternate).

On almost every proposal I agree with what you have stated. More particularly on items where you have presented a *preferred* and *alternative* option, I think you have done a reasonably good job of demonstrating why the *preferred option* is the best if it can be carried out. However, you have also done reasonably well at showing where *alternative options* are available if the *preferred option* for whatever reason (cost, some considerations with environmental issues or something regarding the population of the island, etc.) your *alternative* items appear to be good options if you must fall back and rely on them.

Overall, I think you've done an excellent job presenting the *work items proposed* to be done and changes in the training structure, methodology, operational environment, differences in equipment particularly involving the new HIMARS system & trucking assets and living conditions to be brought about on base.

I have a couple of points not specifically addressing a particular proposal/option but may have an impact across more than one item. An example - in a couple of items there is talk about the need to not dig more than 6 inches deep into the surface of the ground; whatever that surface is - dirt, sand, composite, etc. And I realize you have at least one operational training area where you can dig deeper than 6 inches.

I am concerned with a concept - I consider to be *the infection of wokeness* - seeping into the Corps. The Corps, in my opinion, is far more resistant to the woke ideology than the other service branches but in items like this even here I see what looks potentially troubling.

I know we must be concerned about the physical environment whenever possible, however - If units must to train for *realistic combat (or conflict) conditions/situations* - and - in some training area they *arbitrarily* cannot dig deeper than (for example) 6 inches this may interfere with conducting training that in any way realistically resembles what they are going to face out in the real world. Particularly if they must face off against People's Liberation Army forces.

My point may seem silly/irrelevant but a series of these, what I call "woke" (to use current phraseology) considerations/restrictions on the full training & operational paradigm can cumulatively add up to negative impacts upon Marines (and Marine units) operating effectively in a real world, shooting, combat environment.

Marines functioning efficiently, effectively and with *dramatically reduced casualties among themselves* should be our ONLY target goal. All else is irrelevant.

I understand limitations on digging more than 6 inches in the soil is a small item. And where it can be considered - fine. But in this document and other Marine Corps documentation I see too many times where these (as I call them) "woke" considerations become more important than the "warrior" (and preparations of said warrior for combat) elements.

Just be warned. As General Van RIPER said in his (I consider excellent) 4-20-22 article "*The Marine Corps' plan to re-design the force will only end up breaking it*" a lot of otherwise well-intentioned ideas - here I focus on this 6-inch digging limitation on areas of base property - may be *the death by a thousand cuts*.

Beware...

Response to Comment

Appendix B – Responses to Public Comments

Comment 015 (continued)

Comment

The 6-inch limitation on digging is a very minor point but I think among a host of other small items which cumulatively may prove problematic to having *fully functional, properly trained Marine Corps units*.

Also, in discussing - what I shall term - artillery range adaptations, it is covered in the document there will be less legacy Cannon usage. On this item I was a little confused as it seemed in one write-up there was talk of fully eliminating the legacy Cannon live fire altogether. But in another it appeared there would still be live fire just far more limited & restricted. To me the different sections (both concerning the same particular range on the site) drew different conclusions. I could have been mistaken in this.

The new HIMARS system (and the vehicle support) was going to come in and be used on those ranges in rather large numbers. I know in The Corps overall organization treatise there is the reduction of 4 to 1 in cannon and increase in 1 to 4 in HIMARS and other missile systems.

What I did see that I thought was issue was all the discussion about simulated fire and not real live fire. It was explained that live fire of HIMARS is an incredibly expensive undertaking. I understand there may need to be limited live fire but, in my opinion, there *has to be at least some*. Marine units operating the HIMARS (and other missile systems) I feel do not need to go into combat - particularly against potential PLA forces - with little more than *video game joystick play* before they actually deal with the real face-to-face combat environment. I may have misunderstood what was written about here but I went through it more than once. It did appear to me one of the limitations of HIMARS (and related systems) is far too much of the training will be "on simulation." I know most of the training must be on simulators because of cost. But the write up almost made it sound like there will be virtually no live fire training.

I may have misunderstood what was written here because it may have been covered as live fire would move to other ranges for execution, as in California or elsewhere. If so, is that is a viable solution?

Also, I still think you need to be having legacy artillery live fire as well. I concede one of my disagreements with the "facing towards China" concept is the Marine Corps dramatically reducing the numbers of what is referred to often as legacy Cannon and conversely increasing the missile component. I think there may be some danger in this to which The Corps should be ensuring an adequate stock of legacy artillery. And ammunition for that - looking more at incorporating enhanced ammunition rather than just getting rid of legacy artillery. There is much talk of R&D - well what about R&D for enhanced munitions? (smart rounds; self-aiming rounds; longer range, etc.)

I am all for bringing on board HIMARS and related missile systems. We must move into the future and must develop the advanced technology of systems like HIMARS. And *BTW* work assiduously on developing advanced drone technology & lots of it. The drone training facility proposal was interesting.

But I believe just short of completely walking away from legacy artillery may prove to be a mistake. I have no problem with The Corps moving away from heavy armor (i.e. primarily tanks) though I prefer just reduce the number of armored units not totally eliminate them. I was never a proponent of armor for The Marine Corps was not fashioned as some (WWII-era) armored corps.

However, I still think we may find needs in the future for a limited number of heavy armor (or at least lighter armor assets as the French forces use). My comments may seem off-topic but this gets back to relating to how current artillery ranges are used on the base and changes to that use.

Response to Comment

Appendix B – Responses to Public Comments

Comment 015 (continued)

Comment

Regarding the HIMARS and their training. Other than driving truck assets around it appeared in the write ups the proposed actions were really basically calling for turning these weapon systems training into simulations. No live fire. Short of maneuvering the vehicles and equipment as would have to be used in a combat environment the rest would be all *play-acting*. No actual firing of the systems.

I know the use of such equipment may have some environmental impacts that have to be considered here and you address those. I just think what I'm talking about here is it appeared to me some of the addressing of environmental concerns you go in again what I denigratively call the woke direction of just doing away with it (live fire) rather than adapting so Marine units are properly trained how to operate once they have to meet an enemy in combat.

The most part I thought your proposed actions and your alternative actions were all very well thought out and I thought they address each of the different needs that you discussed reasonably adequately. I do not claim to be well-versed in all the environmental, geological, flora & fauna issues. But as covered in your documents you fully (and I believe quite well) addressed how to deal with all these matters - still going back to my joke about the "*Hoary bat and Barb wire*" which I think is funny even though I realize there is a real potential environmental concern there.

I give you high marks on everything you did. I disagree about some of specific points regarding weapons training, live fire, vehicular movement & traffic on different parts of the base. But it appears most of your considerations are well thought-out, what needs to be done, the options presented - in most cases a preferred and alternate option both of which I thought do well towards accomplishing your goal.

My compliments on a document I believe well-written, well-presented & where you make an excellent case for both *preferred & alternate options* - and - in considering the multitude of factors in play. I was particularly impressed with your consideration of archaeological, Native Hawaiian and such issues while most of your discussion revolved around considerations of construction, property, flora and fauna.

You did very well in considering how to work the base, the construction, the training and changes in training/operations to fit with the civilian population around the base, traffic flow, animal & plant life on base. And items such as historically protected, archaeological sites and native cultural considerations.

I am aware your time is limited. I hope I have not wasted it with my input. I do tend to talk a little. And my comments may not have been particularly relevant to your "call for comments."

Again - I compliment you on a job well done. Your documentation is well written - given for the many technical/complex items you cover. You do very well in explaining. Even to the point where a layperson I think would have a reasonably good grasp of what is discussed. I am more than just a casual reader and do have some familiarity with the concepts, equipment and situations covered. But not an *expert* on several of these fields, I thought this was well explained. To the point where anyone could break down your document, see what it covers and - with the charts and graphs provided - have a full explanation & understanding of what you propose.

Best of luck with this project...

Respectfully

Paul E. PURYEAR

Response to Comment

Appendix B – Responses to Public Comments

Comment 015 (continued)

Comment

Contact Information -

*Paul E PURYEAR
1506 Elizabeth Drive
Carrollton TX 75007-2827
Hm (972) 394-5637
Cell (972) 800-5331
paulepuryear@hotmail.com*

Response to Comment

Appendix B – Responses to Public Comments

Comment 016

Comment

From: Gregory Probst
To: MCBH-EA; Sen. Mike Gabbard; atulba@honolulu.gov; Sen. Kurt Fevela
Subject: Environmental assessment
Date: Wednesday, January 24, 2024 5:04:09 PM
Attachments: [98FA79EA26BC4A478F54286A11CEE2AF.png](#)
[5F473111032043A9B45495CC6589B680.png](#)

I am respectfully submitting my public testimony in regards to the Environmental assessment put forth. These are my concerns as a tax-payer of the state of Hawaii. I want my family to thrive in an environmentally safe space. Having a shooting range in a neighborhood adjacent to a large beach park and a large housing complex is not conducive to healthy living for families of Ewa Beach. Lead can become airborne and certainly with high powered rifles going off all day M-F with trade winds, contaminants can spread.

My comments are the following:

1. You did not advertise for an acceptable period of time for public comment on this EA— this needed to be on the radio, new papers and in our Ewa Beach Community Board meetings. I found out today by happenstance and the window for comment closes tomorrow.....this in itself is not being a good steward of our island. I propose you properly advertise this and extend the window for community input!
2. I oppose a 20% expansion of training activities at Pu'uloa Range Training Facility.
3. I oppose the current testing methods being used to test for lead at the range. It appears that the entire vicinity is not being tested and only a small portion of your choosing may be tested. The tests need to be expanded to the surrounding area (Beach Park, neighborhood, and ocean...folks fish and swim in this water) and testing be conducted by a reputable party such as the EPA. Lab tests have revealed that there are contaminants in other areas outside the range....these tests were paid for with tax dollar money! It appears that results are being hidden.
4. [Ewa Beach Residents Left In The Dark About Possible Lead Contamination From Marines' Shooting Range - Honolulu Civil Beat](#)
5. I would like to suggest that the EPA return to Hawaii and do an independent Environmental assessment and testing of the beach park, the ocean outside the wall of the range (lead affects children and marine life), and the housing area. Having the marines do their own EA to expand services is like, excuse me is like having—the fox guard the chicken coop.
6. I do not agree with the environment assessment document that an Environmental Justice study does not need to be done, especially in lieu of your comments....also, Kailua is not the same demographics as Ewa Beach!

Response to Comment

Thank you for your comment. Marine Corps training ranges currently existing on O'ahu are a critical enabler of Marine Corps training and readiness in Hawai'i. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – as a result of this proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment

The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

The Marine Corps values public input on this Draft EA and opened a 30-day public comment period to ensure that the community had adequate time to read and consider the proposal. To ensure broad awareness of this action, the Marine Corps provided advance notice of the public review period in neighborhood meetings and publications such as the *Honolulu Star-Advertiser*, a Civil Beat article, and an MCB Hawaii press release. The Marine Corps will continue to share information with communities on this and future projects.

Appendix B – Responses to Public Comments

Comment 016 (continued)

Comment

would result in these resource impacts to communities are not further analyzed in this EA.

Environmental Justice. In April 2023, the Biden Administration issued Executive Order (EO) 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All* (2023). This EO created the Justice40 Initiative that will “further embed environmental justice into the work of federal agencies.” As part of this initiative, “over-burdened” communities are to be protected from pollution and

3-2
Affected Environment and Environmental Consequences

MCB Hawaii GFM EA, Draft

December 2023

environmental harms. These communities are identified by census tract using the Climate & Economic Justice Screening Tool. With the exception of Kailua, most of the communities located near MCB Hawaii Kaneohe Bay, MCTAB, and Pu‘uloa RTF have a higher percentage of minority race persons and about the same portion of persons in poverty as the greater county and state (U.S. Census Bureau, 2023). Kailua Census Designated Place has much lower minority and poverty population percentages than the county or state.

(see resource-specific impact analyses later in this chapter). Consequently, proposed training would not result in disproportionate adverse human health or environmental impacts to low-income, minority populations, or over-burdened populations. For these reasons, environmental justice is not further analyzed in this EA.

Please appropriately advertise and extend the window so community members can give you sufficient input before you move forward.
I too served in the armed forces for 27 years....I understand training needs...but foremost I am a MOM and this is in my back yard!
The beach that is being contaminated is stunning with a Diamond Head view. It should be pristine for our children to swim, surf and fish.
This is a plea for them!

I must speak up for the health of my family, our beautiful neighborhood and our beautiful island community.
Respectfully submitted,
Denise Pronesti

Sent from [Mail](#) for Windows

Response to Comment

The Marine Corps discussed Environmental Justice in Chapter 3 (pages 3-2, 3-3) in the EA. After public comment, we did not receive any new information that would alter the draft EA’s analysis and conclusion that the proposed training would not result in any significant environmental impacts, and, as such, there are no disproportionate adverse human health or environmental impacts to low-income, minority populations, or over-burdened populations (see introduction in Chapter 3). We recognize the populations of Kailua and ‘Ewa Beach are not the same, and the EA does not state that demographics are the same for each of the communities. The EA does state that most of the communities near the training areas, except Kailua, have a higher percentage of minority race persons and about the same portion of persons in poverty as the greater county and state.

Appendix B – Responses to Public Comments

Comment 017

Comment

From: [Julie McGovern](#)
To: [MCBH-EA](#)
Subject: Pu'uloa Range Training Facility
Date: Wednesday, January 24, 2024 9:25:42 PM

Dear Sir/Madam:

As a longtime resident of Ewa Beach Rd., I strongly oppose the 20% proposed expansion in training days at PRTF. The noise is loud in my home which is ~1/3rd mile from the range, with our house closed up and the air conditioning on. In 2019 you increased the volume at the range. We are often woken up, before 7:00 am, by someone hollering loudly in a speaker. It is hard to rest. We have chronically ill folks in our home and it is a problem. Adding additional training days is a burden on the community.

In addition, I feel that the current lead testing plan does not go far enough. You cannot simply test a select area of the range; the beach park, the beach, area homes, as well as marine life need to be included in lead testing. Lead is harmful to humans, animals, and the environment. All testing results should be shared openly with the Ewa Beach Road community.

I hope that you will consider the impact on the neighborhood adjacent to Pu'uloa Range Training Facility.

Regards,
Julie McGovern

Response to Comment

Thank you for your comment. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment

The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

Comment 018

Comment

From: [Kenneth Lieu](#)
To: [MCBH-EA](#)
Subject: Pu'uloa Rifle Range
Date: Wednesday, January 24, 2024 9:27:28 PM

To Whom it May Concern,

I am deeply concerned and strongly oppose the 20% increase in the shooting days and subsequently the number of bullets fired. As it is there are unanswered questions surrounding the range. Have the reports on the amount of lead in the soil been disclosed? Have there been third party observers when these tests are being done? Being that the rifle range is in a SMA Special Management Area, shouldn't a more extensive EIS Environmental Impact Statement be done. It also appears that little to no effort was put into engaging the community, based on the fact that I'm just finding out about this today.

Sincerely,
Kenneth W. Lieu
Pohakupuna Rd

Response to Comment

Thank you for your comment. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment

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The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

The existence of land use designations does not determine the need for preparing an EIS. A Special Management Area is a component of the Coastal Zone Management Act (CZMA). As noted in Section 1.6 of the EA, the proposed action falls under the Marine Corps' CZMA De Minimis Activities List (State of Hawai'i CZMA letter, July 9, 2009). The Marine Corps notified the State of Hawai'i Office of Planning and Sustainable Development, Planning Division, regarding its determination November 29, 2023 (see CZMA correspondence in Appendix E).

The Marine Corps values public input on this Draft EA and opened a 30-day public comment period to ensure that the community had adequate time to read and consider the proposal. To ensure broad awareness of this action, the Marine Corps provided advance notice of the public review period in neighborhood meetings and publications such as the *Honolulu Star-Advertiser*, a Civil Beat article, and an MCB Hawaii press release. The Marine Corps will continue to share information with communities on this and future projects.

Appendix B – Responses to Public Comments

Comment 019

Comment

From: [Val Chun](#)
To: [MCBH-EA](#)
Cc: [Randall Chun](#)
Subject: Pu'uloa Rifle Range
Date: Thursday, January 25, 2024 11:11:59 PM

As residents very near to the rifle range:

- We strongly oppose the 20% expansion in training days at Pu'uloa Range Training Facility,
-We strongly oppose current lead testing plans for PRTF which only test a tiny portion of the range and do not test the nearby beach park, homes, or marine life. This is extremely short sighted.

The expansion and lack of lead testing in the state's natural resources is shortsighted and and major disregard to our community.

Valerie & Randall Chun

Response to Comment

Thank you for your comment. The proposed action (modernization of equipment, facilities, and training) does not propose an increase in live-fire training days at Pu'uloa RTF, and the number of training days overall will not increase at Pu'uloa RTF – or any Marine Corps Hawaii range – proposal. Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at current training levels with legacy equipment .

The Marine Corps is partnering with the HDOH to develop a Pu'uloa RTF Sampling and Analysis Plan along the range shoreline. The preliminary plan was approved by the Hawai'i Hazard Evaluation and Emergency Response Office. In November 2023, the Marine Corps and interagency partners from across the state, including state legislators (Rep. Rose Martinez), the HDOH, marine biologists from the University of Hawai'i System, and non-profit organizations such as Kuleana Coral Reefs agreed on both the content and execution of the sampling and analysis plan. This sampling plan and its results will guide further discussions on possible short- and long-term mitigation measures. Any assessment of public health concerns associated with Pu'uloa RTF must be conducted with the concurrence and direction of appropriate Hawai'i regulatory officials.

Appendix B – Responses to Public Comments

Comment 020

Comment

From: [00007530](#)
To: MCBH-EA
Subject: EA Comments
Date: Thursday, January 25, 2024 11:42:54 PM
Attachments: image.org

Marine Corps Forces Pacific and Marine Corps Base Hawaii are cutting up environmental actions to avoid a higher level of analysis. The scope of this EA is so vague that MCBH and MARFORPAC can pick and choose whatever they think they can get away with in an EA, but pull out anything to avoid an EIS. The Marine Corps clearly has decided upon the action and wished away every alternative they don't like, arguing this couldn't possibly happen anywhere else on Oahu, Hawaii, Guam [insert other place here]. Multiple actions that would be an easy categorical exclusion under NEPA? Throw it in. Anything new like the NMESIS or MADIS? They'll say another installation or document provides coverage, without actually showing their work. They reference documents that aren't provided, that the public won't be able to see, and be able to move forward with the action of segmenting another action. Seems like an awful lot of this ties directly to the recently signed EA for the MQ-9 and KC-130J that are obviously here to support the MODERNIZING GROUND FORCE.

"The proposed action is the modernization of equipment, infrastructure, and training for Marine Corps ground forces in Hawai'i. The proposed equipment changes are evolutions of existing equipment and combat capabilities and have operational characteristics similar to those historically used by Marine Corps ground forces in Hawai'i." This is a gross generalization of the action. Oh hey, we're upgrading things like buildings and equipment, but it has no effect. In fact, it has such a small effect it's odd we're even doing an EA to begin with. MCBH constructs new buildings and all the time, but those don't get an EA. They presumably get new equipment all the time and at the same pace of this proposed action, but it doesn't get an EA. The Marine Corps has been so dramatic about churning up the modernization of their mission across the Pacific via social media, yet here in this EA, it's presented without the flash and glam and passed off as the same thing we've always done, just a few new buildings.

"These modernized ground forces would continue to conduct activities within the footprint of MCB Hawaii and training ranges in Hawai'i." This is an interesting statement. What exactly is the footprint of MCBH and training ranges? Seems like since state waters begin at the high tide mark, that these actions would occur mauka of that. How are these actions falling in that footprint at places like Pu'uoloa RTP? It's well known and documented the base has been firing there for over a HUNDRED YEARS. This RTP definitely didn't have makai berms for the longest time, meaning munitions went screaming off into the ocean. Now that the ranges do have berms, the munitions still can't stay on base as noted in the 2019 RTP shoreline stabilization EA due to the erosion, particularly at Range F. The Marine Corps did almost no homework on this front in this EA. They gloss over this being a small change and call it less than significant, yet they cannot even show what the existing conditions are. They omitted the USMC standard Range Environmental Vulnerability Analysis documents from their analysis which, if done according to an easily browser searchable document, would include extensive sampling and modeling of the possibility of munitions and munitions constituents from leaving the range. The Marine Corps can manage inside their walls as the DOD tells them, but they can't hide from what occurs when their pilau actions leak OFF THE BASE. We know lead and who knows what else was used and piled up here for decades. Even said there is no surface water in this EA - Did you forget about the PACIFIC OCEAN? Gravity forces things to go downhill, even with minimal slope, rain water will push the debris from the range to the ocean. This is where ESA species like the monk seal faulu out and feeds. Monk seals feed on tako and other benthic organisms like eels and crustaceans which, you know, live on the bottom of the ocean where lead will accumulate. The bioaccumulation in these organisms is certainly affected by the range, and the bio magnification as it reaches Hawaiian monk seals was not even considered in the informal consultation with USFWS in this EA. You also oddly left figure 1-5 as the ONLY picture of a range that is not using satellite imagery. Seems innocuous at first - but seems fishy, probably because google earth shows there is nearly ZERO shoreline in front of these berms that are falling into the ocean and full of pollutants. The EA also omits mention of air quality near the range from a hundred years of lead bullets being fired. Figure 3-2.1 shows the wind rose. Thanks for telling me it's windy in Hawaii. Did you consider the lead dust that is kicked up in Alpha range every time you shoot and it's windy? What about Fox range? Where is all that dust going? What are the cumulative effects that your 20% increase will not have an effect on? You can't say it won't have an effect if you don't know your background and baseline conditions.

Speaking of ranges, figure 1-3 shows another range that is glossed over in the EA for impacts to the environment. Another range where gravity seemingly has no effect and bullets and bombs down roll downhill to the ocean we swim, paddle, and eat our food. Where is the impact here? I've taken the liberty to draw on top of 1-3 using Microsoft paint while wearing my 3rd grade geography t-shirt to illustrate that things on top of a hill, or crater in this instance, go downhill. It appears in this instance they go downhill to something on the map that is blue. I think that is also the PACIFIC OCEAN where we swim, paddle, and eat our food. Don't worry, it's not red hill so nobody will notice. The monk seals, red footed boobies and whales don't eat anything in the water near that range.

The Marine Corps seemed to exclude a ton of systems they talk about in their modernization online. Google says the Marine Corps recently modernized or is modernizing currently with the M3A1, M3A2 Mod 0, M3A2A1, M27, Switchblade and other loitering munitions... I'm sure there are more. The Marine Corps is saying these didn't arrive without fanfare, or aren't reasonably foreseeable actions that align with this vague scoping action?

Based on the above statements of a cursory review of this pilau document and using my handy citizens guide to NEPA I found online, it seems Marine Forces Pacific and Marine Base Hawaii have not done their due diligence, have poorly scoped this EA and omitted several critical areas that warrant further analysis.

Response to Comment

Thank you for your comment. Force Design is a concept outlining the restructuring and realignment of Marine Corps warfighting capability. This realignment and restructuring is not a single proposed action, but rather an evolving series of separate, distinct actions that are occurring in various units at various locations across the Marine Corps. There is no "one size fits all" Force Design construct or action that is being implemented across the entire Marine Corps. As Force Design elements progress from long-range planning, to concept, to design, and to implementation, the appropriate action proponent for the Marine Corps will address applicable NEPA analysis once there is a proposed action sufficiently defined for analysis and ripe for decision making.

The purpose of this proposed action is to modernize the equipment, supporting infrastructure, and associated training for existing Marine Corps ground forces in Hawai'i. While part of the broader Marine Corps realignment and restructuring, the proposed action is proceeding separately and independently of other actions and at other locations that may also someday be part of the evolution of what Force Design is attempting to achieve in dealing with emerging threats. At the time the 3d MLR was established, the use of the modernized equipment included in this EA was not sufficiently prescribed to be integrated into that action. As future actions become better defined, such as the possible programmed fielding of the Medium Range Intercept Capability, they will be subject to appropriate NEPA analysis. The NMESIS, MADIS, Light Marine Air Defense Integrated System (L-MADIS), and G/ATOR weapons systems are now programs of record and are being acquired for Marine Corps ground forces in Hawai'i. As such, it is appropriate to address in this EA the infrastructure that will be required to support such systems. Relative to cumulative impact analysis, actions that are planned and are reasonably foreseeable, but are not connected to this action, are identified in Chapter 4, allowing for an analysis of the proposed action in combination with past actions and these reasonably foreseeable future actions.

Appendix B – Responses to Public Comments

Comment 020 (continued)

Comment



Fig 1-3 MCB Hawaii Range where gravity ceases to exist

Response to Comment

An EA is prepared to assess impacts and determine whether there is a significant impact and, therefore, the need for an EIS. Just like an EIS, Chapter 2 of the EA describes the project components and need for the proposed action; Chapter 3 includes a full analysis of impacts; and Chapter 4 identifies and analyzes projects that have the possibility to contribute cumulatively to the impacts of the proposed action. As documented in the EA, there were no significant impacts resulting from the proposed action, even when added to foreseeable past, present, and future projects, all of which have and will occur almost entirely on developed areas. Like with an EIS, publication of the Draft EA for public comment allows the public to provide input on the proposed action and the analysis presented in the EA. The Marine Corps will consider these comments in making its final decision. The EA presents complete information on the proposed action. The description of the similarity of the modernized equipment and its training to existing equipment and training has been expanded in Chapter 2 to provide a more complete comparison. With regards to the environmental analysis, the methodology and rationale for each resource impact conclusion is presented in the respective discussions of environmental consequences in Chapter 3.

Alternative 1 is the Marine Corps' preferred alternative and involves training with modernized equipment at levels currently conducted at Marine Corps ranges on O'ahu. The Marine Corps is not pursuing Alternative 2.

The Marine Corps follows established guidance for training that incorporates constraints to minimize potential effects to environmental resources. These constraints are identified in MCB Hawaii Order 1500.9C (Standing Operating Procedures for Marine Corps Base Hawaii Ranges and Training Areas), the Integrated Natural Resources Management Plan, and the Integrated Cultural Resources Management Plan. This includes observing natural resource constraints as well as limiting digging and other ground disturbance to 6 inches below the existing surface except in previously approved areas. The Marine Corps would continue to follow this established guidance for proposed training with modernized equipment.

APPENDIX C
NATIONAL HISTORIC PRESERVATION ACT
SECTION 106 CONSULTATION

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JOSH GREEN, M.D.
GOVERNOR | KE KIA'AINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'AINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
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DAWN N. S. CHANG
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RYAN K.P. KANAKA'OLE
FIRST DEPUTY

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ACTING 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

May 1, 2024

Major J. P. Hart, Director
Environmental Compliance and Protection Department
United States Marine Corps
Marine Corps Base Hawai'i Box 63002
Kaneohe Bay, Hawai'i 96863-3002
Email: Jeffry.Hart@usmc.mil
Electronic Transmittal Only, No Hard Copy to Follow

IN REPLY REFER TO:
Project No.: 2023PR01113
Doc. No.: 2405SL01
Archaeology

Dear Major J. P. Hart:

SUBJECT: **National Historic Preservation Act (NHPA) Section 106 Review –
Continued Consultation and Request for Concurrence with the Effect Determination
Ground Based Forces Modernization Aboard Marine Corps Base Hawai'i
MCBH Ref. No. 5090
Kāne'ohe and He'eia Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 4-4-008:001**

The State Historic Preservation Division (SHPD) received a letter from the Marine Corps Base Hawai'i (MCBH) dated April 18, 2024 (Ref. 5090 LFE/055-24) to continue the Section 106 consultation process and to request the State Historic Preservation Officer's (SHPO's) concurrence with the effect determination for the Ground Based Forces (GFM) Modernization project at MCBH on the island of O'ahu. The SHPD received this letter on April 22, 2024 along with the MCBH's archaeological testing identification efforts summarized in a draft report titled, *Draft Report Subsurface Archaeological Testing Marine Corps Base Hawaii, Kāne'ohe Bay, O'ahu, Hawai'i*. This draft report (March 2024) was prepared by International Archaeology, LLC [IA] on behalf of the US Department of the Navy, Naval Facilities Engineering Systems Command, Pacific [NAVFAC Pacific] (HICRIS Submission Nos. 2023PR01113.005 through 2023PR01113 .007).

The MCBH project is a federal undertaking as defined in 36 CFR 800.16(y) and is subject to Section 106 of the National Historic Preservation Act. The MCBH initiated the Section 106 process with a letter dated September 12, 2023, along with the MCBH's proposed identification efforts detailed in a draft plan titled, *Draft Work Plan, Subsurface Archaeological Testing, Marine Corps Base Hawaii, Kaneohe Bay, Oahu, Hawaii* (HICRIS Submission No. 2023PR01113.001). The SHPD reviewed the draft work plan and letter and indicated in a letter dated October 10, 2023 (SHPD Doc. No. 2310SH01) that the SHPO requested revisions to the proposed archaeological testing methods and also that the Area of Potential Effects (APE) be revised to include areas related to the activities associated with the modernized equipment and vehicle operations.

In response, the SHPD received a letter from the MCBH dated November 1, 2023 (Ref. 5090 LFE/141-23) notifying the SHPO of (1) the MCBH's expanded efforts regarding identification of historic properties; and (2) that the APE had been expanded to include the footprint of the eight GFM projects, two alternate locations, and the training ranges at MCBH Kaneohe Bay, Marine Corps Training Area Bellows (MCTAB), and Pu'uloa Range Training Facility (RTF). The MCBH's letter was received on November 2, 2023, along with a revised Archaeological Work

Plan that states that unless objections are received prior to November 8, 2023, MCBH will begin archaeological testing on that date (HICRIS Submission No. 2023PR01113.002).

The SHPD received a letter dated February 16, 2024 (Ref. 5090 LFE/004-24) from MCBH continuing Section 106 consultation. The MCBH summarized the results of the identification of historic properties, indicating that no historic properties are present within the APE except within the Project 8 location. Cultural materials were identified in T8-5 STP 1 and STP 2 belonging to an in-situ deposit which likely represents a discontinuous extension of previously recorded Site 50-80-11-5733, Traditional Hawaiian and 19th century cultural deposits, and a 20th century house and yard. Several archaeological historic properties were identified adjacent to, but outside the Project 8 location. Based on the findings, the MCBH requested the SHPO's concurrence with an effect determination of *no adverse effect* pursuant to 36 CFR 800.5(b).

In response to the MCBH's letter dated February 16, 2024, and review of the attached supporting documentation, the SHPD stated in a letter dated March 15, 2024 (SHPD Doc. No. 2403SH08) that the SHPO does not concur with MCBH's effect determination of *no adverse effect* and additional information is requested.

Subsequently, the SHPD received a letter from MCBH dated April 18, 2024 (Ref. 5090 LFE/055-24) continuing Section 106 consultation and providing detailed responses to each of the seven (7) issues detailed in SHPD's letter dated March 15, 2024 (SHPD Doc. No. 2403SH08). Additionally, the MCBH conducted a teleconference consultation meeting with SHPD and Consulting Parties on April 25, 2024, followed by notification via email (June Cleghorn [MCBH] to SHPD and Consulting Parties) on April 26, 2024, providing additional responses to questions raised by SHPD.

The MCBH's letter dated April 18, 2024 indicates the MCBH's effect determination is *no adverse effect* pursuant to 36 CFR 800.5(b) based on the following conditions:

- (1) The proposed training will continue to occur only in existing ranges and area already approved for training subject to procedures established in MCBH Order 1500.9C and the 2021 MCBH ICRMP (Tomonari-Tuggle and Clark 2021).
- (2) The 8 proposed construction projects at MCBH Kaneohe Bay will not affect any architectural resources that are eligible for or are listed in the National Register of Historic Places or any determined eligible as contributing features.
- (3) Site 50-80-11-5733 has been determined to be discontinuous and was identified as a remnant within T8-5 in the Project 8 location.
- (4) MCBH will use the GFM testing and previous testing results to inform project siting/planning to avoid impacts to Site 50-80-11-5733, including restricting ground disturbance depths to 50 cmbs near the known deposit in T8-5.
- (5) Should avoidance not be possible, or additional historic properties or unanticipated effects occur, the MCBH will consult in accordance with 36 CFR 800.13(a)(2).

Additionally, the MCBH committed via email (April 26, 2024) to the following:

- (1) The project siting and planning phase will require that the proposed facility avoid Site 50-80-11-5733 and will limit ground disturbance to 50 cmbs.
- (2) MCBH will require archaeological monitoring for all ground disturbing activities within the Project 8 APE.
- (3) The archaeological monitoring will be conducted by Secretary of the Interior-qualified archaeologists.
- (4) An archaeological monitoring plan will be submitted to SHPD for review and approval prior to the start of the project.

Based on the additional information provided by MCBH in their letter dated April 18, 2024 (Ref. 5090 LFE/055-24) and the consultation efforts on April 25 and 26, 2024, the **SHPO concurs** with the MCBH's effect determination of *no adverse effect* pursuant to 36 CFR 800.5(b) and with the MCBH's commitments summarized above.

SHPD looks forward to receiving an archaeological monitoring plan for review and approval.

Major J. P. Hart
May 1, 2024
Page 3

Please submit all forthcoming information and correspondence related to the subject project to SHPD via HICRIS to Project No. 2023PR01113 using the Project Supplement option.

The MCBH is the office of record for this undertaking. Please maintain a copy of this letter with your environmental review record for this undertaking.

Please contact Susan A. Lebo, Archaeology Branch Chief, at Susan.A.Lebo@hawaii.gov, for any matters regarding archaeological resources or this letter.

Aloha,



Dawn N.S. Chang
DLNR Chairperson
State Historic Preservation Officer

cc: June Cleghorn, MCBH (june.cleghorn@usmc.mil)
Wendy Wichman, MCBH (wendy.wichman@usmc.mil)
Jessica Leger, MCBH (jessica.leger@usmc.mil)
Alexis Clark, ACHP (aclark@achp.gov)



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

5090
LFE/055-24
April 18, 2024

Dr. Alan Downer
Deputy State Historic Preservation Officer
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Dr. Downer:

SUBJECT: CONTINUING SECTION 106 CONSULTATION-4: GROUND FORCES
MODERNIZATION ABOARD MARINE CORPS BASE HAWAII, DISTRICT OF
KO'OLAUPOKO, AHUPUA'A OF KANEOHE, TMK 1-4-4-008:001; DISTRICT
OF KO'OLAUPOKO, AHUPUA'A OF WAIMANALO, TMK 1-4-1-015:001;
AND DISTRICT OF EWA, AHUPUA'A OF HONOLULI, TMK 1-9-10-
001:001, ON THE ISLAND OF O'AHU.

Marine Corps Base Hawaii (MCBH) is continuing consultation with your office in compliance with Section 106 of the National Historic Preservation Act (NHPA) regarding Ground Forces Modernization (GFM) at MCBH (HICRIS Project #2023PR01113). We received your request for additional information on 15 March 2024 and are providing responses below. We retained your numbering of issues for ease of comparison.

SHPO Question 1a. For the archaeological sites at MCTAB that are within the APE please provide an assessment for how these resources will or will not be impacted by the undertaking and any mitigation proposed to minimize or avoid effects to these resources.

MCBH Response: Archaeological sites at Marine Corps Training Area Bellows (MCTAB) that are within the area of potential effects (APE) for modernized training will not be affected by the undertaking because the type of training conducted with modernized equipment will be similar to the legacy training conducted historically by Marine ground forces in these same training areas. Historically, legacy training has not resulted in any effects to historic properties. As described in the Environmental Assessment (EA) for this undertaking, the modernized training will occur in the same locations, be at the same type and tempo as current ground training with legacy equipment and be subject to the same restrictions currently imposed on training with legacy equipment. The legacy ground training involves vehicles and personnel traveling from a vehicle origination point at MCBH Kaneohe to a training location within one of the three existing training areas, using established vehicle paths and/or approved areas to move from one location to another, setting up the equipment in a particular location, operating the equipment in that area, and then demobilizing and moving either to another location within the training area or back to the vehicle origination point at MCBH Kaneohe Bay (the MCTAB APE map can be found in the previous Section 106 letter LFE/141-23, enclosure 1, Figure 1c).

To minimize or avoid effects to any historic properties at MCTAB, the modernized training would be subject to the same mitigations and guidance as legacy training, which are identified in MCB Hawaii Order 1500.9C, *Standing*

Operating Procedures for Marine Corps Base Hawaii Ranges and Training Areas (MCB Hawaii, 2021a) and the MCBH Integrated Cultural Resources Management Plan (ICRMP) (Tomonari-Tuggle and Clark, 2021). Chapter 2 of this order identifies cultural and natural resource constraints; off-limits areas based on these resource constraints; and prohibited activities. Specific actions in this order that are applicable to all training to avoid and/or minimize effects to historic properties include the following:

- The enforcement of federal and state historic preservation laws.
- Confinement of activities to specific range training area boundaries within the larger installation.
- Prohibition of digging or other ground disturbance deeper than 6 inches below the existing surface, including the removal of sand from beaches or shoreline.
- Establishment of off-limits areas that include areas of historical significance.
- Prohibition of the removal or intentional destruction of archaeological materials or artifacts or the disturbance to any archaeological site.

The training with modernized equipment at MCTAB would continue to adhere to these restrictions and take place only on existing ranges and range areas, established vehicle paths, and areas already approved for training that exclude areas where historic properties are present in accordance with MCBH Order 1500.9C. Should the MCBH Cultural Resource Manager (CRM) identify any unanticipated effects to either known or unknown historic properties at MCTAB, MCBH will follow the procedures for post-review discoveries in accordance with 36 CFR 800.13(a) (2).

SHPO Question 1b. Please provide all consulting parties, including Native Hawaiian organizations, the opportunity to review and comment on this information. Please provide the SHPO with any responses received.

MCBH Response: On 12 September 2023, MCBH notified all consulting parties, including NHOs, of the proposed undertaking that was focused on the construction projects at MCBH Kaneohe Bay. In response, on 10 October 2023, the SHPO asked MCBH to expand the APE to include the training areas at Kaneohe Bay Range Training Facility (RTF) in Ulupau, MCTAB, and Puuloa RTF. MCBH responded on 2 November 2023 and agreed to expand the APE to include these Marine Corps training areas. On 26 December 2023, MCBH published the Draft Environmental Assessment in the *Honolulu Star-Advertiser* for a 30-day public review period. Prior to the release of the Draft EA, MCBH Public Affairs Officers coordinated with the local community at monthly Neighborhood Board meetings and other public engagement opportunities about this undertaking and the associated Draft EA public comment period, which ended on 25 January 2024.

To date, SHPO is the only consulting party to provide comments regarding the proposed training at MCTAB through the NHPA Section 106 consultation process. We will provide all consulting parties, including Native Hawaiian Organizations, the opportunity to review and comment on the information in this letter and provide the SHPO with any responses received.

SHPO Question 2a. For the archaeological sites at Pu'uloa RTF that are within the APE, please provide an assessment for how these archaeological resources will or will not be impacted by the undertaking and any mitigation proposed to

minimize or avoid effects to these resources.

MCBH Response: On 2 November 2023 MCBH expanded the APE to include the Marine Corps training area at Puuloa RTF. Within the established training areas where the modernized training would occur at Puuloa RTF, there are no archaeological sites (the Puuloa RTF APE map can be found in previous Section 106 letter LFE/141-23, enclosure 1, Figure 1d). To the north of the established training area at Puuloa RTF, there is an area of archaeological interest that consists of limestone sinkholes identified as potentially eligible for the National Register of Historic Places (NRHP), but it is located outside the training areas where the modernized training would occur. There would be no effect on archaeological sites from training with modernized equipment at Puuloa RTF because such training would occur in the established training area, be at the same type and tempo as current ground training with legacy equipment and be subject to the same restrictions currently imposed on training conducted with legacy equipment.

To minimize or avoid effects to historic properties at Puuloa RTF, the modernized training would be subject to the same mitigations and guidance identified in MCB Hawaii Order 1500.9C, *Standing Operating Procedures for Marine Corps Base Hawaii Ranges and Training Areas* (MCB Hawaii, 2021a) and the MCBH Integrated Cultural Resources Management Plan (ICRMP) (Tomonari-Tuggle and Clark, 2021). Chapter 2 of this order identifies cultural and natural resource constraints; off-limits areas based on these resource constraints; and prohibited activities. Specific actions in this order that are applicable to all training to avoid and/or minimize effects to historic properties include the following:

- The enforcement of federal and state historic preservation laws.
- Confinement of activities to specific range training area boundaries within the larger installation.
- Prohibition of digging or other ground disturbance deeper than 6 inches below the existing surface, including the removal of sand from beaches or shoreline.
- Establishment of off-limits areas that include areas of historical significance.
- Prohibition of the removal or intentional destruction of archaeological materials or artifacts or the disturbance to any archaeological site.

The proposed training with modernized equipment at Puuloa RTF would continue to adhere to these restrictions and occur only on the existing ranges and range areas, established vehicle paths, and areas already approved for training, which, in accordance with MCBH Order 1500.9C, excludes areas where historic properties are present. Should the MCBH Cultural Resource Manager (CRM) identify any unanticipated effects to known or unknown historic properties at Puuloa RTF, then MCBH will follow the procedures for post-review discoveries in accordance with 36 CFR 800.13(a)(2).

SHPO Question 2b. Please provide all consulting parties, including Native Hawaiian organizations, the opportunity to review and comment on this information. Please provide the SHPO with any responses received.

See the overall summary of our consultation efforts in the above section on MCTAB. To date, SHPO is the only consulting party to provide comments on the modernized training at the Puuloa RTF through the NHPA Section 106

consultation process. MCBH received one comment from a member of the public on the Draft EA about whether "The Old Pistol Range" at Puuloa RTF should be reviewed under Section 106. The Final EA includes our response to this query, explaining that the structure consists of remnants of the original structure which is not eligible for listing in the NRHP because the original structure does not retain structural integrity or operational functionality. We will provide all consulting parties, including Native Hawaiian Organizations, the opportunity to review and comment on the information in this letter and provide the SHPO with any responses received.

SHPO Question 3a. MCBH's letter states: Architectural resources at MCBH Kaneohe Bay include individual buildings and structures that are eligible for or listed in the NRHP, as well as buildings and structures located within the Naval Air Station (NAS) Kaneohe Bay Administration District (Tomonari-Tuggle and Clark, 2021). One architectural resource (Building 3039) determined eligible for listing in the NRHP, a storage shed, is located in the MCBH RTF. Additionally, a cultural landscape report (MCB Hawaii, 2018) identified architectural resources throughout the installation as contributors to the historic character of MCBH.

Please provide an assessment for how these architectural resources will or will not be impacted by the undertaking and any mitigation proposed to minimize or avoid effects to these architectural resources.

MCBH Response: Architectural resources at MCBH Kaneohe Bay that are eligible for or listed in the NRHP, as well as buildings and structures located within NAS Kaneohe Administration District, are not located in the APE for the eight GFM construction projects (the projects APE map can be found in the previous Section 106 letter LFE/141-23, enclosure 1, Figure 1a). The Construction Project 8 is located in the NRHP-eligible Mokapu House Lots Archaeological District at Pali Kilo, however Bldg 1551 which is proposed for demolition under Project 8 is not a contributing feature or individually eligible. With respect to architectural resources throughout the installation that were identified in the Cultural Landscape Report for MCBH Kaneohe Bay (AECOM 2018) as contributors to the historic character of MCBH, these are not in the APE for the eight GFM construction projects.

On 2 November 2023 MCBH expanded the APE to include the Marine Corps training area at Kaneohe RTF in Ulupau Crater (the Kaneohe RTF APE map can be found in previous Section 106 letter LFE/141-23, enclosure 1, Figure 1b). Within this established training area where modernized training would occur, the architectural resources include Bldg 3039 determined eligible for listing in the NRHP. However, Bldg 3039 has been previously proposed for demolition and included in the Memorandum of Agreement (MOA) regarding Demolition of Three Historic Buildings at MCBH, signed 15 October 2020.

With respect to mitigation to minimize or avoid effects on other architectural resources at the Kaneohe RTF at Ulupau Crater, modernized training will be subject to the same mitigations and guidance identified in MCB Hawaii Order 1500.9C, *Standing Operating Procedures for Marine Corps Base Hawaii Ranges and Training Areas* (MCB Hawaii, 2021a) and the MCBH Integrated Cultural Resources Management Plan (ICRMP) (Tomonari-Tuggle and Clark, 2021). It will continue to adhere to restrictions and occur only on existing ranges and range areas, established vehicle paths, and areas already approved for training, which, in accordance with MCBH Order 1500.9C, excludes

areas where historic properties are present. Should the MCBH Cultural Resource Manager (CRM) identify any unanticipated effects to known or unknown historic properties, then MCBH will follow the procedures for post-review discoveries in accordance with 36 CFR 800.13(a)(2).

SHPO Question 3b. Please provide all consulting parties, including Native Hawaiian organizations, the opportunity to review and comment on this information. Please provide the SHPO with any responses received.

Please see the summary of our consultation efforts in the sections above regarding MCTAB and Puuloa RTF. To date, SHPO is the only consulting party to provide comments on architectural resources at MCBH Kaneohe Bay including the construction projects APE and the training APE at the Kaneohe RTF in Ulupau. We will provide all consulting parties, including Native Hawaiian Organizations, the opportunity to review and comment on the information in this letter and provide the SHPO with any responses received.

SHPO Question 4a. MCBH's letter states within the area for Project 8 there were in situ archaeological findings interpreted as an extension of Site 50-80-11-5733 in Layer III in T8-5. Were all consulting parties, including native Hawaiian organizations, provided the opportunity to review and comment on this information? Please provide the SHPO with any responses received.

MCBH Response: All consulting parties were provided the opportunity to review and comment on this information. MCBH sent a letter on 22 February 2024 to all consulting parties which stated that cultural materials within an in situ deposit were recovered from Trench 8-5 (T8-5) Shovel Test Pit (STP) 1 and STP 2. The End-of-Fieldwork (EOF) letter report was also included as an enclosure and the EOF report described the interpretation of this deposit as an extension of Site 50-80-11-5733. To date, SHPO is the only consulting party to provide comments on the archaeological findings of Layer III in T8-5 in the Project 8 location interpreted as an extension of Site 50-80-11-5733. We will provide all consulting parties, including Native Hawaiian Organizations, the opportunity to review and comment on the information in this letter and provide the SHPO with any responses received.

SHPO Question 4b. The End of Fieldwork report states "this may indicate that the deposit thins and disappears to the west and south (i.e., away from Site 50-80-11-5733, to the immediate north), which would account for its absence from other trenches in this project". Please indicate why the boundaries of this feature were not further explored and the basis for interpreting this feature as related to 50-80-11-5733.

MCBH Response: The basis for interpreting the T8-5 deposit as related to 50-80-11-5733 consists of the following: the Project 8 deposit included an artifact and midden assemblage that is similar to the artifact/midden assemblages found in the Site 50-80-11-5733 deposits identified by Rosendahl (1999), which both contained the following: basalt artifacts, metal fragments, glass and ceramic fragments, charcoal, and traditional midden. Note that Rosendahl's (1999) investigation of Site 50-80-11-5733 found evidence of a multi-component site, with a smaller prehistoric component on the eastern end of an overlapping larger historic component [enclosure 1]. Results of Rosendahl 1999 and the current GFM Project 8 test unit T8-5 both consist of similar traditional and historic materials. Thus, MCBH interprets the T8-5 deposit as part of the 19th and 20th century component of Site 50-80-11-5733.

The boundaries of the T8-5 deposit were not further explored for several reasons. Previous archaeological testing described in Gosser et al. 2015 reported negative findings along the grass area within the northern portion of the current project area between Rosendahl's Site 5733 deposits and the T8-5 deposit. Specifically Figure 32 in Gosser et al. 2015 shows five shovel test (ST) units (ST-1 through ST-5) contained no in situ deposits and only ST-1 and ST-2 contained disturbed cultural materials [enclosure 2]. These disturbed cultural materials are described as mixed traditional with historic and modern components and ST-2 encountered a modern copper pipe at approximately 75 cmbs. Therefore, MCBH interpreted T8-5 as an isolated deposit severed from Site 5733 to the north and did not believe that further investigation of the 5733 boundaries was warranted.

In addition, there is extensive subsurface infrastructure surrounding T8-5 that has further isolated this deposit from Site 5733. MCBH has produced a map to show locations of the previous Rosendahl and Gosser excavation units in relation to T8-5, overlaid with a depiction of existing subsurface infrastructure (i.e., utility lines). This map will be shared with consulting parties at an in-person consultation meeting to be scheduled next week and is not included in this letter due to security concerns related to this infrastructure.

SHPO Question 5. MCBH asserts it will confirm the absence of any cultural resources in the Project 8 footprint by conducting archaeological testing in advance of project execution after design is final or near final. The SHPD opines additional testing to determine the boundary of the NRHP site is warranted prior to reaching the effect determination.

MCBH Response: As presented in the response to Question 4b above, MCBH believes that we have sufficient information about the T8-5 deposit to reach an effect determination. In addition to the previous archaeological investigations, the GFM testing showed negative findings throughout all test trenches and STPs except T8-5. The information provided above, demonstrates that T8-5 is an isolated deposit that has been severed from the NRHP Site 5733 to the north (outside the Project 8 APE) and is surrounded in all directions by subsurface infrastructure. Therefore, MCBH is confident that the isolated cultural deposit interpreted as Site 5733 is limited to T8-5 within the Project 8 APE.

SHPO Question/Comment 6. Please provide the complete archaeological report for SHPD review.

MCBH Response: MCBH has provided the EOF letter report to all consulting parties and will provide the Draft archaeological report to SHPD along with this letter (LFE/055-24).

SHPO Question 7. The MCBH indicates MCBH forwarded a copy of the subject letter to the additional consulting parties with a request for their comments within 30 days. The SHPO cannot concur with the effect determination without complete information which includes copies or summaries of any views provided by consulting parties and the public. Please provide the results of MCBH's Section 106 consultation efforts with additional consulting parties and the public.

MCBH Response: Please see our responses to this same question above under

1b, 2b, 3b, and 4a.

DETERMINATION OF EFFECT

MCBH has determined that the proposed undertaking (construction projects and training in support of Ground Forces Modernization at MCBH) will result in no adverse effect to historic properties in accordance with the Section 106 Implementing Regulations at 36 CFR §800.5(b) based on the following:

1) The proposed training with modernized equipment would continue to take place only on existing ranges and range areas, established vehicle paths, and areas already approved for training that are subject to existing procedures established in MCBH Order 1500.9C and the 2021 MCBH ICRMP (Tomonari-Tuggle and Clark, 2021) to avoid any adverse effects to historic properties. These restrictions have historically ensured that current training practices on the subject training ranges have not resulted in any adverse effects on historic properties;

2) The eight proposed construction projects at MCBH Kaneohe Bay do not include or overlap with any architectural resources that are eligible for or listed in the NRHP, including buildings and structures located within the NAS Kaneohe Administration District, or architectural features at MCBH Kaneohe Bay that are eligible for or listed in the NRHP as contributing features to the historic character of MCBH;

3) Additional testing to determine the boundary of NRHP Site 50-80-11-5733 adjacent to Project 8 APE is not warranted prior to reaching an effect determination because archaeological investigation by Gosser et al. 2015 along the boundary between Project 8 and NRHP Site -5733 shows this Site does not extend into the Project 8 APE except as the isolated deposit found in T8-5, and this conclusion is further supported by the existence of an extensive network of subsurface infrastructure surrounding the isolated deposit found in T8-5, and the negative findings from the recent GFM testing throughout the Project 8 APE;

4) To protect the isolated deposit in T8-5 where we had positive results, MCBH will commit to avoiding this T8-5 deposit by using the GFM testing results and the previous testing results (Rosendahl et al. 1999 and Gosser et al. 2015) to inform the project siting/planning such that the design for Project 8 will avoid any effect to this historic property, including avoidance based on restrictions on the depth of ground disturbance to 50 cmbs near the known deposit in T8-5;

5) Should avoidance not be possible, or if additional historic properties or unanticipated effects to historic properties are discovered through execution of this undertaking, MCBH will commit to continuing consultation in accordance with 36 CFR 800.13(a)(2) to reach a finding of no adverse effect, including but not limited to:

- a) MCBH would stop all ground-disturbing activities in the vicinity of the discovery and take steps to stabilize and protect the discovery.
- b) MCBH would notify the State Historic Preservation Officer (SHPO) of the discovery within 48 hours and include a plan with methods that would be taken to avoid, minimize or mitigate adverse effects to such properties.

MCBH respectfully requests your expedited review and concurrence within **15 days** of receipt of this letter. If, however, we do not receive a response from your office within 30 days of receipt of this letter, we will assume your concurrence as set out in 36 CFR §800.5(c). Should you or your staff have any questions or concerns please contact the MCBH Cultural Resources Management staff, Ms. June Cleghorn at 496-7126 or via email at june.cleghorn@usmc.mil, Ms. Jessica Leger at 496-7128 or via email at jessica.leger@usmc.mil, or Dr. Wendy Wichman at 496-7134 or via email at wendy.wichman@usmc.mil.

Sincerely,

HART.JEFFRY Digitally signed by
HART.JEFFRY.P.1242350568
.P.1242350568 Date: 2024.04.18 16:16:49
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J. P. Hart
Major, U.S. Marine Corps
Director, Environmental Compliance
and Protection Division
By direction

Enclosure: 1. Rosendahl 1999 Figure 30.
2. Gosser et al. 2015 Figure 32.

Copy to:

Anuheia Diamond, Kaulamealani Diamond; Diamond 'Ohana
Skye Razon-Olds, Kulamanu Napoleon, Kaleleonalani Napoleon; Olds 'Ohana
Emalia Keohokalole, Adrian Keohokalole, Dennis Ka'imi Keohokalole,
Keohokalole 'Ohana
Na'u Kamali'i; Boyd 'Ohana
Donna Ann Camvel; Paoa Kea Lono 'Ohana
Cy Harris; Kekumano 'Ohana
Terrilee Napua Kekoolani Raymond; Keko'olani 'Ohana
Malia Newhouse, Ko'olauloa Hawaiian Civic Club
Clive Cabral; Temple of Lono
Office of Hawaiian Affairs
Oahu Island Burial Council
Kiersten Faulkner, Historic Hawaii Foundation
Elizabeth Merritt, National Trust for Historic Preservation

References Cited:

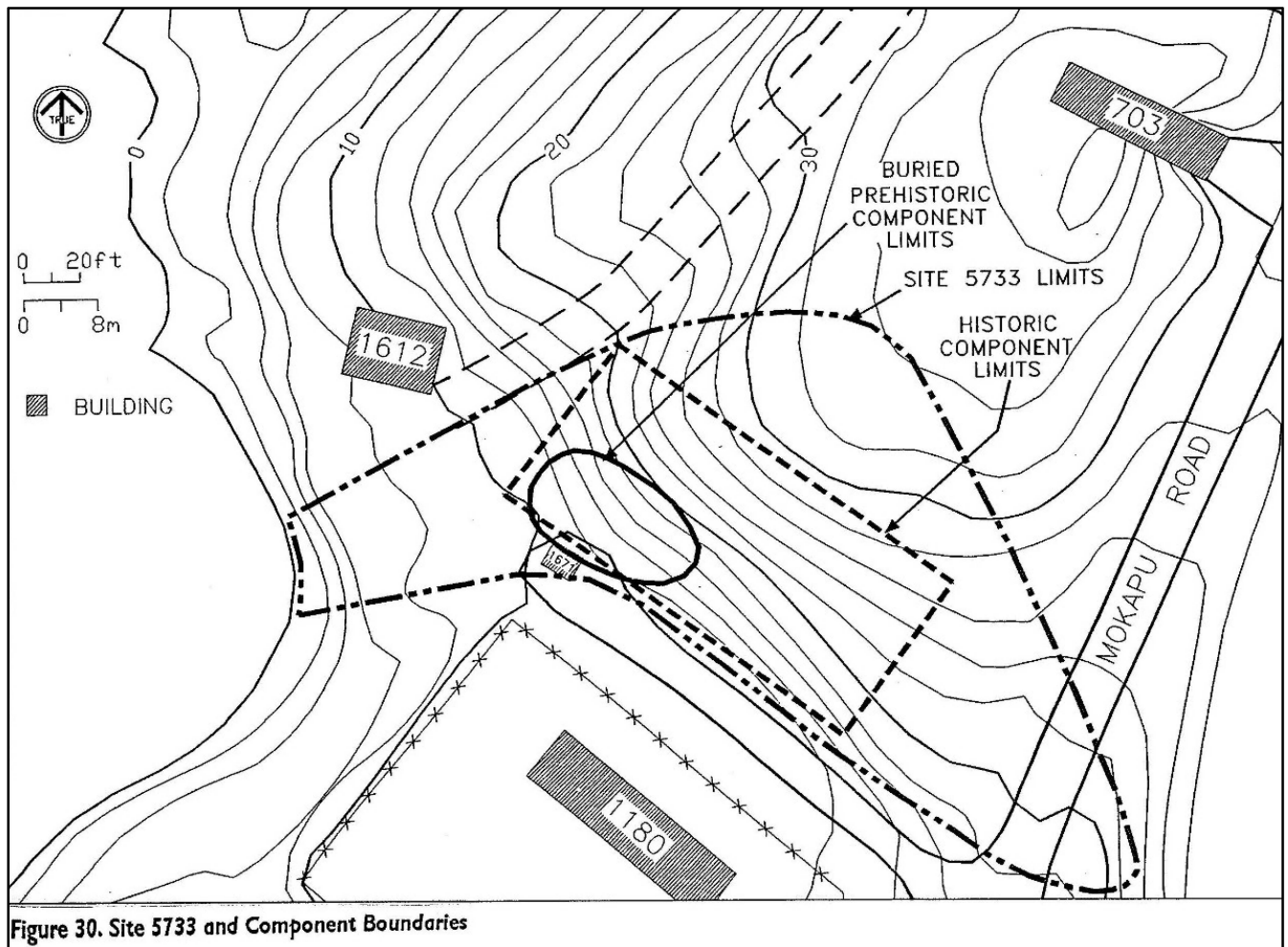
Filimoehala, C., T. Leppard, and C. Walker. 2024. Draft Report Subsurface Archaeological Testing Marine Corps Base Hawaii, Kāne'Ohe Bay, O'ahu, Hawai'i. Prepared for Department of the Navy, Naval Facilities Engineering Command, Pacific. International Archaeology Inc., Honolulu.

Gosser, Dennis C., Richard Nees, Stephan D. Clark, and Sara L. Collins. 2015. Archaeological Survey and Testing in Support of the Pali Kilo Beach Cottages Construction, Marine Corps Base, Hawaii, Kaneohe Bay, O'ahu, Hawai'i (TMK:[1]4-4-008:001). Prepared for the Department of Navy, Naval Facilities

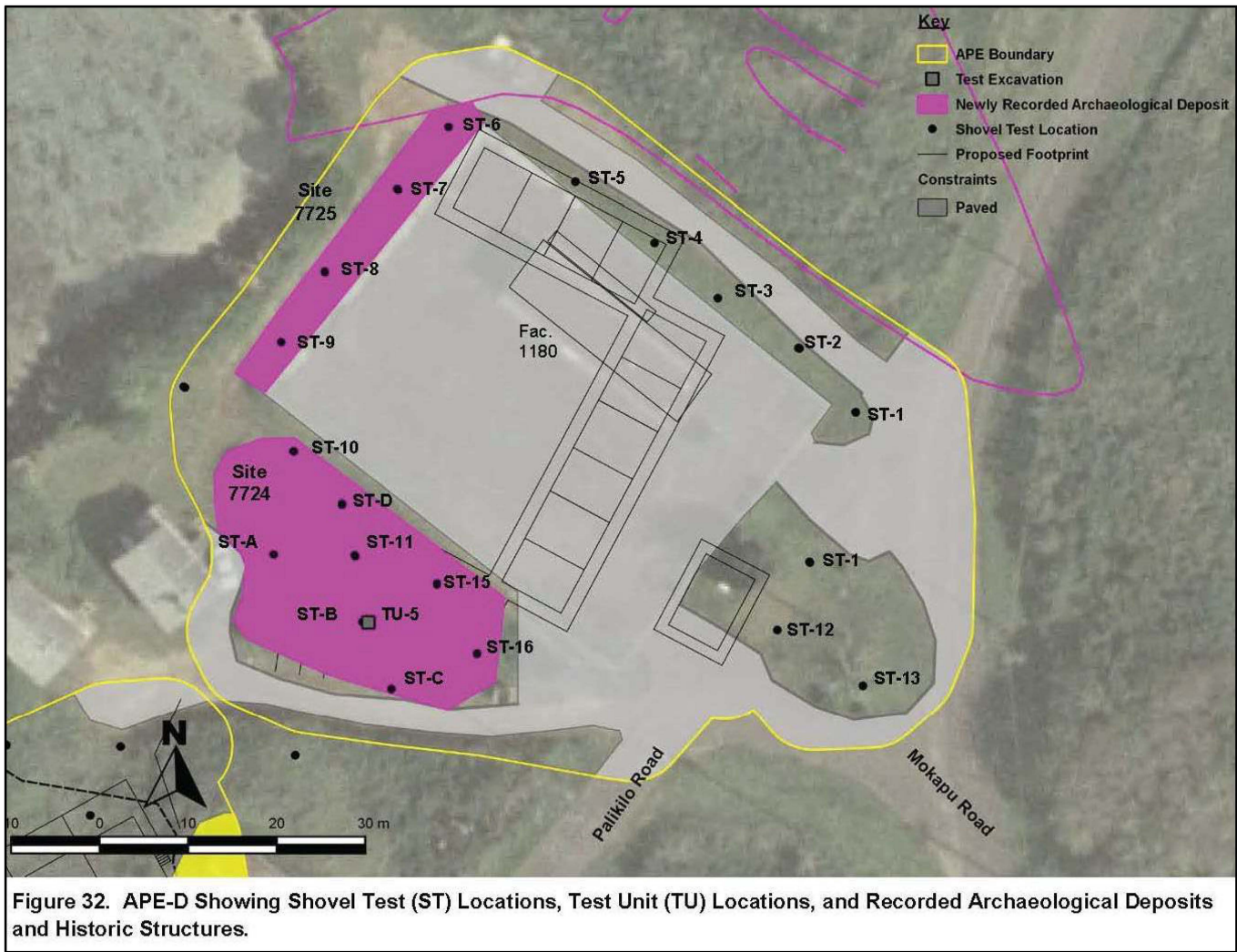
Engineering Command, Pacific. Pacific Consulting Services, Inc., Honolulu.

Rosendahl, Paul H. 1999. Archaeological Monitoring of Trench Excavations and Testing for Phase III (KB357MS) Repairs to Sanitary Sewer System, Marine Corps Base Hawaii Kaneohe Bay, O'ahu. U.S. Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor. Paul H. Rosendahl, Ph.D., Inc. (PHRI), Hilo.

Tomonari-Tuggle, M.J., and Jessica L. Clark. 2021. Update to the Integrated Cultural Resources Management Plan (ICRMP), Marine Corps Base Hawaii 2021-2026. Prepared for Department of the Navy, Naval Facilities Engineering Command, Pacific. International Archaeological Research Institute, Inc., Honolulu.



Enclosure 1. Rosendahl 1999 Figure 30 showing Site 50-80-11-5733, and Rosendahl's interpretation of the prehistoric and historic components, and the potential spatial limits of the site [Rosendahl 1999].



Enclosure 2. Gosser et al. 2015 Figure 32 showing shovel test (ST) trench locations showing negative findings along the northern boundary of the Project 8 APE.

JOSH GREEN, M.D.
GOVERNOR | KE KIA'AINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'AINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

STATE HISTORIC PRESERVATION DIVISION
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

March 15, 2024

Major J. P. Hart, Director
Environmental Compliance and Protection Department
United States Marine Corps
Marine Corps Base Hawai'i Box 63002
Kaneohe Bay, Hawai'i 96863-3002
Email: Jeffry.Hart@usmc.mil
Electronic Transmittal Only, No Hard Copy to Follow

IN REPLY REFER TO:
Project No.: 2023PR01113
Doc. No.: 2403SH08
Archaeology
History and Culture

Dear Major J. P. Hart:

SUBJECT: **National Historic Preservation Act (NHPA) Section 106 Review –
Continued Consultation and Request for Concurrence with the Effect Determination
Ground Based Forces Modernization Aboard Marine Corps Base Hawai'i
MCBH Ref. No. 5090
Kāne'ohe and He'eia Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 4-4-008:001**

The State Historic Preservation Division (SHPD) received a letter dated February 16, 2021 from the Marine Corps Base Hawai'i (MCBH) to continue the Section 106 consultation process and to request the State Historic Preservation Officer's (SHPO's) concurrence with the effect determination for the Ground Based Forces (GFM) Modernization project at MCBH on the island of O'ahu. The SHPD received this letter on February 16, 2024 as well as an End of Fieldwork Summary Letter drafted by International Archaeology, LLC (HICRIS Submission No. 2023PR01113.003).

The MCBH project is a federal undertaking as defined in 36 CFR 800.16(y) and is subject to Section 106 of the National Historic Preservation Act. The MCBH initiated the Section 106 process with a letter dated September 12, 2023 along with MCBH's proposed identification efforts detailed in a draft plan titled, *Draft Work Plan, Subsurface Archaeological Testing, Marine Corps Base Hawaii, Kaneohe Bay, Oahu, Hawaii* (HICRIS Submission No. 2023PR01113.001). The SHPD reviewed the draft work plan and letter received and responded in a letter dated October 10, 2023. The SHPO did not agree with the proposed archaeological testing being carried out using a backhoe or mini excavator to excavate 1,040 meters of trenches, stating mechanical trenching can be very destructive to archaeological deposits and can result in loss of data, especially as the plan does not stipulate screening the excavated materials, unless there is a potential find, nor does it stipulate precautions to mitigate destruction caused from the mechanical excavator. The SHPD provided recommendations for carrying out the identification efforts with scientific based objectives. The SHPD also recommended the Area of Potential Effects (APE) include areas related to the activities associated with the modernized equipment and vehicle operations.

On November 2, 2023 the MCBH submitted a letter dated November 1, 2023 in response to the SHPO's October 10 letter. The MCBH notified the SHPO it was expanding the project's APE to include training areas at MCBH Kaneohe Bay, Marine Corps Training Area Bellows (MCTAB), and Puuloa Range Training Facility (RTF). The

letter also describes MCBH's expanded efforts regarding identification of historic properties (HICRIS Submission No. 2023PR01113.002).

With the November 2, 2023 response the MCBH submitted a revised Archaeological Work Plan stating MCBH will proceed on November 8, 2023, with the archaeological testing project as described in the Revised Work Plan unless objections are received prior to that date. **No agreement for expedited review between the MCBH and the SHPO was reached for this undertaking or the submission. MCBH proceeded with the subsurface testing on November 21, 2023, thereby foreclosing on the SHPO's ability to comment on the information received November 2, 2023.**

The Area of Potential Effects (APE) includes the footprint of the eight GFM projects, two alternate locations, and the training ranges at MCBH Kaneohe Bay, Marine Corps Training Area Bellows (MCTAB), and Pu'uloa Range Training Facility (RTF).

There are eight GFM projects described as making up this undertaking. The MCBH had archaeological testing conducted at all project locations, except for the Project 2 alternate location stating the Project 2 alternate would involve reuse of existing space/facilities in a developed area, and the MCBH's Archaeological Sensitivity model indicates there is low potential for cultural resources within this area. MCBH reports fifty trenches were mechanically excavated, all no more than 10 meters long and 0.8 meters wide, with depths dictated by findings; except for "Project 8", where the work plan mandated hand excavation within the footprint of machined trenches.

MCBH states there are no historic properties within any of the project areas, except for the Project 8 location. However, based on the letter received it seems there are historic properties in the APE in areas outside of the Kaneohe based MCBH.

The SHPO does not concur with the MCBH's effect determination of *no adverse effect*. Additional information is required.

1. For the archaeological sites at MCTAB that are within the APE please provide an assessment for how these resources will or will not be impacted by the undertaking and any mitigation proposed to minimize or avoid effects to these resources. Please provide all consulting parties, including Native Hawaiian organizations, the opportunity to review and comment on this information. Please provide the SHPO with any responses received.
2. For the archaeological sites at Pu'uloa RTF that are within the APE, please provide an assessment for how these archaeological resources will or will not be impacted by the undertaking and any mitigation proposed to minimize or avoid effects to these resources. Please provide all consulting parties, including Native Hawaiian organizations, the opportunity to review and comment on this information. Please provide the SHPO with any responses received.
3. MCBH's letter states:

Architectural resources at MCBH Kaneohe Bay include individual buildings and structures that are eligible for or listed in the NRHP, as well as buildings and structures located within the Naval Air Station (NAS) Kaneohe Bay Administration District (Tomonari-Tuggle and Clark, 2021). One architectural resource (Building 3039) determined eligible for listing in the NRHP, a storage shed, is located in the MCBH RTF. Additionally, a cultural landscape report (MCB Hawaii, 2018) identified architectural resources throughout the installation as contributors to the historic character of MCBH.

Please provide an assessment for how these architectural resources will or will not be impacted by the undertaking and any mitigation proposed to minimize or avoid effects to these architectural resources. Please provide all consulting parties, including Native Hawaiian organizations, the opportunity to review and comment on this information. Please provide the SHPO with any responses received.

4. MCBH's letter states within the area for Project 8 there were in situ archaeological findings interpreted as an extension of Site 50-80-11-5733 in Layer III in T8-5. Were all consulting parties, including native Hawaiian organizations, provided the opportunity to review and comment on this information? Please provide the SHPO with any responses received. The End of Fieldwork report states "this may indicate that the deposit thins and disappears to the west and south (i.e., away from Site 50-80-11-5733, to the immediate north), which would account for its absence from other trenches in this project". Please indicate

why the boundaries of this feature were not further explored and the basis for interpreting this feature as related to 50-80-11-5733.

5. MCBH asserts it will confirm the absence of any cultural resources in the Project 8 footprint by conducting archaeological testing in advance of project execution after design is final or near final. The SHPD opines additional testing to determine the boundary of the NRHP site is warranted prior to reaching the effect determination.
6. Please provide the complete archaeological report for SHPD review.
7. The MCBH indicates MCBH forwarded a copy of the subject letter to the additional consulting parties with a request for their comments within 30 days. The SHPO can not concur with the effect determination without complete information which includes copies or summaries of any views provided by consulting parties and the public. Please provide the results of MCBH's Section 106 consultation efforts with additional consulting parties and the public.

The SHPO looks forward to continuing Section 106 consultation for the proposed project.

Please submit all forthcoming information and correspondence related to the subject project to SHPD via HICRIS under Project No. 2023PR01113 using the Project Supplement option.

The MCBH is the office of record for this undertaking. Please maintain a copy of this letter with your environmental review record for this undertaking.

Please contact Stephanie Hacker, Historic Preservation Archaeologist IV, at Stephanie.Hacker@hawaii.gov or at (808) 692-8046 for matters regarding archaeological resources or this letter.

Aloha,

Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: June Cleghorn, MCBH (june.cleghorn@usmc.mil)
Wendy Wichman, MCBH (wendy.wichman@usmc.mil)
Jessica Leger, MCBH (jessica.leger@usmc.mil)
Alexis Clark, ACHP (aclark@achp.gov)



UNITED STATES MARINE CORPS

MARINE CORPS BASE HAWAII BOX 63002

KANEOHE BAY HAWAII 96863-3002

5090

LFE/004-24

16 FEB 2024

Dr. Alan Downer
Deputy State Historic Preservation Officer
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Dr. Downer:

SUBJECT: CONTINUING SECTION 106 CONSULTATION-3 (DETERMINATION OF EFFECT) FOR GROUND-BASED FORCES MODERNIZATION ABOARD MARINE CORPS BASE HAWAII, DISTRICT OF KO'OLAUPOKO, AHUPUA'A OF KANEOHE, TMK 1-4-4-008:001; DISTRICT OF KO'OLAUPOKO, AHUPUA'A OF WAIMANALO, TMK 1-4-1-015:001; AND DISTRICT OF EWA, AHUPUA'A OF HONOULIULI, TMK 1-9-10-001:001, ON THE ISLAND OF O'AHU.

Marine Corps Base Hawaii (MCBH) is continuing consultation with your office in compliance with Section 106 of the National Historic Preservation Act (NHPA) regarding the area of potential effects (APE), identification of historic properties, and assessment of effects for the proposed Ground-based Forces Modernization (GFM) project aboard MCBH identified as Hawaii Cultural Resource Information system (HICRIS) Project 2023PR01113. MCBH has determined that the proposed project is an undertaking as defined in 36 Code of Federal Regulations (CFR) §800.16(y). The proposed project is currently undergoing an Environmental Assessment in accordance with the National Environmental Policy Act.

On 12 September 2023, we initiated consultation in our letter (LFE/117-23) pursuant to the NHPA Section 106 Implementing Regulations at 36 CFR §800.4 regarding the proposed scope of our efforts to identify historic properties within the APE associated with this undertaking. We received your response, (HICRIS Submission 2023PR01113.001) dated 10 October 2023, stating that your office recommended the APE include training areas related to the activities associated with the modernized equipment and vehicle operations and did not agree with the proposed archaeological testing using a backhoe or mini excavator to excavate 1,040 meters of trenches. MCBH responded to your letter on 31 October 2023, stating that MCBH is expanding the project's APE to include training areas at MCBH Kaneohe Bay, Marine Corps Training Area Bellows (MCTAB), and Pu'uloa Range Training Facility (RTF), as well as the eight (8) projects described in our initial letter. MCBH revised the draft Archaeological Testing Work Plan based on consulting party comments received and included a detailed description of mechanical trench excavations consistent with the methodology included in the Memorandum of Agreement Regarding Home Basing of the MQ9 and KC-130J Squadrons at MCBH (2022). MCBH stated in the October letter that the archaeological testing project as described in the "Revised Work Plan, Subsurface Archaeological Testing, MCBH Kaneohe Bay" would proceed on 8 November 2023 unless objections were received prior to that date. MCBH did not receive any objections and proceeded with the subsurface testing on 21 November 2023 per the Revised Work Plan.

This letter (LFE/004-24) provides the State Historic Preservation Officer (SHPO) and consulting parties with the results of these identification efforts, including the evaluation of significance and proposed determination of effects.

AREA OF POTENTIAL EFFECTS

The updated APE associated with GFM aboard MCBH encompasses new construction; building demolitions; renovations and modifications; the locations of where new buildings or structures could potentially detract from the integrity of setting and feeling of cultural resources through visual, audible (noise), or atmospheric changes; and Marine Corps training areas where modernized equipment will be utilized. The overall GFM APE includes the footprint of the eight (8) GFM projects; two alternate locations as shown on the map in enclosure 1, Figure 1a; and the training ranges at MCBH Kaneohe Bay, MCTAB, and Pu'uloa RTF as depicted on the maps in enclosure 1, Figures 1b-1e).

IDENTIFICATION OF HISTORIC PROPERTIES

Pursuant to 36 CFR §800.4(b), identification of historic properties included background research, archaeological subsurface investigation, and consultation. The investigation was carried out by qualified preservation professionals and in accordance with the Secretary of the Interior's Standards and Guidelines for Identification. Below are the results of these identification efforts for archaeology and architecture.

ARCHAEOLOGY

MCBH Kaneohe Bay

The following preliminary end of fieldwork results for subsurface testing in support of GFM Projects at MCBH Kaneohe Bay were provided in the End of Fieldwork Summary Letter report by International Archaeology, LLC (IA) (enclosure 3). Archaeological testing was conducted at all project locations, except for the Project 2 alternate location. The Project 2 alternate would involve reuse of existing space/facilities in a developed area, and the Archaeological Sensitivity model indicates there is low potential for cultural resources within this area. At all project locations, except for Project 8, archaeological testing confirmed the absence of archaeological deposits or sites, and there are no historic properties located in these project locations.

Fifty trenches were mechanically excavated, all no more than 10 meters in length and 0.8 meters wide, with depths dictated by findings; except for Project 8, where the work plan mandated hand excavation within the footprint of machined trenches. Trenches were distributed across the project areas to provide representative spatial coverage and to target areas in which the least subsurface information was available.

Project 8 is located on a developed parcel with a paved parking lot and a building. It is located near previously recorded archaeological site 50-80-11-5733 (see enclosure 3, Figure 3). Five trenches (T) and eight shovel test probes (STPs) were excavated across the project area. Trenches T8-2 STP 2 and T8-5 STP 1 and STP 2 were positive for cultural materials. The cultural

materials recovered from T8-2 STP 2 were found within redeposited material in a fill deposit.

The cultural materials recovered from T8-5 STP 1 and STP 2 belonged to an *in situ* deposit. This *in situ* deposit likely represents an extension of previously recorded Site 50-80-11-5733 (Rosendahl 1999, O'Day 2007, and Gosser et al. 2015), which consists of Traditional Hawaiian and 19th century subsurface cultural deposits, and a 20th century house and yard. The cultural materials recovered from T8-5 included basalt artifacts, metal fragments, glass and ceramic fragments, charcoal, and traditional midden. Rosendahl (1999) excavated a unit 40 meters to the north/northwest of T8-5 and collected a similar assemblage of material from the culture-bearing deposits of Site 5733. The cultural deposit encountered in T8-5 is interpreted as an extension of Site 50-80-11-5733.

Archaeological resources located within MCBH Kaneohe Bay also include sites within the training areas and adjacent to Project 8 (see enclosure 2, Table 2-a and Figure 2-1a).

MCTAB

Archaeological resources located within MCTAB include features of the NRHP-listed Bellows Airfield Archaeological Area, four traditional Hawaiian period sites that are contributing elements to the Waimānalo Archaeological District, three individual traditional Hawaiian period sites (including deposits of the Bellows Dune Site O-18 that may extend into MCTAB), three non-military historic period sites that are non-contributing elements of the Waimānalo Archaeological District, and two military Historic period sites (enclosure 2, Table 2-a and Figure 2-1b).

Pu'uloa RTF

Archaeological resources at Pu'uloa RTF are limited to one area of archaeological interest that includes limestone sinkholes identified by Tuggle (1984) and further documented by Tuggle and Wilcox (1998), and Tomonari-Tuggle and Clark (2021) (see enclosure 2, Table 2-a, and Figure 2-1c).

ARCHITECTURE

MCBH Kaneohe Bay

Architectural resources at MCBH Kaneohe Bay include individual buildings and structures that are eligible for or listed in the NRHP, as well as buildings and structures located within the Naval Air Station (NAS) Kaneohe Bay Administration District (Tomonari-Tuggle and Clark, 2021). One architectural resource (Building 3039) determined eligible for listing in the NRHP, a storage shed, is located in the MCBH RTF (see enclosure 2, Table 2-b and Figure 2-2c). Additionally, a cultural landscape report (MCB Hawaii, 2018) identified architectural resources throughout the installation as contributors to the historic character of MCBH. Enclosure 2 and Table 2-b include architectural resources located within or near the proposed facilities.

MCTAB

There are five architectural resources eligible for the NRHP within the

MCTAB APE (see enclosure 2, Table 2-b and Figure 2-2d). These include two World War II-era revetment complexes, two Cold War-era buildings, and coastal defense structures (defense battery groups) that comprise part of the MCTAB Cultural Landscape.

Pu'uloa RTF

Three architectural resources constructed in 1942 have been determined eligible for the NRHP within the Pu'uloa RTF APE (see enclosure 2, Table 2-b and Figure 2-2e). These include a Type D Casualty Station, a Splinter-proof Air Raid Shelter, and a group of three concrete bunkers.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

If Native American Graves Protection and Repatriation Act (NAGPRA) cultural items including human remains are encountered during any ground disturbing activities associated with this undertaking, all work shall stop, the finds will be secured and protected, and treatment will proceed under the authority of NAGPRA.

BEST MANAGEMENT PRACTICES

For all construction activities, archaeological monitoring would occur during project-related ground-disturbing activities as a Best Management Practice consistent with Standard Operating Procedure (SOP) 3 in the 2021 MCBH ICRMP (Tomonari-Tuggle and Clark, 2021).

DETERMINATION OF EFFECT

MCBH has determined that the proposed undertaking will result in no adverse effect on historic properties in accordance with the Section 106 Implementing Regulations at 36 CFR §800.5(b) based on the following:

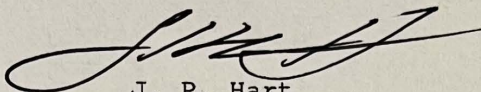
1) The proposed training would continue to adhere to the procedures established in MCBH Order 1500.9C and the 2021 MCBH ICRMP (Tomonari-Tuggle and Clark, 2021). The proposed training would only occur on existing ranges and range areas, established vehicle paths, and areas already approved for training. Additionally, the upgraded equipment may present a decreased risk of impacting archaeological resources within these already approved areas because it consists of wheeled vehicles that, in some instances, are smaller than the equipment it would replace. All training areas have existing restrictions that will continue to be followed.

2) The Ground/Air Task-Oriented Radar (G/ATOR) Pad portion of Project 8 would reuse an existing non-historic concrete pad located within the Pyramid Rock Training Area (PRTA) (see Figures 1a and 1c), which eliminates the need for ground disturbance or otherwise altering the immediate surroundings.

3) Layer III in T8-5 represents a component of Site 50-80-11-5733. This site has been recommended eligible for the NRHP under Criterion D. The Project 8 warehouse will be designed in a manner that avoids impacting the archaeological deposits encountered in Project 8 trench T8-5. Additionally, MCBH will confirm the absence of any cultural resources in the Project 8 footprint by conducting archaeological testing in advance of project execution after design is final or near final.

MCBH requests your review and concurrence within 30 days of receipt of this letter. 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. MCBH is forwarding a copy of this letter to the additional consulting parties listed below as part of the Section 106 consultation process for this proposed undertaking. Thus, we request comments from these consulting parties regarding the above determinations within 30 days of receipt of this letter. Should you or your staff have any questions or concerns please contact the MCBH Cultural Resources Management team, Ms. June Cleghorn at 257-7126 or via email at june.cleghorn@usmc.mil, or Ms. Jessica Leger at 496-7128 or via email at jessica.leger@usmc.mil, or Dr. Wendy Wichman at 257-7134 or via email at wendy.wichman@usmc.mil.

Sincerely,



J. P. Hart
Major, U.S. Marine Corps
Director, Environmental Compliance and
Protection Division
By direction of the Commanding Officer

Enclosure: 1. Area of Potential Effects.
2. Identification of Historic Properties.
3. End of Fieldwork Letter report.

Copy to:

Ms. Anuhea Diamond, Diamond 'Ohana
Ms. Skye Razon-Olds, Olds 'Ohana
Ms. Emalia Keohokalole, Keohokalole 'Ohana
Ms. Na'u Kamali'i; Boyd 'Ohana
Ms. Donna Ann Camvel; Paoa Kea Lono 'Ohana
Mr. Cy Harris; Kekumano 'Ohana
Ms. Terrilee Napua Kekoolani Raymond; Keko'olani 'Ohana
Ms. Malia Newhouse, Ko'olaupia Hawaiian Civic Club
Mr. Clive Cabral; Temple of Lono
Chair; Office of Hawaiian Affairs
Chair; Oahu Island Burial Council
Ms. Kiersten Faulkner, Historic Hawaii Foundation
Ms. Elizabeth Merritt, National Trust for Historic Preservation

References Cited:

Gosser, Dennis C., Richard Nees, Stephan D. Clark, and Sara L. Collins. 2015. Archaeological Survey and Testing in Support of the Pali Kilo Beach Cottages Construction, Marine Corps Base, Hawaii, Kaneohe Bay, O'ahu, Hawai'i (TMK:[1]4-4-008:001). Prepared for the Department of Navy, Naval Facilities Engineering Command, Pacific. Pacific Consulting Services, Inc., Honolulu.

Klem, Jonathon, and Adam J. Lauer. 2019. Archaeological Monitoring Report, MILCON P-778 Armory Addition and Renovation, Marine Corps Base Hawaii, Kaneohe Bay, O'ahu, Hawai'i. Prepared for the Department of the Navy, Navy Facilities Engineering Command, Pacific. International Archaeology, LLC, Honolulu.

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Rosendahl, Paul H. 1999. Archaeological Monitoring of Trench Excavations and Testing for Phase III (KB357MS) Repairs to Sanitary Sewer System, Marine Corps Base Hawaii Kaneohe Bay, O'ahu. U.S. Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor. Paul H. Rosendahl, Ph.D., Inc. (PHRI), Hilo.

Tomonari-Tuggle, M.J., and Jessica L. Clark. 2021. Update to the Integrated Cultural Resources Management Plan (ICRMP), Marine Corps Base Hawaii 2021-2026. Prepared for Department of the Navy, Naval Facilities Engineering Command, Pacific. International Archaeological Research Institute, Inc., Honolulu.

Tuggle, H. David. 1984. 1984 Inventory of Historic Properties. Naval Facilities Engineering Command, Pacific Division.

Tuggle, H. David, and Bruce A. Wilcox. 1998. Strategic Integrated Resources Management Planning for Selected Properties of Marine Corps Base Hawaii: Camp H.M. Smith, Pu'uloa Firing Range, and a Portion of Waikāne Valley. International Archaeological Research Institute, Inc. Prepared for US Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawai'i.

Wil Chee-Planning, Inc., Helber, Hastert & Fee, Planners, and Mason Architects, Inc. 2014. Historic Context and Building Inventory Marine Corps Base Hawaii. Prepared for Navy Facilities Engineering Command, Pacific, Pearl Harbor. Wil Chee-Planning, Inc., Helber Hastert & Fee, Planners, and Mason Architects, Inc., Honolulu.

Enclosure 1 - Area of Potential Effects

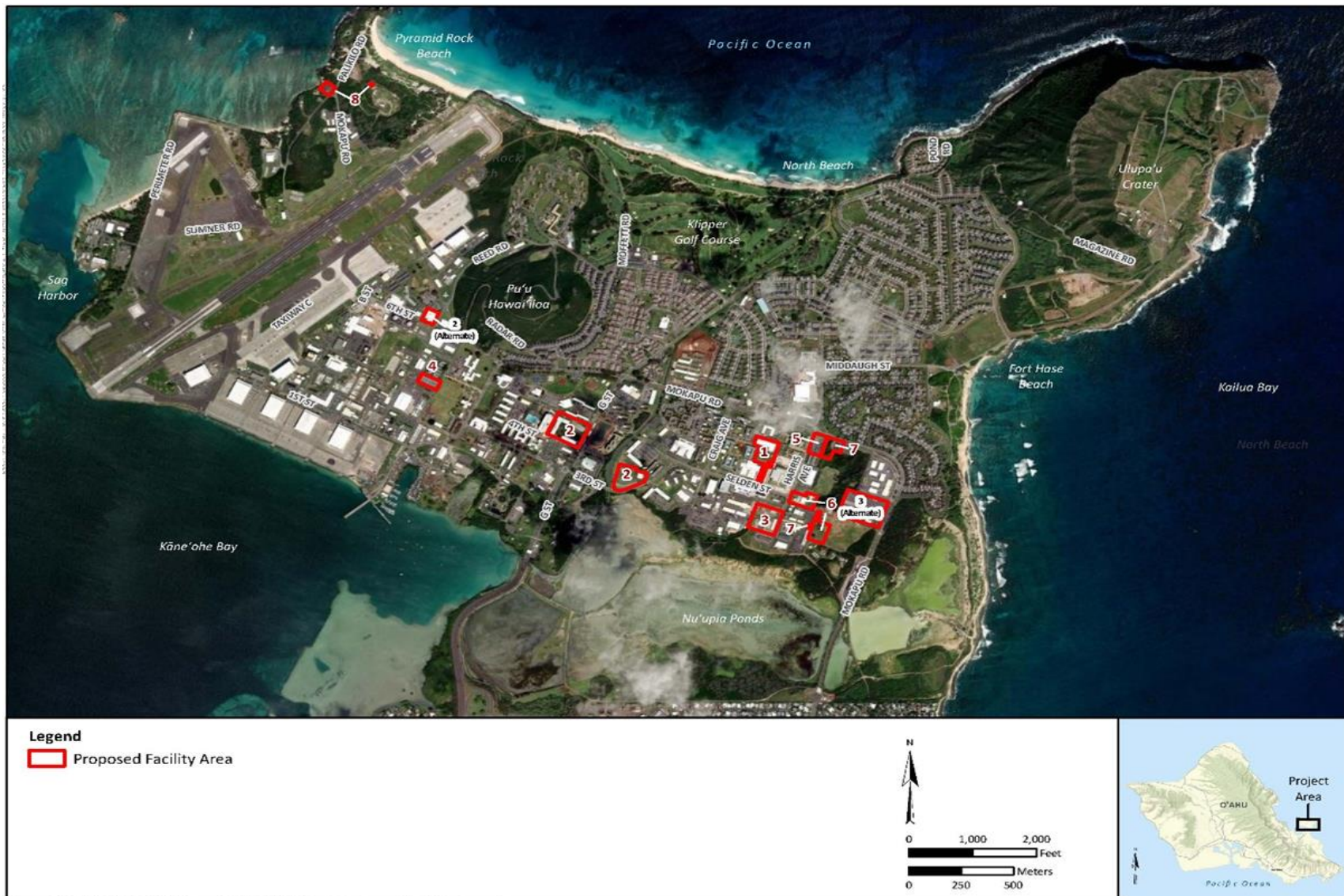


Figure 1a. MCB Hawaii Kaneohe Bay Footprints of the eight (8) GFM Projects (Area of Potential Effects)
 (Please note a portion of Project 8 is located in the Pyramid Rock Training Range)

Enclosure 1 - Area of Potential Effects



Figure 1b. MCB Hawaii Kaneohe Bay Training Area
(Please note that the Training Area Boundary is the Area of Potential Effects)

Enclosure 1 - Area of Potential Effects



Figure 1c. MCB Hawaii Kaneohe Bay Training Area- Pyramid Rock Beach Training Area
(Please note that the Training Area Boundary is the Area of Potential Effects)

Enclosure 1 - Area of Potential Effects

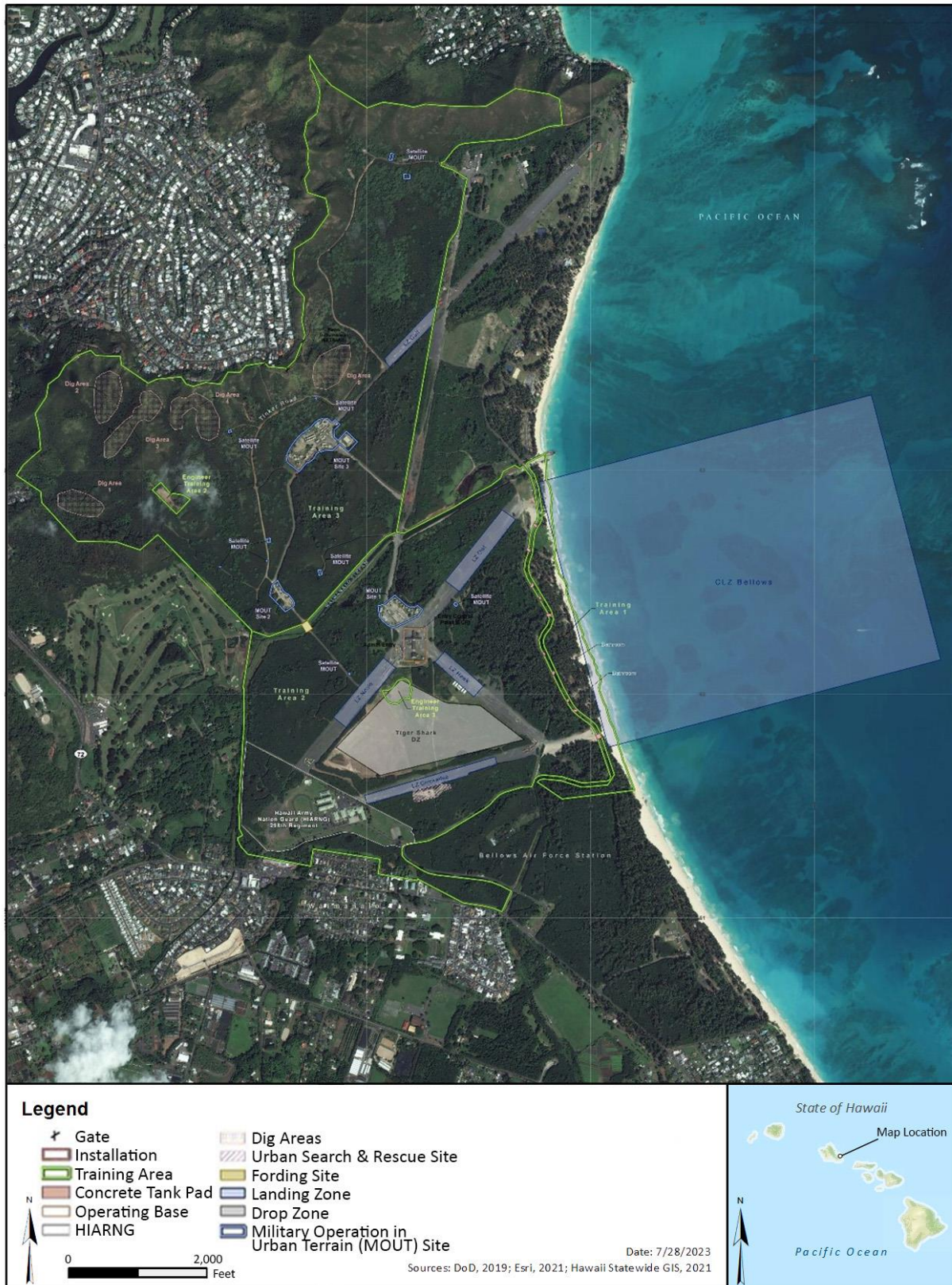


Figure 1d. Marine Corps Training Area Bellows
(Please note that the Training Area Boundary is the Area of Potential Effects)

Enclosure 1 - Area of Potential Effects



Figure 1e. Pu'uloa Range Training Facility
(Please note that the Installation Boundary is the Area of Potential Effects)

Table 2-a. Archaeological Resources in the APE

<i>SIHP Site No. 50-80-11-</i>	<i>District/ Area</i>	<i>Period¹</i>	<i>Site Description</i>	<i>NRHP Status² (Significance Criterion)³</i>	<i>Location</i>
MCB Hawaii Kaneohe Bay					
0366	N/A	TH	Lu-o-Wai-o-Kanaloa (Brackish well, possibly buried beneath Runway 4/22).	Not located; Not evaluated	Pyramid Rock Beach Training Area
0367	Mōkapu House Lots Archaeological District at Pali Kilo	TH	Hina Stone; boulder; a fishing shrine, a fish trap (Pa Ohua), and shrine with two stones representing Ku and Hina	R-yes (B, C, D)	Adjacent to Preferred 8
1017	N/A	TH	MBA, including Burial Site H	NRHP Listed (C, D)	Within/adjacent to Preferred 8
4626	N/A	TH	Modified outcrop	R-yes (D)	Kaneohe Bay Range Training Complex
4891	N/A	TH	Subsurface cultural deposit	R-yes (D)	Pyramid Rock Beach Training Area
5733	Mōkapu House Lots Archaeological District at Pali Kilo	TH, NM	Subsurface cultural deposits and 20th century house foundations	R-yes (D)	Adjacent to Preferred 8
7724	Mōkapu House Lots Archaeological District at Pali Kilo	TH	Disturbed subsurface cultural deposit	R-yes (C, D)	Adjacent to Preferred 8
7725	Mōkapu House Lots Archaeological District at Pali Kilo	NM	Retaining wall	R-yes (C, D)	Adjacent to Preferred 8
MCTAB					
511	Bellows Field Archaeology Area	TH	Area of habitation and burials	NRHP-Listed (D)	MCTAB
3309	Waimānalo Archaeological District (Noncontributing)	NM	Agricultural water catchment system	NRHP-Eligible (D)	MCTAB
3311	Waimānalo Archaeological District (Noncontributing)	NM	Irrigation ditch	NRHP-Eligible (D)	MCTAB
3312	Waimānalo Archaeological District (Noncontributing)	NM	Waimānalo Japanese Cemetery	NRHP-Eligible (A, D)	MCTAB
4850	Waimānalo Archaeological District	TH	Discontinuous subsurface cultural deposit near and may extend into MCTAB.	NRHP-Eligible (D)	MCTAB
4851	Waimānalo Archaeological District	TH	Pre-Contact and post-Contact subsurface deposits, 15+ intact burials.	NRHP-Eligible (D)	MCTAB

Table 2-a. Archaeological Resources in the APE

SIHP Site No. 50-80-11-	District/ Area	Period¹	Site Description	NRHP Status² (Significance Criterion)³	Location
4852	N/A	TH	Subsurface deposits outside of MCTAB, includes the Bellows Dune Site (O18); three areas of excavation.	NRHP Listed	MCTAB
4853	Waimānalo Archaeological District	TH	Subsurface cultural deposits, possibly contains burials.	NRHP-Eligible (D)	MCTAB
4858	Waimānalo Archaeological District	TH	Stone structures, lithic scatter, subsurface deposits, possibly burials.	NRHP-Eligible (D)	MCTAB
4861	N/A	M	Concrete foundation, artifact scatter	Not evaluated	MCTAB
Pu'uloa RTF					
N/A	N/A	TH	Area of limestone sinkholes	Not evaluated	Pu'uloa RTF

Notes: ¹Probable period of use: TH=traditional Hawaiian pre-Contact/19th century; NM=non-military 19th/20th century;

M=military 20th century

²Status of nomination to the NRHP:

NRHP-listed=Listed in the NRHP

NRHP-eligible= determined eligible for NRHP with SHPD concurrence

Not eligible = determined not eligible for the NRHP with SHPD concurrence

R=yes=recommended eligible for the NRHP, SHPD concurrence not yet received

Not evaluated= no eligibility recommendation has been made to date

³NRHP significance criteria:

A=associated with events that have made a significant contribution to the broad patterns of our history;

B=associated with the lives of persons significant in our past;

C=embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;

D=yielded, or may be likely to yield, information important in prehistory or history

Legend: MBA = Mōkapu Burial Area; MCB = Marine Corps Base; MCTAB = Marine Corps Training Area Bellows; N/A = Not Applicable; NRHP = National Register of Historic Places; RTF = Range Training Facility; SIHP = State Inventory of Historic Places

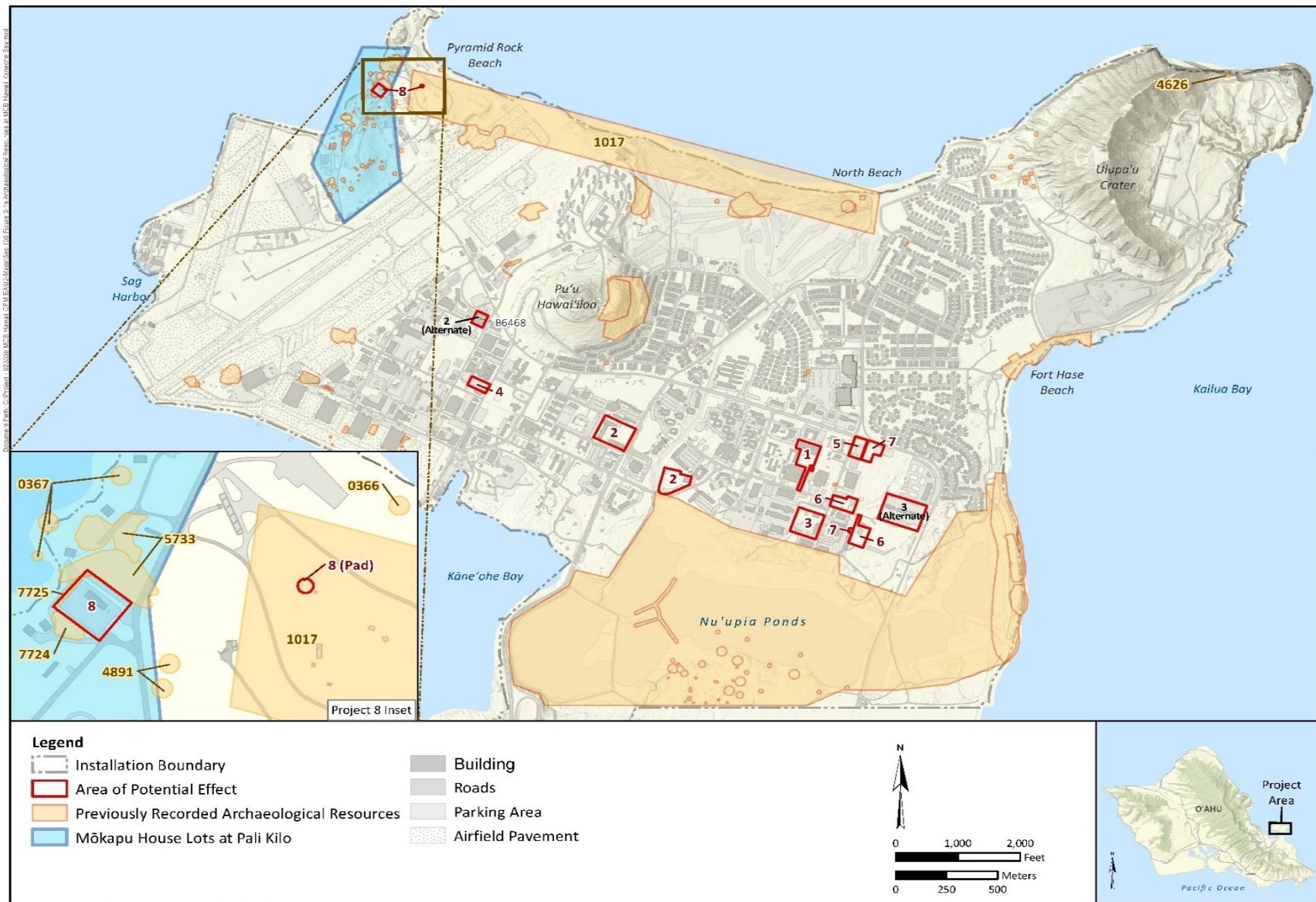


Figure 2-1a. Archaeological Resources at MCB Hawaii Kaneohe Bay

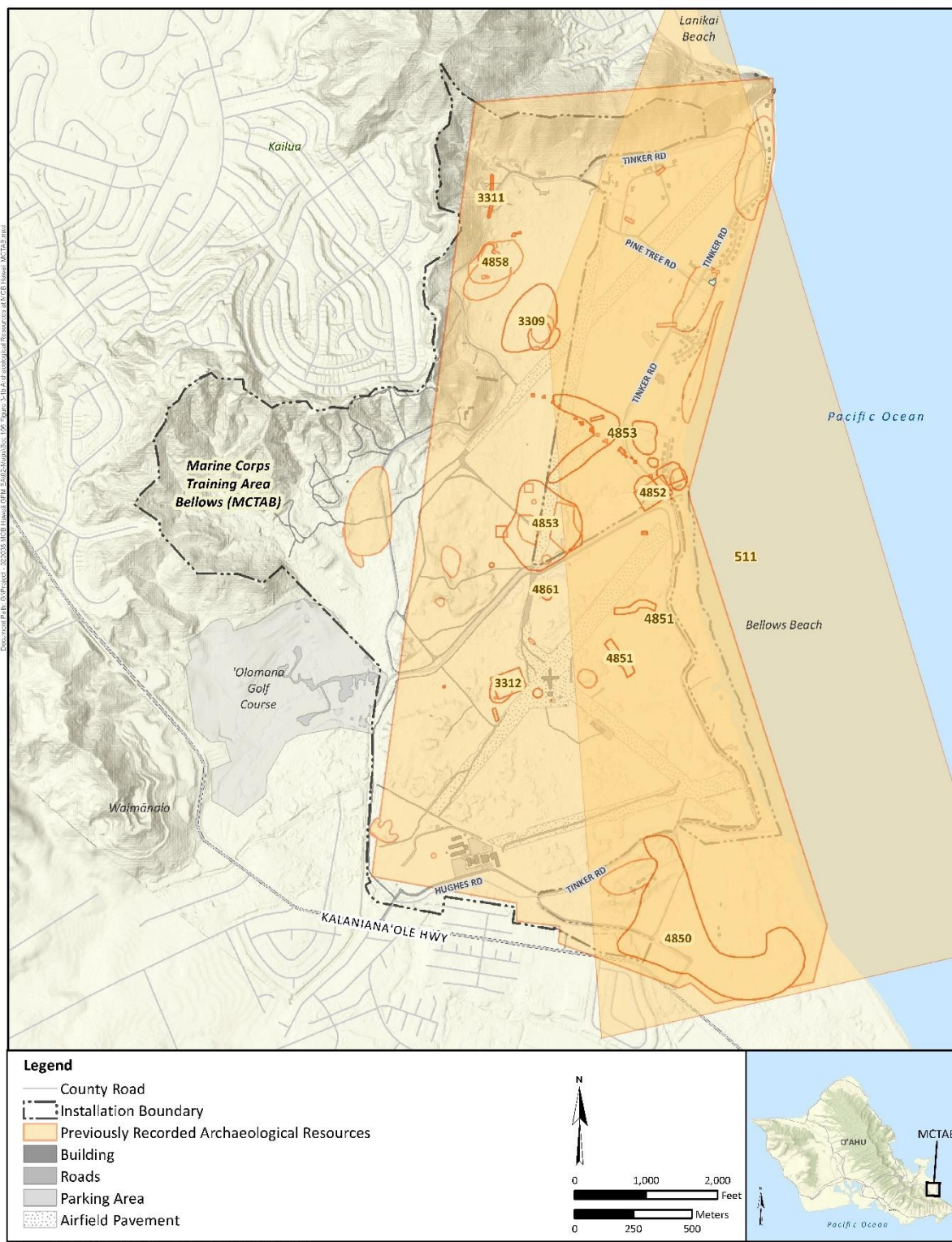


Figure 2-1b. Archaeological Resources at MCTAB
 Please note: the Installation Boundary is also the Area of Potential Effects



Figure 2-1c. Archaeological Resources at Pu'uloa RTF
Please note: The Installation Boundary is also the Area of Potential Effects

Table 2-b. Architectural Resources and Historic Districts in the APE

<i>Name/ Building #</i>	<i>Year Built</i>	<i>NRHP Status¹ (Significance Criterion)²</i>
MCB Hawaii Kaneohe Bay		
NAS Kaneohe Bay Administration District	WWII	NRHP-eligible (A)
Storage Shed (HQ BN [Training])/ 3039	1943	NRHP-eligible (A)
MCTAB		
Revetments/ no #	Pre-1944	NRHP-eligible (A, C)
Concrete bunkers and bomb dispersal revetments (Site 4860)/ no #	Pre-WWII	NRHP-eligible (A, D, and possibly C)
Transmitter Building/700A	1957	NRHP-eligible (A, C)
Ready Power Building/701	1957	NRHP-eligible (A, C)
Coastal Defense Structures	WWII	NRHP-eligible (A, C)
Pu'uloa RTF		
Type D Casualty Station/48	1942	NRHP-eligible (A, C)
Splinterproof Air Raid Shelter/ 136	1940	NRHP-eligible (A, C)
Three concrete bunkers/ no #	1942	NRHP-eligible (Criteria not specified in prior documentation)

Notes: ¹Status of nomination to the NRHP:

NRHP-eligible= determined eligible for NRHP with SHPD concurrence

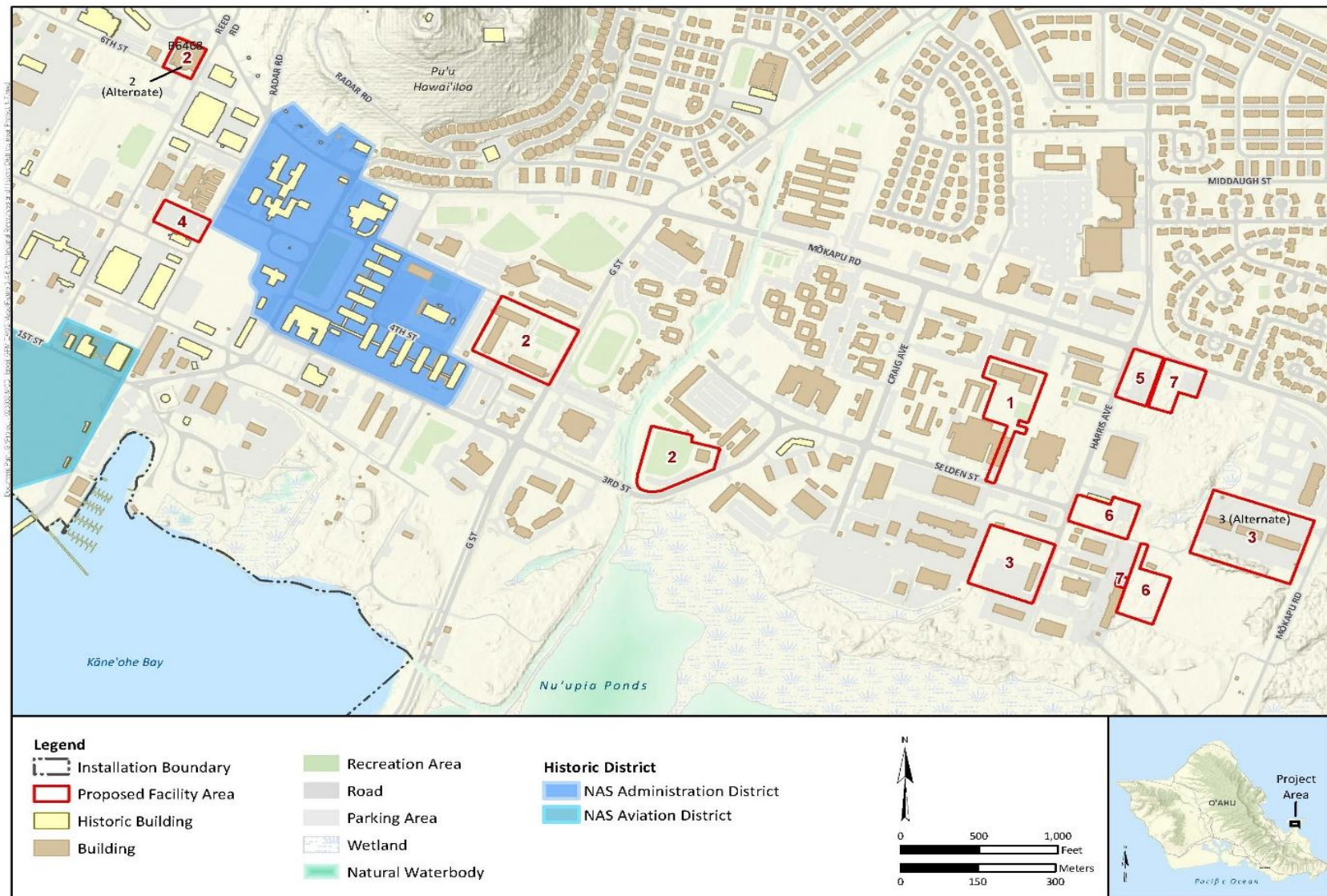
²NRHP significance criteria:

A=associated with events that have made a significant contribution to the broad patterns of our history.

C=embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

D=yielded, or may be likely to yield, information important in prehistory or history.

Legend: # = number; BEQ = Bachelor Enlisted Quarters; BN = Battalion; HQ = Headquarters; MCB = Marine Corps Base; MCTAB = Marine Corps Training Area Bellows; N/A = Not Applicable; NAS = Naval Air Station; NRHP = National Register of Historic Places; RTF = Range Training Facility.



Sources: USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen and the GIS User Community, Hawaii Statewide GIS, 2023; MCHB, 2023

Figure 2-2a. Architectural Resources and Historic Districts near Projects 1 through 7 at MCB Hawaii Kaneohe Bay

Please note: There are no Architectural Resources or Historic Districts Located within the APE

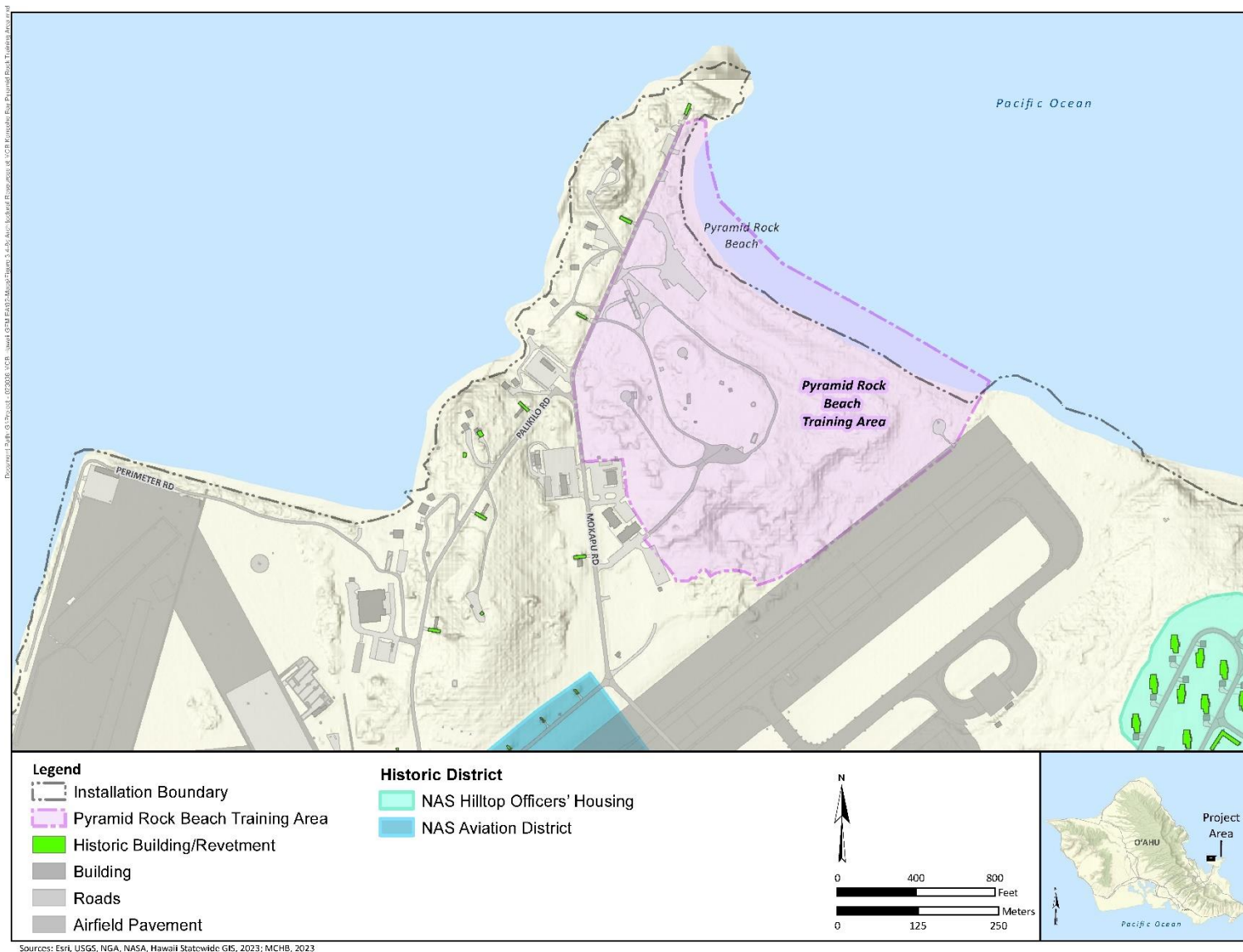


Figure 2-2b. Architectural Resources near Project 8 at MCB Hawaii Kaneohe Bay Please note: There are no architectural resources directly located within the Project 8 APE

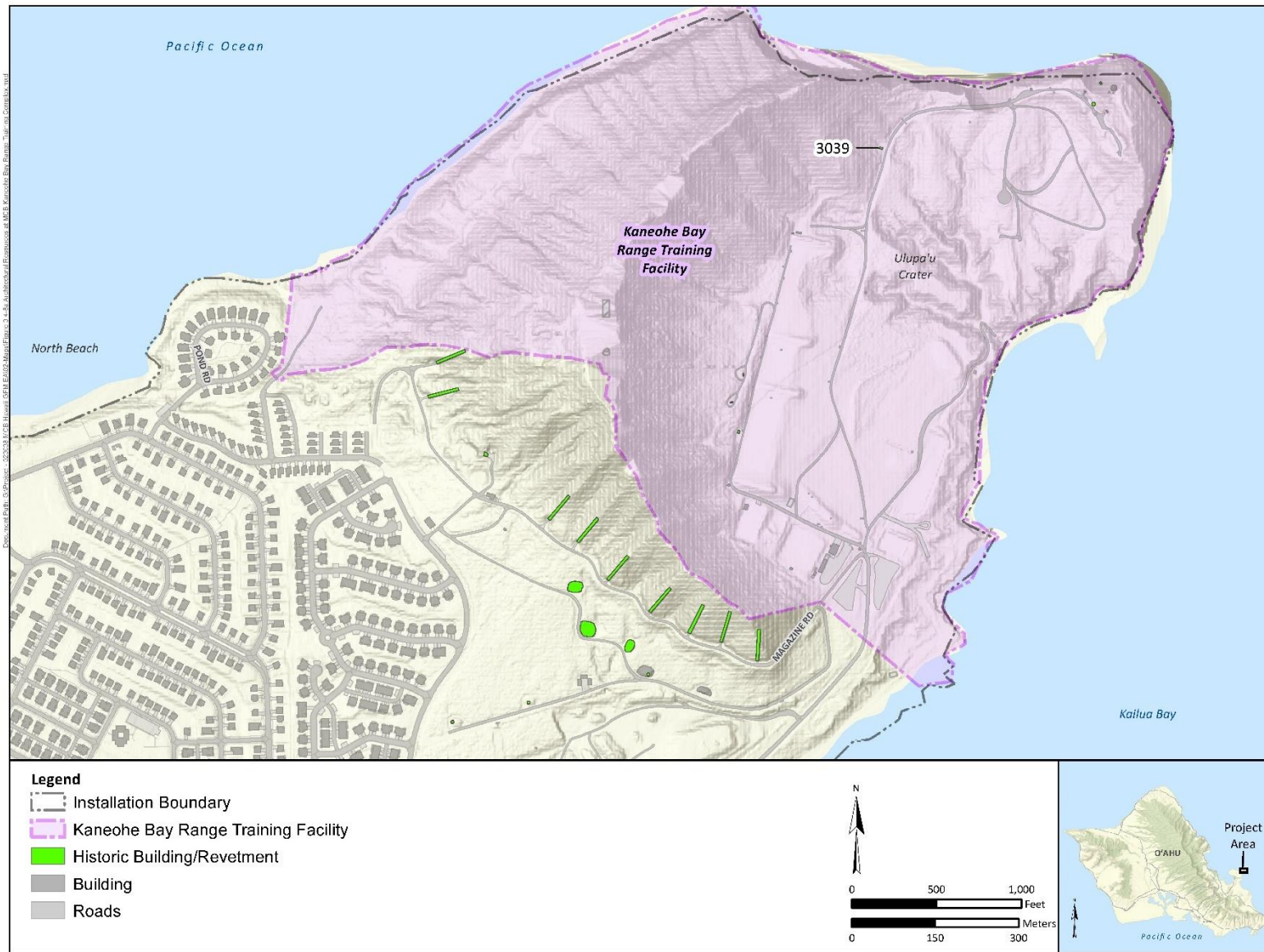


Figure 2-2c. Architectural Resources at MCB Hawaii Kaneohe Bay Range Training Facility

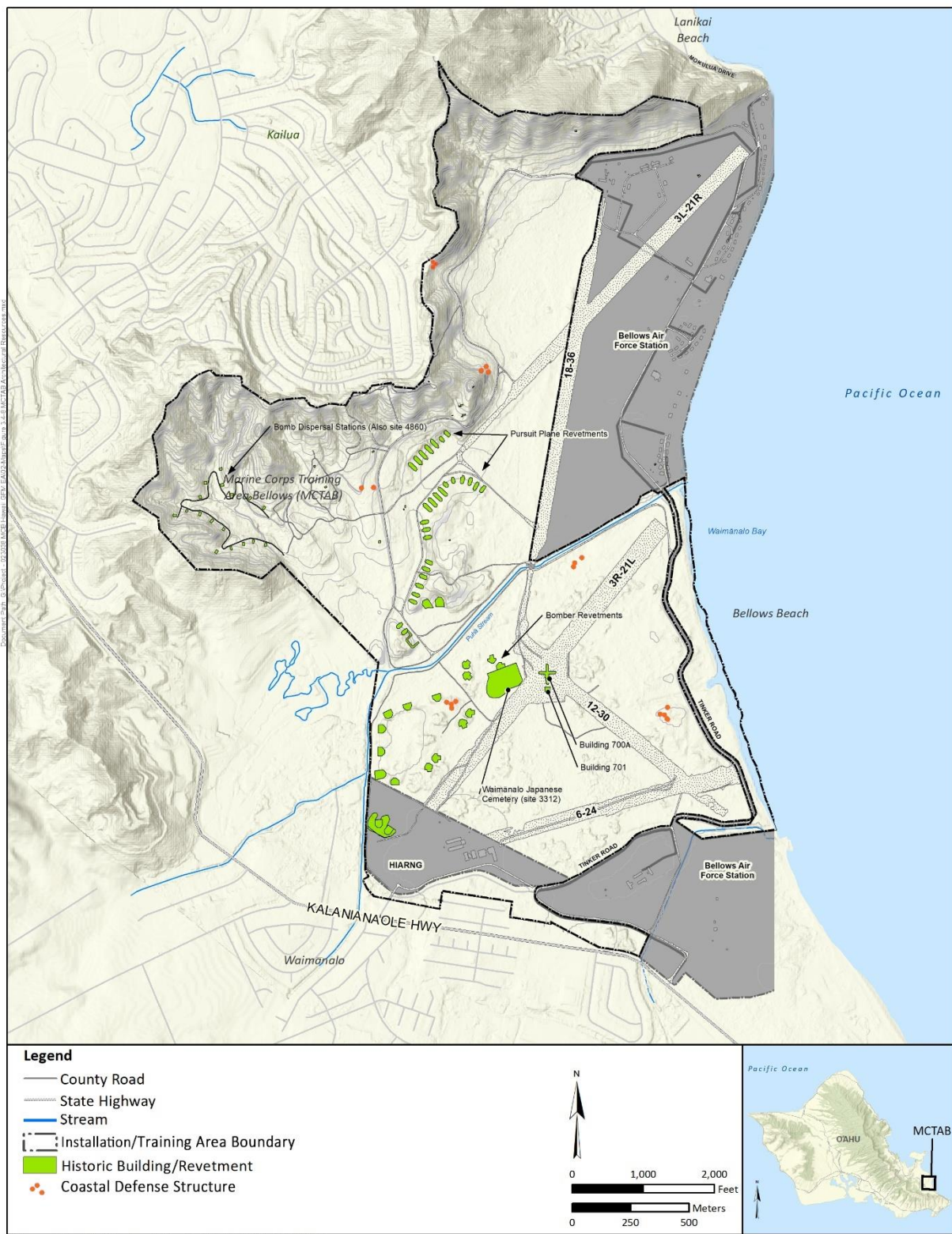


Figure 2-2d. Architectural Resources at MCTAB



Figure 2-2e. Architectural Resources at Pu'uloa RTF



UNITED STATES MARINE CORPS

MARINE CORPS BASE HAWAII BOX 63002
KANEEOHE BAY HAWAII 96863-3002

5090

LFE/141-23

1 Nov 2023

Dr. Alan Downer
Deputy State Historic Preservation Officer
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Dr. Downer:

SUBJECT: **EXPEDITED REVIEW:** CONTINUING SECTION 106 CONSULTATION (ARCHAEOLOGY)
FOR HICRIS PROJECT 2023PR01113 GROUND-BASED FORCES MODERNIZATION
ABOARD MARINE CORPS BASE HAWAII, DISTRICT OF KO'OLAUPOKO, AHUPUA'A
OF KANEEOHE, ON THE ISLAND OF O'AHU, TMK 1-4-4-008:001.

Marine Corps Base Hawaii (MCBH) is continuing consultation with your office in compliance with Section 106 of the National Historic Preservation Act (NHPA) regarding the proposed Ground-based Forces Modernization (GFM) aboard MCBH identified as HICRIS Project 2023PR01113. Based on consulting party comments received in response to the 12 September 2023 MCBH initial Section 106 letter (LFE/117-23) for this project, MCBH is expanding the project's area of potential effects (APE) to include training areas at MCBH Kaneohe Bay, Marine Corps Training Area Bellows (MCTAB), and Puuloa Range Training Facility (RTF) as well as the eight (8) projects described in our initial letter. This letter also describes our expanded efforts regarding identification of historic properties. In accordance with the NHPA Section 106 Implementing Regulations at 36 CFR 800.4, we have reviewed the existing information about subsurface archaeological resources within the APE and determined that additional steps are needed to identify potential subsurface historic properties.

PROJECT DESCRIPTION

The proposed undertaking is the modernization of equipment, infrastructure, and training for Marine Corps ground-based forces in Hawaii to enhance the combat capability of these Hawaii-based ground forces by enabling them to meet United States (U.S.) Marine Corps responsibilities set forth in Title 10 United States Code (USC) Section 8063 in support of the U.S. Indo-Pacific Command (USINDOPACOM). This proposed undertaking is subject to an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) that addresses (1) equipment modernization, (2) facilities construction/renovation, and (3) training for Marine Corps ground-based forces in Hawaii at MCBH and associated training ranges in Hawaii. There would be no change in the number of Marine Corps ground forces personnel in Hawaii because of this proposed undertaking. Of these three components, the upgrade, renovation, and construction of support facilities at the Kaneohe Bay installation has the potential to cause effects on historic properties, assuming such historic properties are present. The first and third components, equipment modernization and training at the associated training ranges in Hawaii, has the potential to cause effects on historic properties assuming such historic properties are present. Our continuation of Section

106 consultation, therefore, has been expanded to include equipment modernization and military training at MCBH Kaneohe Bay, MCTAB, and Puuloa RTF in addition to the upgrade, renovation, and construction of support facilities included in GFM projects at the Kaneohe Bay installation.

The proposed changes in equipment are evolutions of existing equipment with operational characteristics similar to those historically used by Marine Corps ground forces in Hawaii. The modernized equipment would be stored and maintained at MCBH. Such equipment includes the Navy-Marine Expeditionary Ship Interdiction System (NMESIS), a type of joint light tactical vehicle (JLTV) consisting of a chassis with different options for modules built on top that would provide the Marine Corps with an anti-ship missile capability fired from land. For training events, this equipment and personnel would transit over base and public roadways (depending on the location of the Range and Training Area) from MCBH to the training area and then back to base. Other JLTVs are currently in use on all Hawaii military training ranges. The modernized equipment also includes the Marine Air Defense Integrated System (MADIS) and Light MADIS (L-MADIS), both of which are similar to current anti-armor weapons systems and would attach to an ultralight tactical vehicle (ULTV) similar to a commercial off-road vehicle. The MADIS and LMADIS are replacing the UTV's currently in use on Hawaii training ranges.

The NMESIS and MADIS are mounted on JLTVs, and these new systems first began production in 2016 and entered the Marine Corps inventory in 2019. The JLTV is smaller and lighter than the legacy High Mobility Multipurpose Wheeled Vehicle (HMMWV), and both vehicles are currently used on Oahu ranges. The L-MADIS system is mounted on an ULTV, which is similar to a commercial off-road utility vehicle. The L-MADIS is smaller and lighter than the Utility Task Vehicle (UTV) currently used on Oahu ranges. The L-MADIS system would operate in a similar manner to the existing anti-aircraft training previously conducted by equipment mounted on the Marines' existing UTV. While the Ground/Air Task-Oriented Radar (G/ATOR) is a new piece of equipment, it is mounted and towed on vehicles currently used in training on Oahu.

Modernized equipment would be utilized on all existing Marine Corps training areas on Oahu [enclosure 1] where existing ground-based training currently occurs. Because these systems replace and upgrade legacy equipment, the operational employment of the NMESIS, MADIS, L-MADIS and G/ATOR would be similar to the tactics employed by legacy equipment. Established vehicle paths and approved areas would be used to set up and employ the equipment within the ranges; no new or expanded training areas are proposed in this action. Units training with the NMESIS would engage in setup and employment tactics similar to those used by current cannon batteries, with the important distinction that the proposed NMESIS units would not engage in live fire. MADIS and L-MADIS systems would be employed similar to current JLTV and UTV-mounted anti-aircraft systems in maneuver, targeting and simulated firing. The G/ATOR would replace a family of radars currently in use and used daily on Oahu and would not require additional spectrum clearance. All modernized vehicles are wheeled (not tracked) and would operate on existing trails and roadways currently used for ground-based training.

The training area aboard MCBH Kaneohe Bay has a total of 15 ranges, located in the Ulupau Crater, that support individual and small unit live-fire training. Training activities include wheeled vehicle maneuver and foot

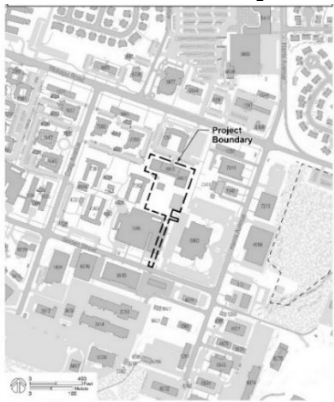
patrols that occur year-round. A concrete pad inside the Pyramid Rock Training Area (PRTA) will be re-used for G/ATOR system training activities, which would include occasional operation of the radar system for maintenance purposes. As stated in the table below, the existing concrete pad has a small non-structural wall built atop its surface, and this wall would be demolished to allow for the G/ATOR system equipment to sit flush atop the pad. The non-structural wall sits atop the concrete pad, so demolishing it will not result in any ground disturbance.

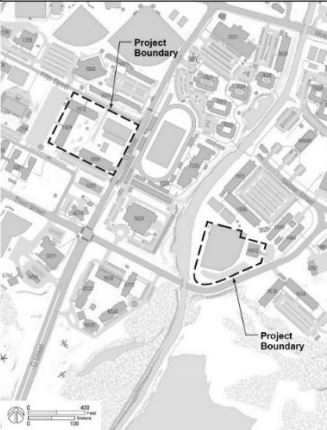
MCTAB encompasses 1,072 acres approximately 8 miles south of MCBH Kaneohe Bay and adjacent to Bellows Air Force Station (BAFS) and between the communities of Kailua and Waimanalo. MCTAB is the primary Marine Corps training area on Oahu and provides maneuvering space company and below unit level non-live-fire amphibious, helicopter, and urban training, and motorized exercises in conjunction with troop land maneuver training.

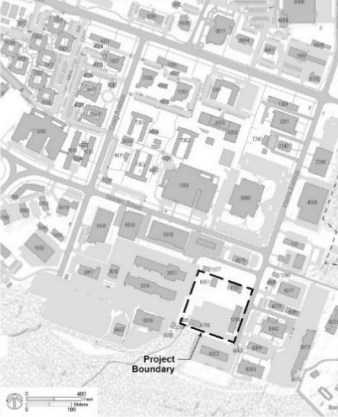
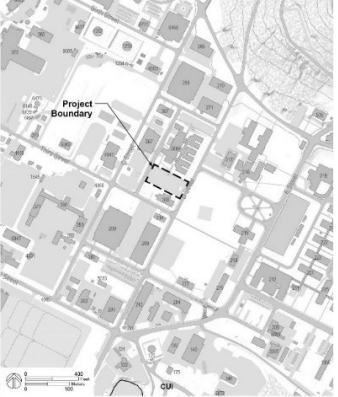
Puuloa RTF supports live-fire training for small arms training, qualification, and requalification. It is regularly used not only by the Marine Corps, but also other Department of Defense services and local law enforcement agencies.

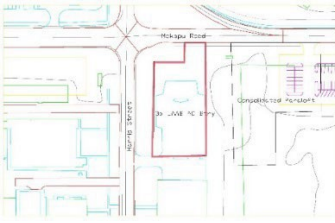
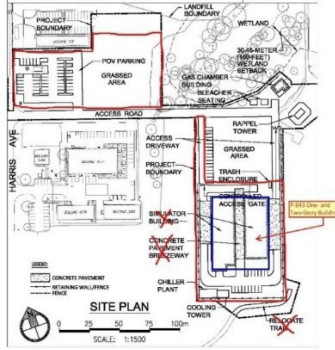
At all MCBH training ranges, the proposed new training would comply with existing avoidance area requirements and would not disturb surface soils below six inches. Existing mitigation measures are contained in the *Update to the Integrated Cultural Resources Management Plan (ICRMP), Marine Corps Base Hawaii, 2021-2026*, as well as the MCBH Order 1500.9C, Standard Operating Procedures (SOP) for Marine Corps Base Hawaii Ranges and Training Areas (Range SOP).

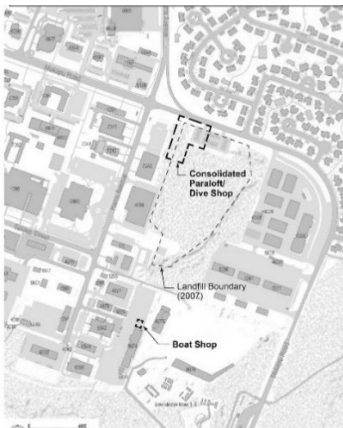
The upgrade, renovation, and construction of GFM support facilities includes new administrative, armory, and operational facilities at the Kaneohe Bay installation. Construction would occur on previously developed, paved, and landscaped areas. All areas, except the proposed replacement ballfield, would require barbed wire security fencing. Below is a table of the projects including maps and known historic properties in the project APE at the Kaneohe Bay installation.

Project	Area of Potential Effects (APE)	Facilities	Historic Properties
3d Marine Littoral Regiment (MLR) Armory Expansion. This project expands the existing armory to accommodate weapons stored in mobile armories. It includes construction of an access driveway and staging area. This requires demolition of basketball court 5024. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base; Selden, Craig, Harris, and Mokapu. 	4053 Armory built 1986. 5024 basketball court built 1987.	4053 is not eligible for the National Register of Historic Places (NRHP) (Wil Chee Planners et al.2014) . 5024 is not 50 years old or eligible for NRHP.

Project	Area of Potential Effects (APE)	Facilities	Historic Properties
<u>1st Low Altitude Air Defense (LAAD) Headquarters & Service (H&S) Battalion Compound.</u> This project reuses and expands the existing armory B4052, consolidates the MACG-18 armory into the expanded B4052, and constructs a new LAAD Battalion compound. Water, sewer, and electrical utilities would be improved within the construction footprint. Location #1: Reuse and expand existing armory B4052. Includes demolition of ballfield 1528, 6523, 6689, 6690. Location #2: Construct new Ballfield. Demolish 1604, 1632, 1654, 3029 former basketball court, currently paved parking, 1616, 6661, 3006.	East portion of base 	Location #1: 4052 Armory built 1986; 1528 Softball Field built 1957; 6523 Press Booth and 6689, 6690 Baseball Dugouts built in 1990s. Location #2: 1604 BEQ built 1972; 1632 BEQ built 1974; 1654 BEQ built 1976; 1616 Medical Equip. built 1975; 3006 Weather Shelter built 1980; 3029 Basketball Court built 1981; 6661 Personnel Weather Shelter built 2003	1528, 4052, 1616 are not NRHP-eligible (Wil Chee Planners et al.2014). 6523, 6689, 6690 are not 50 years old or NRHP-eligible. 1604, 1632, 1654 fall under the Program Comment for Cold War Era Unaccompanied Personnel Housing, 1946-1974. 3006, 3029, 6661 are not 50 years old or NRHP-eligible.

Project	Area of Potential Effects (APE)	Facilities	Historic Properties
<u>NMESIS Facility.</u> This project constructs a three-building compound within an existing compound and expands B3013. Requires demolition of 1284, 1565, 6001, 6085 rinse pad; 6786 wash pad; and relocation of 6765C3 prefab structure. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base; corner Selden and Harris 	3013 Maintenance Building built 1980. 1284 Maintenance Shop built 1965; 1565 Shed built 1958. 6001 Vehicle wash pad built 1990; 6085 rinse pad built 1992; 6786 wash pad; 6765C3 prefab structure.	3013, 1284, 1565 are not NRHP-eligible (Wil Chee Planners et al.2014). 6001, 6085, 6786, 6765C3 are not 50 years old or NRHP-eligible.
<u>Consolidated Communications, Information, and Intelligence Facility.</u> This project constructs a 2-story consolidated secure facility including exterior covered area for equipment. Displaces existing private vehicle parking. Water, sewer, and electrical utilities would be improved within the construction footprint.	Central portion of base/D St. 	No buildings	

Project	Area of Potential Effects (APE)	Facilities	Historic Properties
<u>3d Littoral Anti-Air Battalion (LAAB) Air Control Battery Compound.</u> This project constructs Battery Headquarters, Maintenance Shop, and Vehicle Staging Area. It expands B4053 for reuse as the new Administrative Headquarters. Houses transport vehicles for G/ATOR. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base; Mokapu and Harris 	4053 Armory built in 1986. The remaining structures are either trailers, tension fabric structures, or temporary metal shelters that are all Class 3 structures and not Real Property.	4053 is not eligible for the NRHP (Wil Chee Planners et al.2014).
<u>Live-Virtual Constructive Training Environment Complex.</u> This project involves construction of classroom, simulators and operations trainers, and other interior support elements. May include demolition and/or renovation of 6006 and 6075. Water, sewer, and electrical utilities would be improved within the construction footprint. The blue outline shows the proposed building. The red area around it is for access/paving. The other red area near Harris Ave shows the existing temporary Class 3 structures used for training.	East portion of base 	6006 Gas Chamber built 1991 6075 Leadership Recreation Course built 1991. Remaining structures are either trailers, tension fabric structures, or temporary metal shelters that are Class 3 structures and not Real Property.	6006, 6075 are not eligible for the NRHP (Wil Chee Planners et al. 2014)

Project	Area of Potential Effects (APE)	Facilities	Historic Properties
<u>Consolidated Paraloft/Dive Shop Boat Shop.</u> This project constructs a paraloft facility (drying tower and packing area for parachutes) and a boat/dive shop. The boat shop would be adjacent to Building 6874. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base. 	6874 3rd Radio Battalion Command Post built c. 2018.	6874 is not 50 years old or NRHP-eligible.
<u>G/ATOR Climate Controlled Warehouse and Pad.</u> This project reuses and modifies an existing concrete pad (3055X) inside the Pyramid Rock Training Area (PRTA) for periodic G/ATOR mobile equipment. At a separate location, this project demolishes Building 1180 to construct a Controlled Humidity Warehouse and Maintenance Facility for G/ATOR equipment storage. G/ATOR equipment inside the PRTA can use Portable Generator power. Modifications to Pad include removal of small non-structural walls that sit on the pad (no ground disturbance); installation of 6-8 tie downs in the pad (no ground disturbance); and resurfacing pad with an application of non-stick coating.	West portion of base. Location #1: B1180 site including adjacent parking area.  Location #2: Existing Pad in the PRTA for periodic G/ATOR use. 	1180 Ordnance Operations Building built 1959. Circular pad 3055X, pad for former Radome radar (no longer extant).	NRHP-eligible Mokapu House Lots Archaeological District at Pali Kilo, encompasses 1180, but 1180 is not a contributing historic property. B1180 was built in 1959 and is not NRHP-eligible (2014 Wil Chee Planners et al.) NRHP-listed Mokapu Burial Area (Site 1017), includes the concrete remnant of former 3055 Radome facility, but this is not a contributing historic element.

AREA OF POTENTIAL EFFECTS

The overall GFM APE includes the footprint of the eight (8) GFM projects as described and shown on the maps in the table above including the proposed location of the G/ATOR location at the PRTA, and the training ranges at MCBH Kaneohe Bay, MCTAB, and Puuloa RTF that are shown in enclosure 1.

IDENTIFICATION OF HISTORIC PROPERTIES

In accordance with the NHPA Section 106 Implementing Regulations at 36 CFR 800.4, MCBH has reviewed the existing information on the potential subsurface archaeological resources within the overall GFM APE and determined that additional steps are needed to identify subsurface historic properties at MCBH due to the absence of existing subsurface archaeological information [enclosure 2]. Accordingly, we have initiated the additional effort to identify any potential subsurface archaeological resources within the GFM APE and have enclosed the "Revised Work Plan, Subsurface Archaeological Testing, MCBH Kaneohe Bay" [enclosure 3]. The Revised Work Plan has been edited based on consulting party comments received and now includes a detailed description of mechanical trench excavations that is consistent with the methodology included in the MCBH Home Basing Memorandum of Agreement (2022), among other changes. Pursuant to 36 CFR 800.4(b), this archaeological subsurface investigation will include background research, sample field investigation, field survey, as well as consultation. The investigation will be carried out by qualified preservation professionals and in accordance with the Secretary of the Interior's Standards and Guidelines for Identification.

Known historic properties in the project APE at the MCBH Kaneohe Bay, MCTAB, and Puuloa RTF training areas are listed below.

SIHP Site No. 50-80-11-	District/Area	Period ¹	Site Description	NRHP Status ² (Significance Criterion) ³
MCBH Kaneohe Bay				
4626	N/A	TH	Modified outcrop	R=yes (D)
1017	N/A	TH	Mokapu Burial Area	NRHP-Listed
MCTAB				
511	Bellows Field Archaeology Area	TH	Area of habitation and burials encompassing the entire coastal area of the present Bellows AFS and MCTAB	NRHP-Listed

SIHP Site No. 50-80-11-	District/Area	Period¹	Site Description	NRHP Status² (Significance Criterion)³
3309	Waimanalo Archaeological District (Noncontributing)	NM	Agricultural water catchment system	NRHP-Eligible (D)
3311	Waimanalo Archaeological District (Noncontributing)	NM	Irrigation ditch	NRHP-Eligible (D)
3312	Waimanalo Archaeological District (Noncontributing)	NM	Waimanalo Japanese Cemetery	NRHP-Eligible (A, D)
4850	Waimanalo Archaeological District	TH	Discontinuous subsurface cultural deposit near and may extend into MCTAB	NRHP-Eligible (D)
4851	Waimanalo Archaeological District	TH	Pre-Contact and post- Contact subsurface deposits, 15+ intact burials	NRHP-Eligible (D)
4852	N/A	TH	Subsurface deposits outside of MCTAB, includes Bellows Dune Site (O18); 3 areas of excavation	NRHP Listed
4853	Waimanalo Archaeological District	TH	Subsurface cultural deposits, possibly contains burials	NRHP-Eligible (D)
4858	Waimanalo Archaeological District	TH	Stone structures, lithic scatter, subsurface deposits, possibly burials	NRHP-Eligible (D)

SIHP Site No. 50-80-11-	District/Area	Period¹	Site Description	NRHP Status² (Significance Criterion)³
4861	N/A	M	Concrete foundation, artifact scatter	Not evaluated
4862	N/A	M	Artifact scatter	Not evaluated
5716	N/A	TH	Cultural deposit in HIARNG RTI	R=yes (D)
5799	N/A	TH	Surface lithic scatters	Not evaluated
Puuloa RTF				
N/A	N/A	TH	Area of limestone sinkholes	Not evaluated

Notes: ¹Probable period of use: TH=traditional Hawaiian pre-Contact/19th century; NM=non-military 19th/20th century; M=military 20th century

²Status of nomination to the NRHP:

NRHP-listed=Listed in the NRHP

NRHP-eligible= determined eligible for NRHP with SHPD concurrence

Not eligible = determined not eligible for the NRHP with SHPD concurrence

R=yes=recommended eligible for the NRHP, SHPD concurrence not yet received

Not evaluated= no eligibility recommendation has been made to date

³NRHP significance criteria:

A=associated with events that have made a significant contribution to the broad patterns of our history;

D=yielded, or may be likely to yield, information important in prehistory or history

Legend: HIARNG = Hawaii Army National Guard; MCB = Marine Corps Base; MCTAB = Marine Corps Training Area Bellows; N/A = Not Applicable; NRHP = National Register of Historic Places; RTF = Range Training Facility; RTI = Regional Training Institute; SIHP = State Inventory of Historic Places

SCOPE OF IDENTIFICATION EFFORTS

The "Revised Work Plan, Subsurface Archaeological Testing, MCBH Kaneohe Bay" incorporates all consulting party comments received to date. Therefore, MCBH will proceed with the archaeological testing project as described in the "Revised Work Plan, Subsurface Archaeological Testing, MCBH Kaneohe Bay" on 8 November 2023, unless objections are received prior to that date.

After completion of the archaeological investigation, MCBH will submit the findings to your office, Native Hawaiian Organizations, and other consulting parties and consult as stipulated at 36 CFR 800.4(b) through 800.6, including evaluations of eligibility for any newly discovered subsurface archaeological deposits or sites and our proposed effect determinations. We anticipate providing this submittal in January 2024. MCBH is also forwarding a copy of this letter to the consulting parties listed below as part of the Section 106 consultation process for this undertaking, reiterating from above that we will proceed with the archaeological testing project described in the Revised Work Plan (enclosure 3) on 8 November 2023

unless any objections are received. Should you or your staff have any questions or concerns please contact the MCBH Cultural Resources Management team, Ms. June Cleghorn at 257-7126 or via email at june.cleghorn@usmc.mil, or Ms. Jessica Leger at 257-4218 or via email at jessica.leger@usmc.mil, or Dr. Wendy Wichman at 257-7134 or via email at wendy.wichman@usmc.mil.

Sincerely,

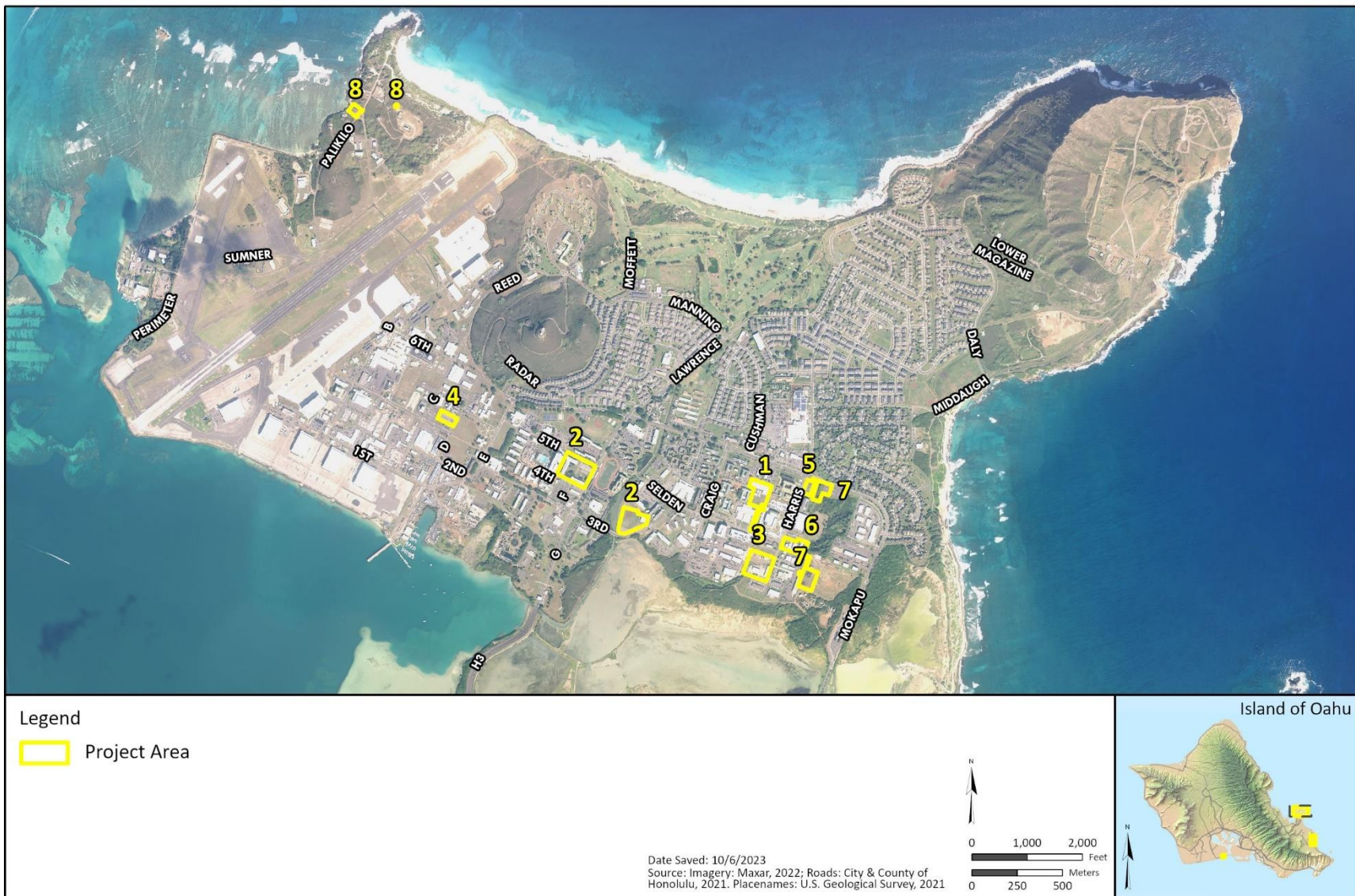
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Date: 2023.11.02 09:43:00
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J. P. Hart
Major, U.S. Marine Corps
Director, Environmental Compliance and
Protection Division
By direction of the Commanding Officer

Enclosure: 1. Locations of Area of Potential Effects.
2. Revised MCBH Subsurface Survey Coverage Map.
3. "Revised Work Plan, Subsurface Archaeological Testing, Marine
Corps Base Hawaii, Kaneohe Bay, Oahu, Hawaii."

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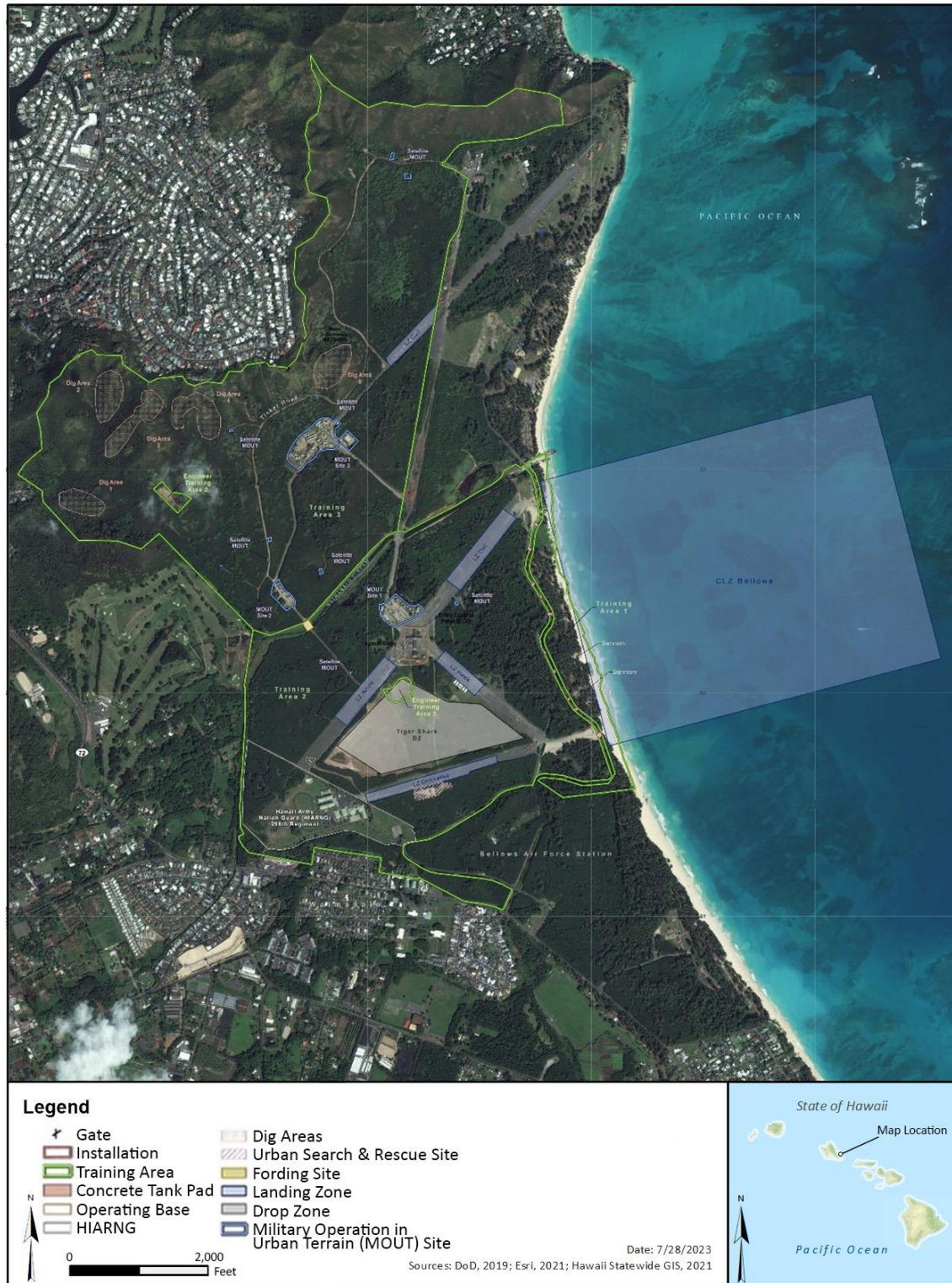
Ms. Anuhea Diamond, Kaulamealani Diamond; Diamond 'Ohana
Ms. Skye Razon-Olds, Kulamanu Napoleon, Kaleleonalani Napoleon; Olds 'Ohana
Ms. Emalia Keohokalole, Mr. Adrian Keohokalole, Mr. Dennis Ka'imi
Keohokalole; Mr. Jerome Keohokalole; Keohokalole 'Ohana
Ms. Na'u Kamali'i; Boyd 'Ohana
Ms. Donna Ann Camvel; Paoa Kea Lono 'Ohana
Mr. Cy Harris; Kekumano 'Ohana
Ms. Terrilee Napua Kekoolani Raymond; Keko'olani 'Ohana
Ms. Malia Newhouse, Ko'olaupia Hawaiian Civic Club
Mr. Clive Cabral; Temple of Lono
Chair; Office of Hawaiian Affairs
Chair; Oahu Island Burial Council
Ms. Kiersten Faulkner, Historic Hawaii Foundation
Ms. Elizabeth Merritt, National Trust for Historic Preservation



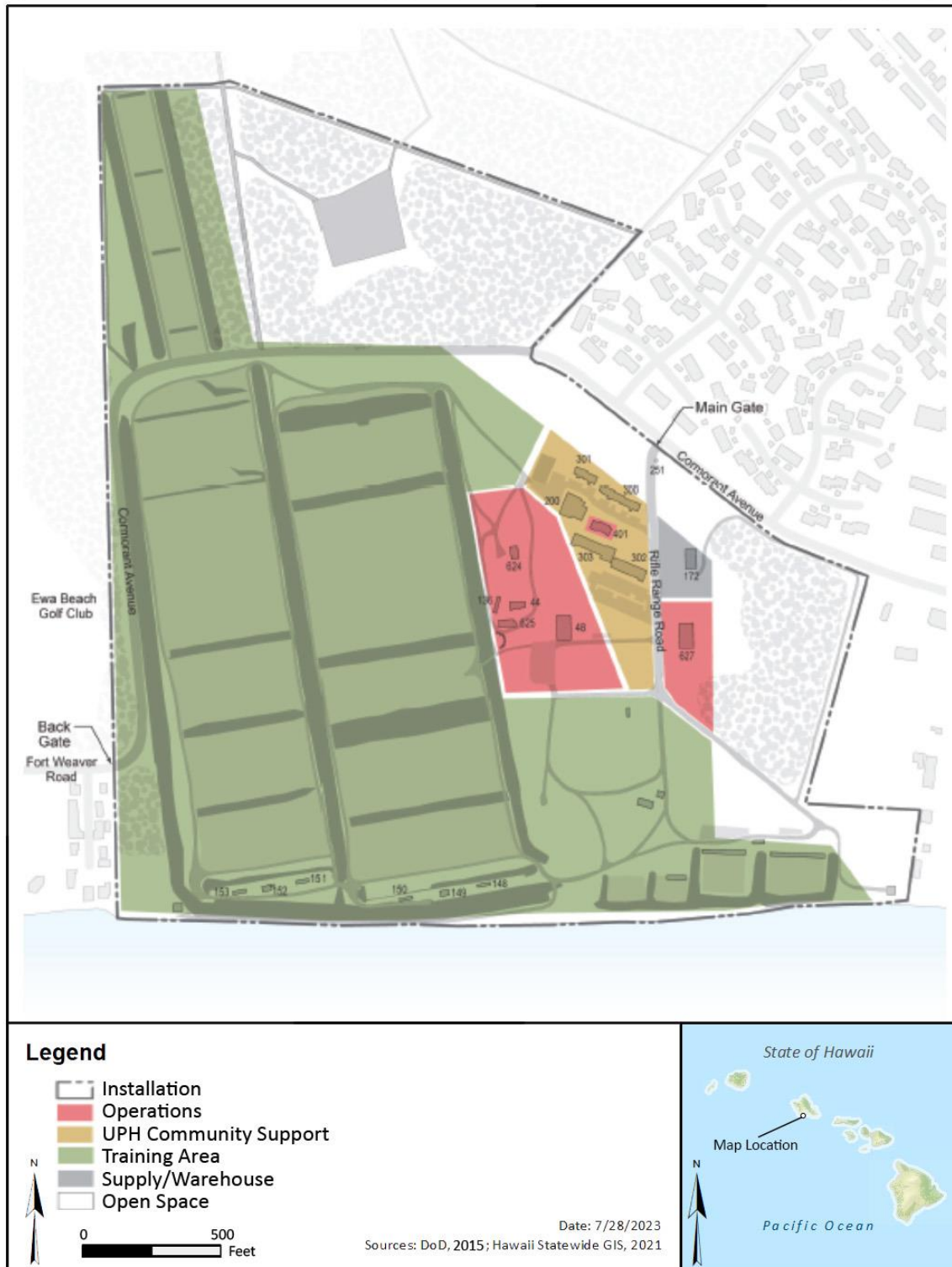
Enclosure 1a. MCB Hawaii Kaneohe Bay Footprints of the Eight GFM Projects
 (Please note Project 8 is located in the Pyramid Rock Training Range)



Enclosure 1b. MCB Hawaii Kaneohe Bay Training Areas



Enclosure 1c. Marine Corps Training Area Bellows



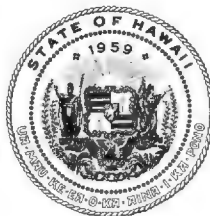
Enclosure 1d. Puuloa Range Training Facility



Enclosure 2. Proposed Trench Locations within Project Areas Superimposed on Map of Previous Subsurface Investigations across Mōkapu Peninsula

JOSH GREEN, M.D.
GOVERNOR | KE KIA'AINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'AINA



STATE OF HAWAII | KA MOKU' - INA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI ' - INA

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD., STE 555
KAPOLEI, HI 96707

DAWN N. S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

LAURA H.E. KAAKUA
FIRST DEPUTY

M. KALEO MANUEL
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

October 10, 2023

Major J. P. Hart, Director
Environmental Compliance and Protection Department
United States Marine Corps
Marine Corps Base Hawai'i Box 63002
Kaneohe Bay, Hawai'i 96863-3002
Email: Jeffry.Hart@usmc.mil
Electronic Transmittal Only, No Hard Copy to Follow

IN REPLY REFER TO:
Project No.: 2023PR01113
Doc. No.: 2310SH01
Archaeology

Dear Major J. P. Hart:

SUBJECT: **National Historic Preservation Act (NHPA) Section 106 Review –
Initiation of Consultation and “Subsurface Archaeological Testing Draft Work Plan”
Ground-Based Forces Modernization Aboard Marine Corps Base Hawai'i
Ref. No. 5090 LFE/117-23
Kaneohe Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 4-4-008:001**

The State Historic Preservation Division (SHPD) received a letter dated September 12, 2021 from the Marine Corps Base Hawai'i (MCBH) to initiate the Section 106 historic preservation consultation process with the State Historic Preservation Officer (SHPO) for the Ground-Based Forces Modernization project at MCBH on the island of O'ahu. The SHPD received this submittal on September 13, 2023 which includes proposed identification efforts within a Draft Work Plan for Subsurface Archaeological Testing (HICRIS Submission No. 2023PR01113.001).

The proposed project is a federal undertaking as defined in 36 CFR 800.16(y) and is therefore subject to Section 106 of the National Historic Preservation Act.

MCBH's letter states the proposed undertaking is to modernize the existing Marine Corps ground-based forces in Hawai'i. The project is subject to an Environmental Assessment (EA) that addresses the modernization of (1) equipment, (2) infrastructure, and (3) training for Marine Corps ground-based forces in Hawai'i at MCBH and associated training ranges in Hawai'i. The MCBH asserts that of these three components, only the upgrade, renovation, and construction of support facilities at the Kaneohe Bay installation has the potential to cause effects on historic properties, assuming such historic properties are present. MCBH therefore, focused the Section 106 consultation on the upgrade, renovation, and construction of support facilities by Ground-based Forces Modernization (GFM) projects at the Kaneohe Bay installation. There are eight GFM projects described as part of this undertaking.

Modernized equipment would be stored and maintained at MCBH. For training events, this equipment and personnel would transit over base and public roadways (depending on the location of the Range and Training Area) from MCBH to the training area or range and then back to base. The MCBH determined in accordance with 36 CFR 800.3(a)(1), these modernized types of equipment and training are types of activities that do not have the potential to cause effects on historic properties, assuming such historic properties are present, and in accordance with 36 CFR 800.3(a)(1) MCBH has no further obligations under Section 106 for these activities. **The SHPO does not agree** these activities meet the conditions of 36 CFR 800.3(a)(1), further **the SHPO does not agree** with the practice of

removing certain actions in a scope of work from Section 106 consultation; Section 106 consultation should include and consider all components of the undertaking. Therefore, **the SHPO recommends** the Area of Potential Effects (APE) include areas related to the activities associated with the modernized equipment and vehicle operations.

The upgrade, renovation, and construction of GFM support facilities includes new administrative, armory, and operational facilities at the Kaneohe Bay installation. Construction would occur on previously developed, paved, and landscaped areas. All areas, except the proposed replacement ballfield, would require barbed wire security fencing. A list of the proposed actions is within MCBH's letter.

The MCBH notes that the plan titled, *Draft Work Plan, Subsurface Archaeological Testing, Marine Corps Base Hawaii, Kaneohe Bay, Oahu, Hawaii*, also includes (five or six) additional areas for subsurface archaeological testing that are not part of the eight GFM construction projects. These additional testing areas were chosen during early review of future notional projects due to the absence of existing subsurface archaeological information in these areas. MCBH will initiate Section 106 consultation on these projects when the decision has been made to proceed with them. **The SHPD notes** that while the additional areas where future projects may occur may be tested, it will be determined during Section 106 consultation specific to the notional projects whether the identification efforts are adequate.

Please see attached with the HICRIS Submission 2023PR01113.001 response, the SHPD's review comments in track changes on the proposed identification efforts and the document titled, *Draft Work Plan Subsurface Archaeological Testing Marine Corps Base Hawaii, Kāne'ohe Bay, O'ahu, Hawai'i* (September 2023). **The SHPO does not agree** with the proposed archaeological testing being carried out using a backhoe or mini excavator to excavate 1,040 meters of trenches. Mechanical trenching can be very destructive to archaeological deposits and can result in loss of data, especially as the plan does not stipulate screening the excavated materials unless there is a potential find nor does it stipulate precautions to mitigate destruction caused from the mechanical excavator such as scraping the surface at controlled depths at a time using a flat blade.

The SHPD opines backhoe trenching poses a threat to archaeological resources and any data that may be present and implores the MCBH to reconsider the proposed excavation method and using standard archaeological methods of hand excavation in an effort to responsibly investigate the subsurface for archaeological resources. All excavated materials should be screened through quarter inch screen.

Further, the plan should include targeted research goals to add to the current known archaeological data for Mokapu Peninsula. The SHPD suggests the identification efforts include an attempt to locate the boundaries of previously documented archaeological sites for which the extent is currently unknown. Specialized analyses should be included within the plan to answer questions about the context of previously documented sites for which modest data currently exists.

Further, the SHPO requests copies or summaries of any responses received from other consulting parties, especially Native Hawaiian organizations, regarding the proposed testing and how MCBH may have incorporated the comments into the work plan.

The SHPO does not agree with the work proposed to collect archaeological data under the *Draft Work Plan Subsurface Archaeological Testing Marine Corps Base Hawaii, Kāne'ohe Bay, O'ahu, Hawai'i* (September 2023).

The SHPO looks forward to continuing Section 106 consultation for the proposed project.

Please submit all forthcoming information and correspondence related to the subject project to SHPD via HICRIS under Project No. 2023PR01113 using the Project Supplement option.

The MCBH is the office of record for this undertaking. Please maintain a copy of this letter with your environmental review record for this undertaking.

Please contact Stephanie Hacker, Historic Preservation Archaeologist IV, at Stephanie.Hacker@hawaii.gov or at (808) 692-8046 for matters regarding archaeological resources or this letter.

Major J. P. Hart
October 10, 2023
Page 3

Aloha,

Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: June Cleghorn, MCBH (june.cleghorn@usmc.mil)
Wendy Wichman, MCBH (wendy.wichman@usmc.mil)



UNITED STATES MARINE CORPS
MARINE CORPS BASE HAWAII
BOX 63002
Kaneohe Bay Hawaii 96863-3002

5090
LFE/117-23
12 Sept 2023

Dr. Alan Downer
Deputy State Historic Preservation Officer
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Dr. Downer:

SUBJECT: **EXPEDITED REVIEW:** SECTION 106 CONSULTATION (ARCHAEOLOGY) FOR GROUND-BASED FORCES MODERNIZATION ABOARD MARINE CORPS BASE HAWAII, DISTRICT OF KO'OLAUPOKO, AHUPUA'A OF KANEOHE, ON THE ISLAND OF O'AHU, TMK 1-4-4-008:001.

Marine Corps Base Hawaii (MCBH) is consulting with your office in compliance with Section 106 of the National Historic Preservation Act (NHPA) regarding the proposed Ground-based Forces Modernization (GFM) aboard MCBH. This letter initiates our Section 106 consultation on the area of potential effects (APE) and efforts regarding identification of historic properties. In accordance with the NHPA Section 106 Implementing Regulations at 36 CFR 800.4, we have reviewed the existing information about subsurface archaeological resources within the APE and determined that additional steps are needed to identify potential subsurface historic properties.

EXPEDITED REVIEW

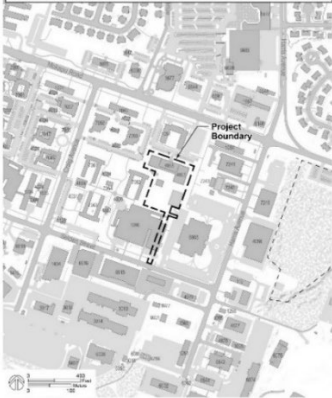
MCBH requests an expedited review period of 21 calendar days for review and comments from your office, from Native Hawaiian organizations (NHO), and from other consulting parties regarding the proposed scope of identification efforts under Section 106 Implementing Regulations at 36 CFR 800.4(a) (1-4). Upon completion of these identification efforts, MCBH will proceed with this consultation as stipulated at 36 CFR 800.4(b) through 800.6.

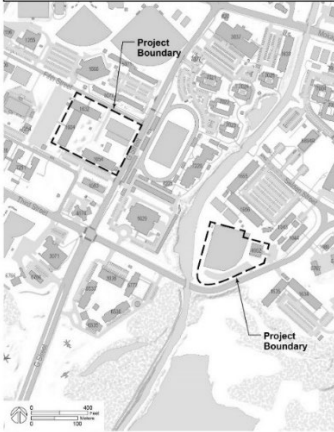
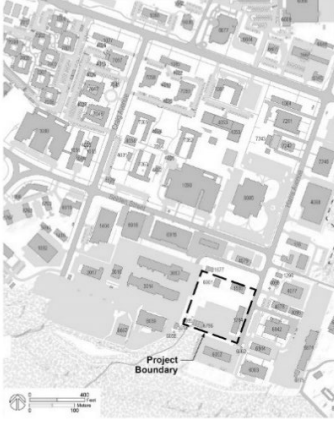
PROJECT DESCRIPTION

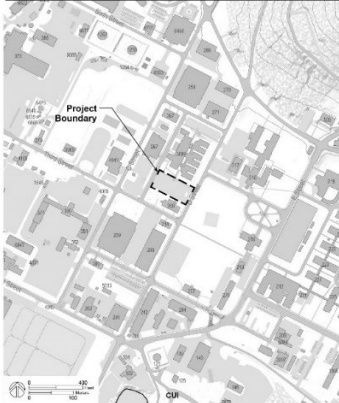
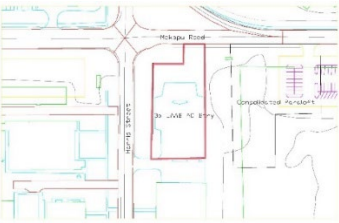
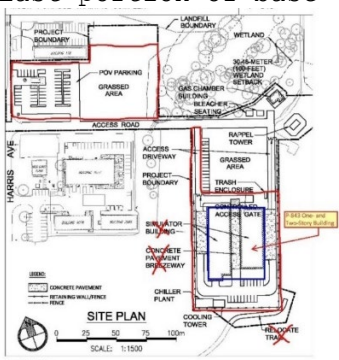
The proposed undertaking is to modernize the existing Marine Corps ground-based forces in Hawaii to enhance the combat capability of Hawaii-based Marine Corps ground forces by enabling them to meet U.S. Marine Corps responsibilities set forth in Title 10 United States Code (USC) Section 8063 in support of the U.S. Indo-Pacific Command (USINDOPACOM). It is subject to an Environmental Assessment (EA) that addresses the modernization of (1) equipment, (2) infrastructure, and (3) training for Marine Corps ground-based forces in Hawaii at MCBH and associated training ranges in Hawaii. There would be no change in the number of Marine Corps Hawaii ground forces personnel because of this proposed undertaking. Of these three components, only the upgrade, renovation, and construction of support facilities at the Kaneohe Bay installation has the potential to cause effects on historic properties, assuming such historic properties are present. Our Section 106 consultation, therefore, focuses on the upgrade, renovation, and construction of support facilities by GFM projects at the Kaneohe Bay installation.

The proposed changes in equipment are evolutions of existing equipment with operational characteristics similar to those historically used by Marine Corps ground forces in Hawaii. The modernized equipment would be stored and maintained at MCBH. Such equipment includes the Navy-Marine Expeditionary Ship Interdiction System (NMESIS), a type of joint light tactical vehicle (JLTV) consisting of a chassis with different options for modules built on top that would provide the Marine Corps with an anti-ship missile capability fired from land. For training events, this equipment and personnel would transit over base and public roadways (depending on the location of the Range and Training Area) from MCBH to the training area and then back to base. The JLTV are currently in use on all Hawaii military training ranges. The modernized equipment also includes the Marine Air Defense Integrated System (MADIS) and Light MADIS, which is similar to current anti-armor weapons systems and would attach to an ultralight tactical vehicle (ULTV) similar to a commercial Polaris off-road vehicle. Training would consist of driving the vehicle to and on the range. Thirdly, the modernized equipment includes the Ground/Air Task-Oriented Radar (G/ATOR), consisting of a radar towed on a trailer by a Medium Tactical Vehicle Replacement (MTVR) vehicle commonly used by the Marine Corps in Hawaii; a generator mounted on the MTVR; and communications equipment mounted on a High Mobility Multi-Wheeled Vehicle (HMMWV), another vehicle commonly used by the Marine Corps in Hawaii. Training would consist of vehicle maneuvers on an existing training range, with the majority of the actual G/ATOR training occurring entirely digitally. Therefore, in accordance with 36 CFR 800.3(a)(1), these modernized types of equipment and training -- NMESIS, MADIS and Light MADIS, and G/ATOR -- are types of activities that do not have the potential to cause effects on historic properties, assuming such historic properties are present, and MCBH has no further obligations under Section 106 for these activities.

The upgrade, renovation, and construction of GFM support facilities includes new administrative, armory, and operational facilities at the Kaneohe Bay installation. Construction would occur on previously developed, paved, and landscaped areas. All areas, except the proposed replacement ballfield, would require barbed wire security fencing. Below is a table of the projects including maps and known historic properties in the project APE.

Project	Area of Potential Effects (APE)	Facilities	Historic Properties
3d Marine Littoral Regiment (MLR) Armory Expansion. This project expands the existing armory to accommodate weapons stored in mobile armories. It includes construction of an access driveway and staging area. This requires demolition of basketball court 5024. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base; Selden, Craig, Harris, and Mokapu. 	4053 Armory built 1986. 5024 basketball court built 1987.	4053 is not eligible for the National Register (NR) (Wil Chee Planners et al.2014). 5024 is not 50 years old or eligible for NR.

<u>1st Littoral Anti-Air Detachment (LAAD) Battalion Compound.</u> This project reuses and expands the existing armory B4052, consolidates the MACG-18 armory into the expanded B4052, and constructs a new LAAD Battalion compound. Water, sewer, and electrical utilities would be improved within the construction footprint. Location #1: Reuse and expand existing armory B4052. Includes demolition of ballfield 1528, 6523, 6689, 6690. Location #2: Construct new Ballfield. Demolish 1604, 1632, 1654, 3029 former basketball court, currently paved parking, 1616, 6661, 3006.	East portion of base 	Location #1: 4052 Armory built 1986; 1528 Softball Field built 1957; 6523 Press Booth and 6689, 6690 Baseball Dugouts built in 1990s. Location #2: 1604 BEQ built 1972; 1632 BEQ built 1974; 1654 BEQ built 1976; 1616 Medical Equip. built 1975; 3006 Weather Shelter built 1980; 3029 Basketball Court built 1981; 6661 Personnel Weather Shelter built 2003	1528, 4052, 1616 are not NR-eligible (Wil Chee Planners et al.2014). 6523, 6689, 6690 are not 50 years old or NR-eligible. 1604, 1632, 1654 fall under the Program Comment for Cold War Era Unaccompanied Personnel Housing, 1946-1974. 3006, 3029, 6661 are not 50 years old or NR-eligible.
<u>NMESIS Facility.</u> This project constructs a three-building compound within an existing compound and expands B3013. Requires demolition of 1284, 1565, 6001, 6085 rinse pad; 6786 wash pad; and relocation of 6765C3 prefab structure. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base; corner Selden and Harris 	3013 Maintenance Building built 1980. 1284 Maintenance Shop built 1965; 1565 Shed built 1958. 6001 Vehicle wash pad built 1990; 6085 rinse pad built 1992; 6786 wash pad;	3013, 1284, 1565 are not NR-eligible (Wil Chee Planners et al.2014). 6001, 6085, 6786, 6765C3 are not 50 years old or NR-eligible.

		6765C3 prefab structure.	
<u>III MEF Consolidated Communications Intel-Facility.</u> This project constructs a 2-story consolidated secure facility including exterior covered area for equipment. Displaces existing private vehicle parking. Water, sewer, and electrical utilities would be improved within the construction footprint.	Central portion of base/D St. 	No buildings	
<u>3d Littoral Anti-Air Battalion (LAAB) Air Control Battery Compound.</u> This project constructs Battery Headquarters, Maintenance Shop, and Vehicle Staging Area. It expands B4053 for reuse as the new Administrative Headquarters. Houses transport vehicles for G/ATOR. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base; Mokapu and Harris 	4053 Armory built in 1986. The remaining structures are either trailers, tension fabric structures, or temporary metal shelters that are all Class 3 structures and not Real Property.	4053 is not eligible for the NR (Wil Chee Planners et al.2014).
<u>Live Virtual Constructive Training Environment.</u> This project involves construction of classroom, simulators and operations trainers, and other interior support elements. May include demolition and/or renovation of 6006 and 6075. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base 	6006 Gas Chamber built 1991 6075 Leadership Recreation Course built 1991. Remaining structures are either trailers, tension fabric structures, or temporary	6006, 6075 are not eligible for the NR (Wil Chee Planners et al. 2014)

The blue outline shows the proposed building. The red area around it is for access/paving. The other red area near Harris Ave shows the existing temporary Class 3 structures used for training.		metal shelters that are Class 3 structures and not Real Property.	
<u>Consolidated Paraloft and Dive Shop and 3d Radio Battalion Boat Shop.</u> This project constructs a paraloft facility (drying tower and packing area for parachutes) and a boat/dive shop. The boat shop will be adjacent to Building 6874. Water, sewer, and electrical utilities would be improved within the construction footprint.	East portion of base. 	6874 3rd Radio Battalion Command Post built c. 2018.	6874 is not 50 years old or NR-eligible.
<u>G/ATOR Climate Controlled Warehouse & Pad.</u> This project reuses and modifies an existing concrete pad (3055X) inside the Pyramid Rock Training Area (PRTA) for periodic G/ATOR mobile equipment. At a separate location, this project demolishes Building 1180 to construct a Controlled Humidity Warehouse and Maintenance Facility for G/ATOR equipment storage. G/ATOR equipment inside the PRTA can use Portable Generator power. Modifications to Pad include removal of small non-structural walls that sit on the pad (no ground disturbance); installation of 6-8 tie downs in the pad (no ground disturbance);	West portion of base. Location #1: B1180 site including adjacent parking area.  Location #2: Existing Pad in the PRTA for periodic G/ATOR use. 	1180 Ordnance Operations Building built 1959. Circular pad 3055X, pad for former Radome radar (no longer extant).	NR-eligible Mokapu House Lots Archaeological District at Pali Kilo, encompasses 1180, but 1180 is not a contributing historic property. B1180 was built in 1959 and is not NR-eligible (2014 Wil Chee Planners et al.) NR-listed Mokapu Burial Area (Site 1017), includes the concrete remnant of former 3055 Radome facility, but

and resurfacing pad with an application of non-stick coating.			this is not a contributing historic element.
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AREA OF POTENTIAL EFFECTS

The overall GFM Area of Potential Effects (APE) has been determined to include the footprint of the eight (8) GFM projects as described and shown on the maps in the table above.

IDENTIFICATION OF HISTORIC PROPERTIES

In accordance with the NHPA Section 106 Implementing Regulations at 36 CFR 800.4, MCBH has reviewed the existing information on the potential subsurface archaeological resources within the overall GFM APE and determined that additional steps are needed to identify subsurface historic properties in the APE due to the absence of existing subsurface archaeological information [enclosure 1]. Accordingly, we have initiated the additional effort to identify any potential subsurface archaeological resources within the GFM APE and have enclosed our "Subsurface Archaeological Testing Draft Work Plan" for your review and comment [enclosure 2]. Pursuant to 36 CFR 800.4(b), this investigation will include background research, sample field investigation, field survey, as well as consultation. The investigation will be carried out by qualified preservation professionals and in accordance with the Secretary of the Interior's (SOI) Standards and Guidelines for Identification. The archaeologists carrying out the investigation would like to begin in mid-October 2023.

Please note that the "Draft Work Plan, Subsurface Archaeological Testing, Marine Corps Base Hawaii, Kaneohe Bay, Oahu, Hawaii," also includes five (5) additional areas for subsurface archaeological testing that are not part of the eight (8) GFM construction projects. These five additional testing areas were chosen during early review of future notional projects due to the absence of existing subsurface archaeological information in these areas. MCBH will initiate Section 106 consultation on these five projects when the decision has been made to proceed with them. In the meantime, MCBH will have completed more extensive archaeological identification efforts across the Kaneohe Bay installation.

SCOPE OF IDENTIFICATION EFFORTS

As stated above, MCBH requests an expedited review period of 21 calendar days for comments regarding the scope of our proposed identification efforts in the "Draft Work Plan, Subsurface Archaeological Testing, Marine Corps Base Hawaii, Kaneohe Bay, Oahu, Hawaii," pursuant to Section 106 Implementing Regulations at 36 CFR 800.4(a)(1-4). After completion of the archaeological investigation, we will submit the findings to your office, NHOs, and other consulting parties and consult as stipulated at 36 CFR 800.4(b) through 800.6, including evaluations of eligibility for any newly discovered subsurface archaeological deposits or sites and our proposed determination of effect. We anticipate providing this submittal in January 2024. MCBH is also forwarding a copy of this letter to the consulting parties listed below as part of the Section 106 consultation process for this undertaking. Thus, MCBH requests comments from these consulting parties regarding the above

determination within 21 days of receipt of this letter. Should you or your staff have any questions or concerns please contact the MCBH Cultural Resources Management team, Ms. June Cleghorn at 257-7126 or via email at june.cleghorn@usmc.mil, or Ms. Jessica Leger at 257-4218 or via email at jessica.leger@usmc.mil, or Dr. Wendy Wichman at 257-7134 or via email at wendy.wichman@usmc.mil.

Sincerely,

HART.JEFFRY.P.
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J. P. Hart
Major, U.S. Marine Corps
Director, Environmental Compliance and
Protection Division
By direction of the Commanding Officer

Enclosure: 1. MCBH Subsurface Survey Coverage Map.
2. "Draft Work Plan, Subsurface Archaeological Testing, Marine
Corps Base Hawaii, Kaneohe Bay, Oahu, Hawaii."

Copy to:

Ms. Anuheia Diamond, Kaulamealani Diamond; Diamond 'Ohana
Ms. Skye Razon-Olds, Kulamanu Napoleon, Kaleleonalani Napoleon; Olds 'Ohana
Ms. Emalia Keohokalole, Mr. Adrian Keohokalole, Mr. Dennis Ka'imi
Keohokalole; Mr. Jerome Keohokalole; Keohokalole 'Ohana
Ms. Na'u Kamali'i; Boyd 'Ohana
Ms. Donna Ann Camvel; Paoa Kea Lono 'Ohana
Mr. Cy Harris; Kekumano 'Ohana
Ms. Terrilee Napua Kekoolani Raymond; Keko'olani 'Ohana
Ms. Malia Newhouse, Ko'olaupia Hawaiian Civic Club
Mr. Clive Cabral; Temple of Lono
Chair; Office of Hawaiian Affairs
Chair; Oahu Island Burial Council
Ms. Kiersten Faulkner, Historic Hawaii Foundation
Ms. Elizabeth Merritt, National Trust for Historic Preservation



Enclosure 1. MCBH Subsurface Survey Coverage Map

APPENDIX D

ENDANGERED SPECIES ACT SECTION 7 CONSULTATION

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai'i 96850



In Reply Refer To:
2024-0037462-S7

April 18, 2024

Major Jeffry P. Hart
Director, Environmental Compliance and Protection Division
Marine Corps Base Hawai'i
Environmental Division
P.O. Box 63062 B1359
MCBH Kāne'ohe Bay, HI 96863-3062

Subject: Informal Consultation for Marine Corps Base Hawai'i Ground Forces
Modernization Project

Dear Major Hart:

The U.S. Fish and Wildlife Service (Service) received your letter dated January 11, 2024, requesting our concurrence with your determination that the proposed project to modernize equipment, infrastructure, and training for Marine Corps ground forces at sites on O'ahu: Marine Corps Base Hawai'i, Marine Corps Training Area Bellows, and Pu'uloa Range Training Facility "may affect, but not likely to adversely affect" the following federally listed species:

- Hawaiian waterbirds:
 - Hawaiian stilt or ae'o (*Himantopus mexicanus knudseni*)
 - Hawaiian coot or 'alae ke'oke'o (*Fulica alai*)
 - Hawaiian gallinule or 'alae 'ula (*Gallinula galeata sandvicensis*)
- Hawaiian seabirds:
 - Band-rumped storm petrel or 'akē'akē (*Hydrobates castro*)
 - Hawaiian petrel or 'ua'u (*Pterodroma sandwichensis*)
 - Newell's shearwater or 'a'o (*Puffinus newelli*)
- Green sea turtle
 - Central North Pacific Distinct Population Segment of the green sea turtle or honu (*Chelonia mydas*)
- Hawaiian hoary bat or 'ōpe'ape'a (*Lasiurus cinereus semotus*)
- Hawaiian yellow-faced bee or Nalo meli maoli (*Hylaeus anthracinus*)

The Service and Marine Corps Base Hawai'i Natural Resources Staff exchanged email correspondence in February and March 2024 to clarify details in the project description and

PACIFIC REGION 1

IDAHO, OREGON*, WASHINGTON,
AMERICAN SAMOA, GUAM, HAWAII, NORTHERN MARIANA ISLANDS
*PARTIAL

conservation measures. The Service considered all information related to the proposed project received on March 27, 2024, initiating consultation.

We based our analysis and decisions in this consultation on: (1) your request and accompanying Biological Assessment for this project; (2) our email correspondence between February 1 and March 27, 2024 and (3) other pertinent data available to us. A complete consultation record is on file at our Pacific Islands Fish and Wildlife Office in Honolulu, Hawai‘i. Our response is in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

Project Description

The Marine Corps Base Hawai‘i (MCBH) proposes to modernize equipment, infrastructure, and training for Marine Corps ground forces at three locations across the island of O‘ahu: the MCBH Kāne‘ohe Bay, Marine Corps Training Area Bellows (MCTAB), and at Pu‘uloa Range Training Facility (RTF) (Figure 1). The project has three main components: (1) modernize equipment; (2) upgrade, renovate, and construct support facilities (Figure 2 and 3); and (3) conduct training activities with modernized equipment.

Modernize Equipment

The proposed changes in equipment are evolutions of existing equipment and combat capabilities. Modernized equipment includes vehicle and weapon systems, launchers for simulated weapons firing (no “live fire”), and radar systems. The modernized equipment will be stored and maintained at MCBH Kāne‘ohe Bay.

Construction and Facilities Upgrades

The facility construction and equipment modernization will be implemented from Fiscal Year 2024 through Fiscal Year 2030 during daytime hours only. All proposed construction would occur on previously developed, paved, or landscaped areas. Water, sewer, and electrical utilities would be improved, as necessary, within the proposed construction footprints (Figure 3). All new facilities would be constructed with Low Impact Development (LID) elements and appropriate best management practices (BMPs) to maintain stormwater discharges to pre-development hydrologic conditions.

Approximately 3,500 linear feet (ft) of fencing with 3 strands of barbed wire will either be installed on top of security fencing or replacing barbed wire on previously installed security fencing at MCBH Kāne‘ohe Bay (Figure 3).

Training

Approximately 1,500 training events occur annually across all three locations on O‘ahu: MCBH Kāne‘ohe Bay, MCTAB, and Pu‘uloa RTF, where most trainings occur at MCBH Kāne‘ohe Bay and MCTAB, respectively. The proposed training using modernized equipment is expected to remain consistent with this historical use (i.e., approximately 1,500 annual training events). Field training will not involve live fire training, will be using established vehicle paths to set up and employ the equipment, and no new or expanded training areas will be used. For training events,

the equipment and personnel would transit over base and public roadways from MCBH Kāneʻohe Bay to the training area and then back to MCBH Kāneʻohe Bay.

MCBH Kāneʻohe Bay training includes vehicle maneuver, foot patrols, obstacle course training, gas chamber, and driving simulator and virtual small arms training, Military Operations on Urbanized Terrain (MOUT), fast rope and rappelling training, amphibious training, and limited live-fire training. There are two non-live-fire amphibious beaches (Pyramid Rock and Fort Hase), a live-fire shoot house, an Infantry Immersion Trainer, a helicopter/ MV-22 landing zone, a non-live-fire training area, and an underwater egress trainer, all supporting pre-deployment training for MCBH tenant units.

MCTAB is the primary Marine Corps training area on Oʻahu and provides maneuvering space for training activities to include, but not limited to, amphibious training, air and ground maneuver training, land navigation training, MOUT, barrier obstacle training, vehicle operator's confidence training, and search and rescue training. MCTAB supports company and below unit level non-live-fire amphibious, helicopter, and urban training; and motorized exercises in conjunction with troop land maneuver training. No live fire ranges are located at MCTAB; however, for realism, simulation pyrotechnics are used during Infantry Immersion Training within the urban training facilities.

Puʻuloa RTF is an entirely built and modified landscape that lacks native vegetation and supports civilian housing, live-fire training for small arms training, qualification and requalification. Vegetation consists of non-native vegetation including trees, shrubs, and grasses that are irrigated and maintained in developed areas.

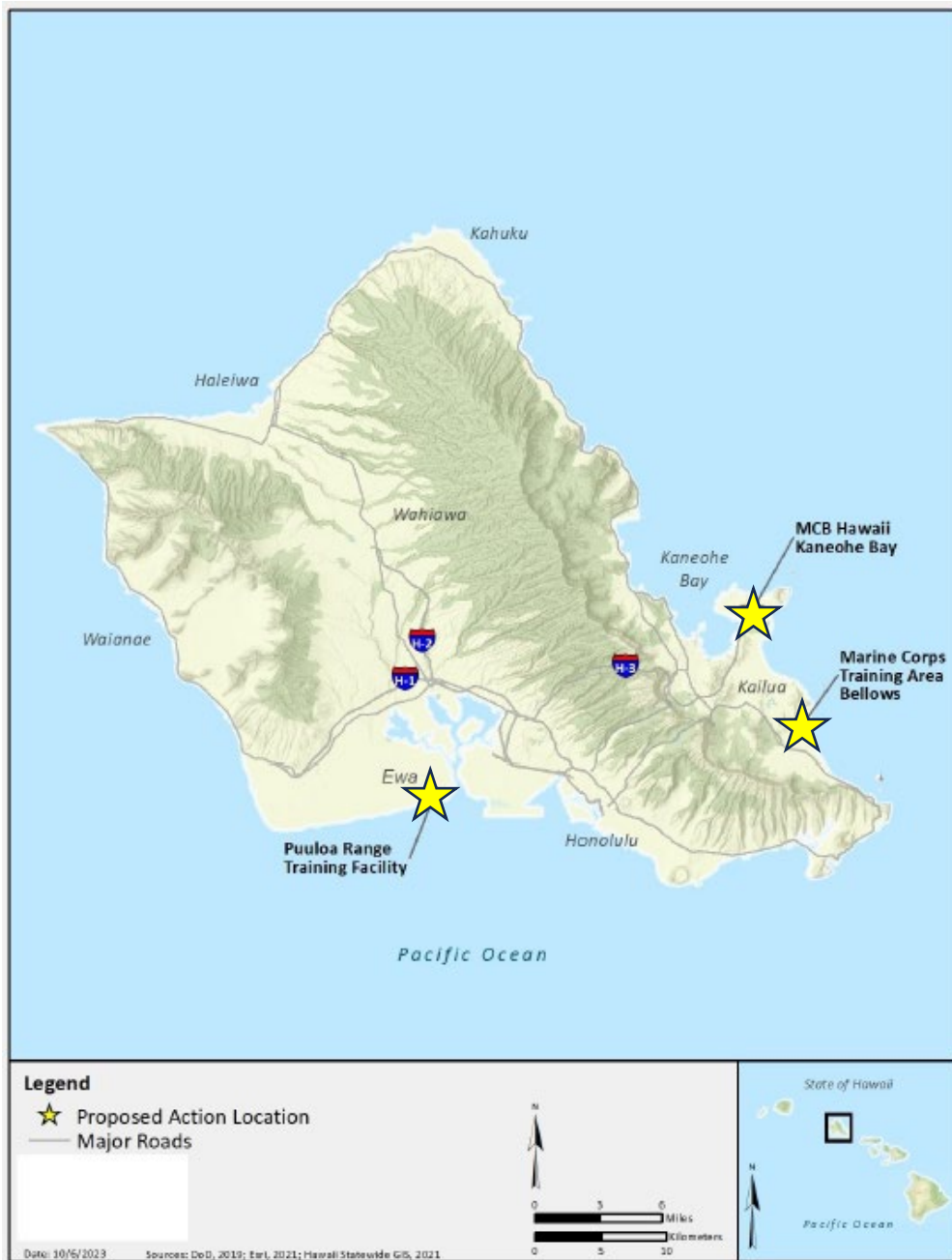


Figure 1: Proposed action locations on the island of O‘ahu are indicated by the yellow stars.

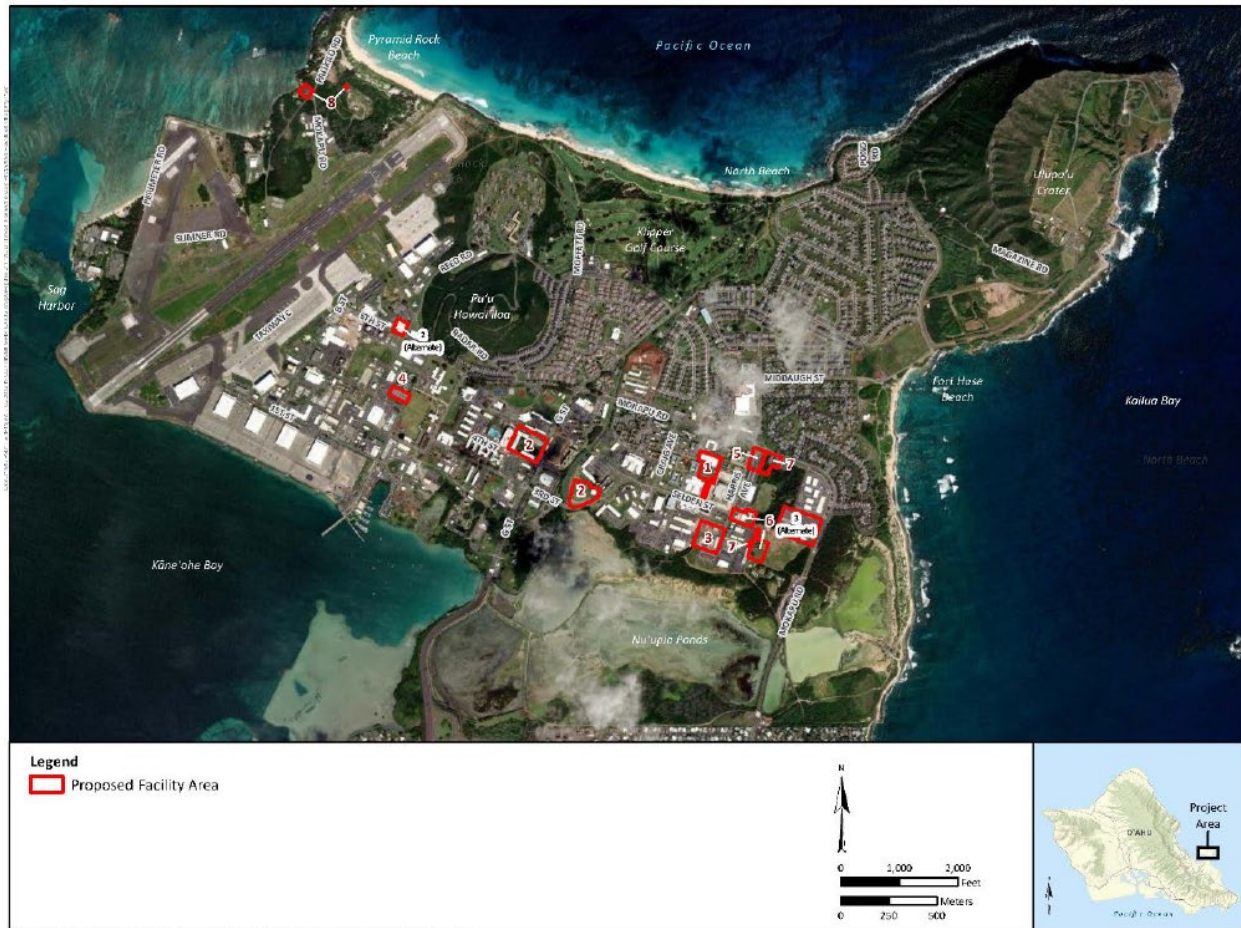


Figure 2: Proposed preferred facilities to upgrade, renovate, and construct support facilities in red boxes at the Marine Corps Base Hawai'i in Kāneʻohe.

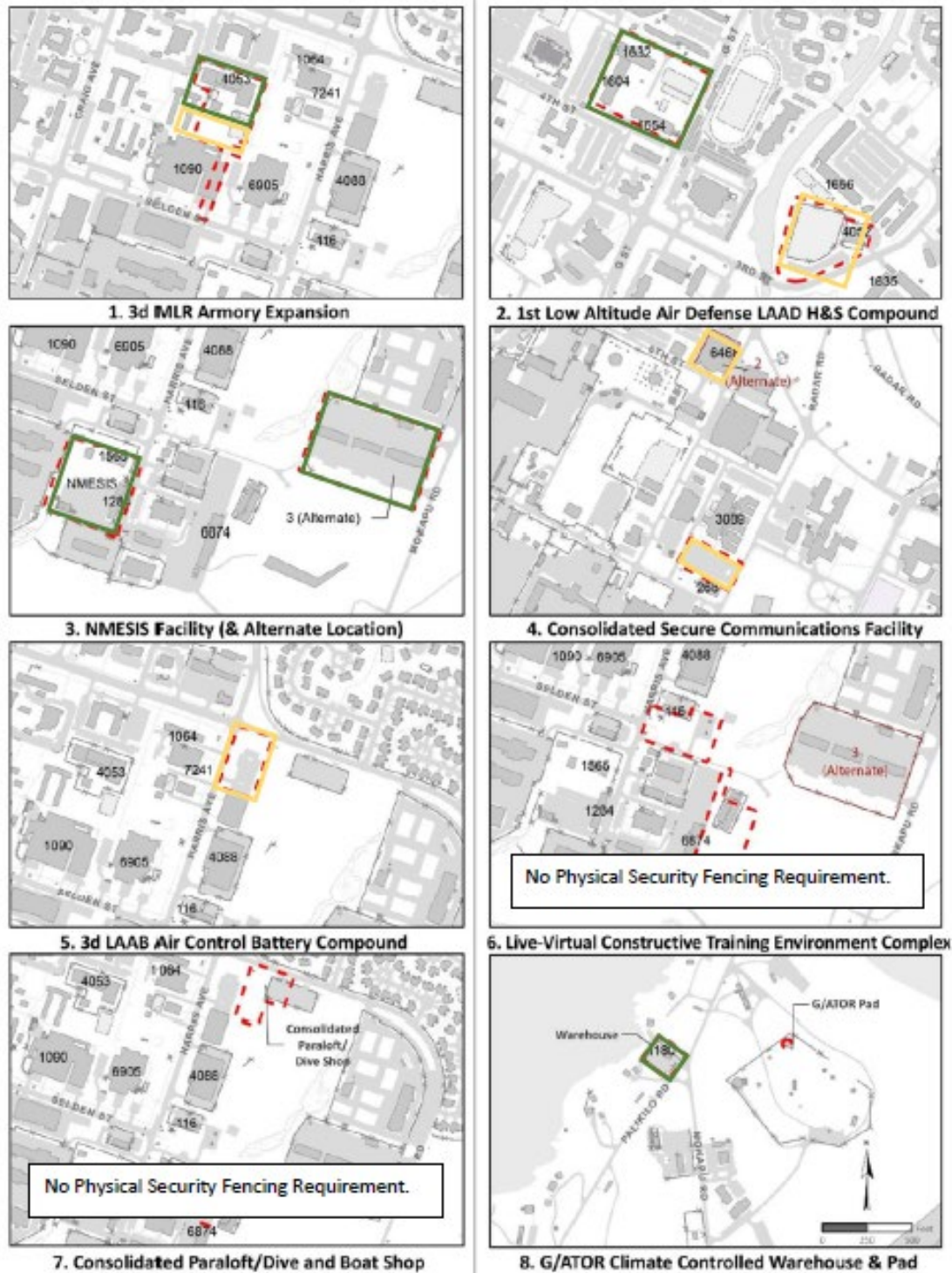


Figure 3: Proposed facilities project footprint at the Marine Corps Base Hawai'i in Kāneʻohe. The red hash lines represents the project location boundary, the yellow lines are proposed barbed wire to be installed on top of fencing and the green lines indicate existing barbed wire to be replaced.

Conservation Measures

The following conservation measures will be implemented as a part of the proposed project to avoid and minimize impacts to listed species and their habitats:

Hawaiian waterbirds

- Pre-construction surveys will be conducted daily by a qualified biologist. A biological monitor will conduct nest surveys at each site and within 100 feet (ft) of the proposed project site. The surveys will be repeated within 3 days of project initiation and after any subsequent delay of work of 3 or more days. If a nest or active brood is found:
 - MCBH Natural Resources staff will contact the Service within 48 hours for further guidance.
 - A 100 ft buffer will be established and around all active nests or broods until the chicks or ducklings have fledged. No potentially disruptive activities or habitat alteration will occur within the buffer.
 - After hatching, a biological monitor will be onsite during construction until chicks have fledged.
- Stormwater detention basins will be covered during construction to avoid attracting waterbirds.
- The following Best Management Practices regarding work in or around the aquatic environment will be implemented:
 - Any sediment stockpile on the ramps would require filter socks and be frequently watered down using a water truck for dust control.
 - Bioretention, vegetated swales, and/or vegetated filter strips would be used as required for ongoing management and treatment of stormwater.
 - The detention basin would be covered in a manner to avoid attracting birds.
 - Incorporate diversion features that increase flow of stormwater to nearby wetlands, in coordination with MCBH Natural Resources staff.
 - No training is allowed within or adjacent to Waimānalo Stream.

Hawaiian seabirds

- No nightwork is planned during this project. However, night work may occur for short periods (i.e., 24-28 hours) when deemed necessary (i.e., construction of critical component, operational requirement). Therefore, nightwork will be minimized to the greatest extent possible.
 - For any night work, wherever feasible, night lighting will be shielded, directed downward, use motion detectors or other automatic controls, and the lowest possible lumens. The necessary amount of exterior light will be determined for safety purposes.
 - Contractor will notify the MCBH Environmental Division in advance of any night work and will be briefed on wildlife concerns (e.g., seabird fallout) and minimization measures.
 - If a down seabird is observed, contractors will contact the MCBH Environmental Division staff immediately to report the observation.

- Limit use of lights for any training operations during the seabird fledging period (September – December), especially during new moon phases.
- Exterior lighting would follow MCBH “Wildlife Friendly Lighting” standards. When exterior lighting is required, all exterior lights for new construction, replacement of existing fixtures, and renovations would meet or exceed Service standards unless otherwise required by the military mission, per the MCBH INRMP 2023.

Green sea turtle

- Beaches within the project area are monitored or observed on a regular basis, but vary in frequency depending on location (e.g., once per week at MCBH Kāneʻohe Bay, almost daily at Puʻuloa RTF, varies at MCTAB)
 - If a basking sea turtle is found within the project area, individuals will maintain a 50 ft distance and all equipment and larger training events require units to maintain a distance of 150 ft from a turtle ashore
 - If a sea turtle nest is discovered, a protective barrier with a warning sign, approximately 20 ft x 20 ft will be erected around the nest area.
- Remove any project-related debris, trash, or equipment from the beach or dune if not actively being used
- Do not stockpile project-related materials in the intertidal zone, reef flats, sandy beach and adjacent vegetated areas, or stream channels
- Exterior lighting would follow MCBH “Wildlife Friendly Lighting” standards. When exterior lighting is required, all exterior lights for new construction, replacement of existing fixtures, and renovations would meet or exceed Service standards unless otherwise required by the military mission, per the MCBH INRMP 2023.
- Modernized military equipment will not be driven upon or staged in a static position on sand dunes but would be involved in training on beaches in accordance with BMPs identified in the MCBH INRMP 2023, which include:
 - Beaches and nearshore waters in the vicinity of military maneuvers (Rim of the Pacific Exercise, motor vehicle training, amphibious landings) or large-scale recreation events are surveyed at least one hour prior to the event and observed during the event. If sea turtles are present, the event may be cancelled, or moved at least 150 ft away from the sea turtle. In the unlikely event a sea turtle comes ashore during an event, people and equipment will be required to move at least 150 ft away from the area and regular protection zone protocols are followed.
- All equipment will use established vehicle paths to move equipment to and from the beach to protect shoreline vegetation and dune systems.
- Any lights required at night would use long wavelength (greater than 560 nanometers and absent wavelengths below 560 nanometers) light sources such as amber, orange, or red LEDs without the use of filters, gels, or lenses. Short wavelength light sources, PC Ambers, RGBs, dual lighting boards, and color change options are not acceptable.

Hawaiian hoary bat

- No pruning, or trimming of trees and vegetation 15 ft or greater will be removed during Hawaiian hoary bat pupping season (June 1 – September 15)

Hawaiian yellow-faced bee

- No training is conducted on North Beach at MBCH Kāneʻohe Bay where yellow-faced bees have been found.
- Neither military training nor the use of modernized equipment will occur in identified habitat for Hawaiian yellow-faced bees.
- On the Pyramid Rock shoreline at MCBH Kāneʻohe Bay, proposed training would be similar to existing training and would not occur in areas that have been delineated and marked as bee habitat. In areas where habitat has not been delineated yet, proposed training would not create new pathways through shoreline vegetation, but would only utilize existing pathways to and from the beach to minimize disturbance of bee habitat and protect the dune system
- To protect all coastal strand habitat from human disturbance, the following will occur:
 - No fires or wood collecting
 - Leave woody debris in place
 - MCBH has educational signs to inform people of the presence of sensitive species

Effects of the Proposed Action*Hawaiian waterbirds*

Hawaiian waterbirds are currently found in a variety of wetland habitats including freshwater marshes and ponds, coastal estuaries and ponds, artificial reservoirs, irrigation ditches, and sewage treatment ponds. Hawaiian stilts may use ephemeral or persistent standing water wherever they occur. Based on project information provided, we expect your project occurs in areas that are likely to contain standing water during flood events near MCBH Kāneʻohe Bay, MCTAB, and Puʻuloa RTF, thus attracting Hawaiian waterbirds to the site.

Waterbirds are expected to flush when human activity occurs nearby. If nesting occurs nearby, the birds may be prevented from caring for nests or young. The project includes conservation measures including nest surveys and implementation of avoidance buffers to minimize the potential for the project to adversely affect waterbirds. As a result of implementation of these avoidance measures, we anticipate any project disturbance to Hawaiian waterbird normal behaviors would be short-term and intermittent. We expect the birds may leave the area when activities occur (i.e, due to noise or human activity) but would resume their normal behaviors shortly after. Therefore, because we do not expect the project to result in any meaningful disruption to their normal behaviors, or nesting and rearing of young, nor any measurable reduction in reproductive success or reduced fitness, effects to waterbirds are expected to be insignificant.

Hawaiian seabirds

Hawaiian seabirds may traverse the project area at night during the breeding, nesting and fledging seasons (March 1 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction. Based on the conservation measures listed above, night work will be minimized to the greatest extent possible and exterior lighting will follow “Wildlife Friendly Lighting” standards. Additionally, any night work occurring will be for short durations (i.e., 24-48 hours at a time) and be minimized (e.g., shielded, downward, automatic controls, limit lumens) wherever feasible as determined by safety purposes. Considering the location of MCBH, the potential presence of Hawaiian seabirds, and the high amount of existing exterior outdoor lights in the nearby vicinity, impacts from occasional night work associated with this project is anticipated to be improbable. Therefore, by implementing the conservation measures listed above, adverse effects to Hawaiian seabirds are highly unlikely to occur and are considered discountable.

Hawaiian green sea turtles

Green sea turtles are known to use nearby beaches for basking or nesting. Heavy equipment on, or in the vicinity of, beaches can result in sand and sediment compaction, sea turtle nest destruction, beach erosion, contaminant and nutrient runoff. Off-road vehicles may result in direct impacts to sea turtles or nests, and also contribute to habitat degradation through erosion and compaction. By employing the conservation measures listed above, including using established vehicle paths and monitoring beaches prior to training events, adverse effects to turtles are unlikely to occur and therefore are considered discountable.

Hawaiian hoary bat

The Hawaiian hoary bat roosts in both native and non-native woody vegetation across all major Hawaiian Islands and will leave young unattended in trees and shrubs when they forage. Human presence and vegetation removal may cause temporary disruptions to the normal behaviors of bats nearby the project area. When trees or shrubs, 15 ft or taller, are cleared during the pupping season (June 1 through September 15), there is a risk that young bats could inadvertently be harmed or killed since they are too young to move away from their roost tree. The MCBH will not trim vegetation 15 ft or taller during the bat pupping season, so adverse effects to bats from vegetation removal are unlikely to occur. Therefore effects to bats associated with vegetation removal are considered discountable.

Hawaiian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing. When bats forage and consume invertebrates as they are masticating, evidence shows their sonar is disrupted, making

them more prone to obstacles when flying. Thin strands of barbed wire may be difficult for bats to detect. However, the proposed areas for replacing or installing fencing at MCBH for this project are mostly developed buildings with sparsely occurring landscaping trees and lack of a closed canopy, making it unlikely to be foraging habitat for the bat. Additionally, the buildings are in close proximity of barbed wire fencing and are much taller than the fencing itself so bats are unlikely to forage at the height of the fence as to avoid collision with the nearby buildings. Therefore, it is highly unlikely bats would collide with the proposed barbed wire fencing. Based on previous installation surveys, the occurrence of bats in the proposed fencing area is expected to be very low. Considering the length of fence being installed or replaced and the characteristics of bat foraging habitat in these areas, adverse effects to bats from barbed wire fence installation or replacement are expected to be extremely unlikely to occur. Therefore, effects to the bats from installation of barbed wire are considered discountable.

Hawaiian yellow-faced bee

Hawaiian yellow-faced bees occur in habitats along rocky shorelines with either landscaped vegetation, non-native kiawe, or bare rock inland. Bees are typically restricted to a narrow corridor of about 10-20 meters wide, do not occur on sandy beaches or inland, or on landscaped native plants. Habitat destruction and modification from land use change, non-native plants, ungulates, and fire, along with predation by non-native ants and wasps result in direct impacts to bees. By avoiding where bees and habitat are known to occur, as stated in the conservation measures listed above, adverse effects to bees are unlikely to occur and therefore are considered discountable.

Summary

We have reviewed our data and conducted an effects analysis of your project. By incorporating the conservation measures listed above, effects to listed species are either too small to be meaningful or measurable, or extremely unlikely to occur. Therefore, effects are expected to be insignificant or discountable. Because impacts from the proposed project are insignificant or discountable, we concur with your determination that the proposed action may affect but is not likely to adversely affect the Hawaiian stilt, Hawaiian coot, Hawaiian gallinule, band-rumped storm petrel, Hawaiian petrel, Newell's shearwater, green sea turtle, Hawaiian hoary bat, and Hawaiian yellow-faced bee.

We appreciate your efforts to conserve endangered species. If you have any questions, please contact Fish and Wildlife Biologist, Ryan Pe'a at ryan_pea@fws.gov or 808-792-9400, and refer to project code 2024-0037462-S7.

Sincerely,

**LORENA
WADA**

Lorena Wada
Planning and Consultation Team Manager

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

IN REPLY REFER TO
5090
LFE/001-23
January 5, 2024

Field Supervisor
U.S. Fish and Wildlife Service, Pacific Islands Office
Room 3-122, Box 50088
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

**SUBJECT: SECTION 7 INFORMAL CONSULTATION FOR MARINE CORPS BASE HAWAII
GROUND FORCES MODERNIZATION PROJECT**

Dear Field Supervisor,

Pursuant to Section 7(a)(2) of the Endangered Species Act (ESA) and its implementing regulations (50 CFR Part 402), Marine Corps Base (MCB) Hawaii requests informal consultation related to the proposed ground forces modernization project at MCB Hawaii Kaneohe Bay, Marine Corps Training Area Bellows (MCTAB), and Puuloa Range Training Facility (RTF) (Figure 1). The proposed action is the modernization of equipment, infrastructure, and training for Marine Corps ground forces in Hawai'i. The proposed action has three components: (1) modernize equipment; (2) upgrade, renovate, and construct support facilities (Figure 2); and (3) conduct training activities with the modernized equipment. There would be no change in the number of Marine Corps Base Hawaii ground forces personnel because of the proposed action. The preferred locations for facilities are identified in Figures 2 and 3, and Alternative 1 in the EA is the preferred alternative for training.

ESA-listed species with the potential to occur at MCB Hawaii Kaneohe Bay, MCTAB, and Puuloa RTF are listed in Table 1. MCB Hawaii developed this Biological Assessment (BA) (Enclosure 1) to assess potential impacts to these ESA-listed species. Species included in this analysis include the Hawaiian Coot, Hawaiian Gallinule, Hawaiian Stilt, Band-rumped Storm Petrel, Hawaiian Petrel, Newell's Shearwater, Hawaiian hoary bat; monarch butterfly, Hawaiian yellow-faced bee, Hawaiian monk seal, and Hawaiian green sea turtle. MCB Hawaii has determined the proposed action may affect but is not likely to adversely affect these species. MCB Hawaii requests concurrence with these determinations.

Table 1 ESA-Listed Species Addressed in Potential Impact Analysis

<i>Scientific Name</i>	<i>Common Name</i>	<i>Hawaiian Name</i>	<i>Regulatory Status</i>	<i>MCB Hawaii Kaneohe Bay</i>	<i>MCTAB*</i>	<i>Pu'uloa RTF*</i>
Birds						
<i>Fulica alai</i>	Hawaiian Coot	'Alae ke'oke'o	FE, SE	Present	Present	Not Present
<i>Gallinula galeata sandvicensis</i>	Hawaiian Gallinule	'Alae 'ula	FE, SE	Present	Present	Not Present
<i>Himantopus mexicanus knudseni</i>	Hawaiian Stilt	'Ae'o	FE, SE	Present	Present	Not Present

<i>Scientific Name</i>	<i>Common Name</i>	<i>Hawaiian Name</i>	<i>Regulatory Status</i>	<i>MCB Hawaii Kaneohe Bay</i>	<i>MCTAB*</i>	<i>Pu'uloa RTF*</i>
<i>Oceanodroma castro</i>	Band-Rumped Storm Petrel	'Akē 'akē	FE, SE	Potential	Potential	Potential
<i>Pterodroma sandwichensis</i>	Hawaiian Petrel	'Ua'u	FE, SE	Potential	Potential	Potential
<i>Puffinus auricularis newelli</i>	Newell's Shearwater	'A'o	FT, ST	Potential	Potential	Potential
Terrestrial Mammals						
<i>Lasiurus cinereus semotus</i>	Hawaiian hoary bat	'Ōpe'ape'a	FE, SE	Present	Present	Present
Arthropods						
<i>Danaus plexippus</i>	Monarch butterfly	-	C	Present	Potential	Potential
<i>Hylaeus anthracinus</i>	Anthracinan yellow-faced bee, Hawaiian yellow-faced bee	Nalo meli maoli	FE, SE	Present	Not Present	Not Present
Marine Mammals						
<i>Neomonachus schauinslandi</i>	Hawaiian monk seal	'Ilioholoikauaua	FE, SE	Present	Present	Present
Marine Reptiles						
<i>Chelonia mydas</i>	Green sea turtle	Honu	FT, ST	Present	Present	Present

Notes: Selections for Listing Status Column include: C = candidate species for federal ESA listing; FE = federal endangered; SE = state endangered; FT = federally threatened; ST = state threatened. Potential = presence has been observed near to the affected area, no confirmed observation within; Present = confirmed presence within the affected area; Not Present = surveys have indicated no presence, or unsuitable habitat.

*Bird surveys have not been conducted at MCTAB or Puuloa RTF locations.

Legend: MCB = Marine Corps Base; MCTAB = Marine Corps Training Area Bellows; RTF = Range Training Facility.

Source: MCB Hawaii, 2023; L. Bookless, personal communication, August 24, 2023.

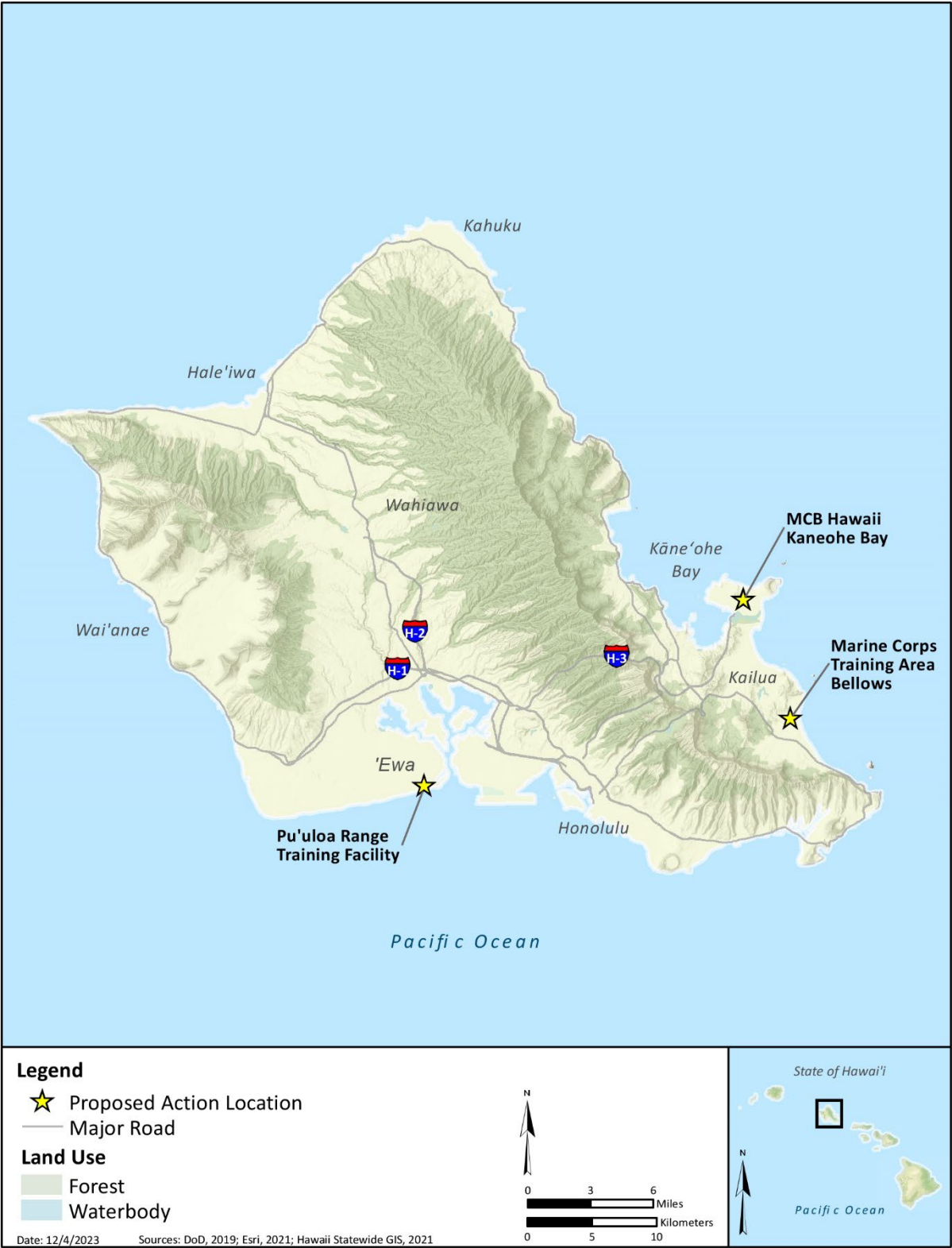


Figure 1 MCB Hawaii Installations and Properties

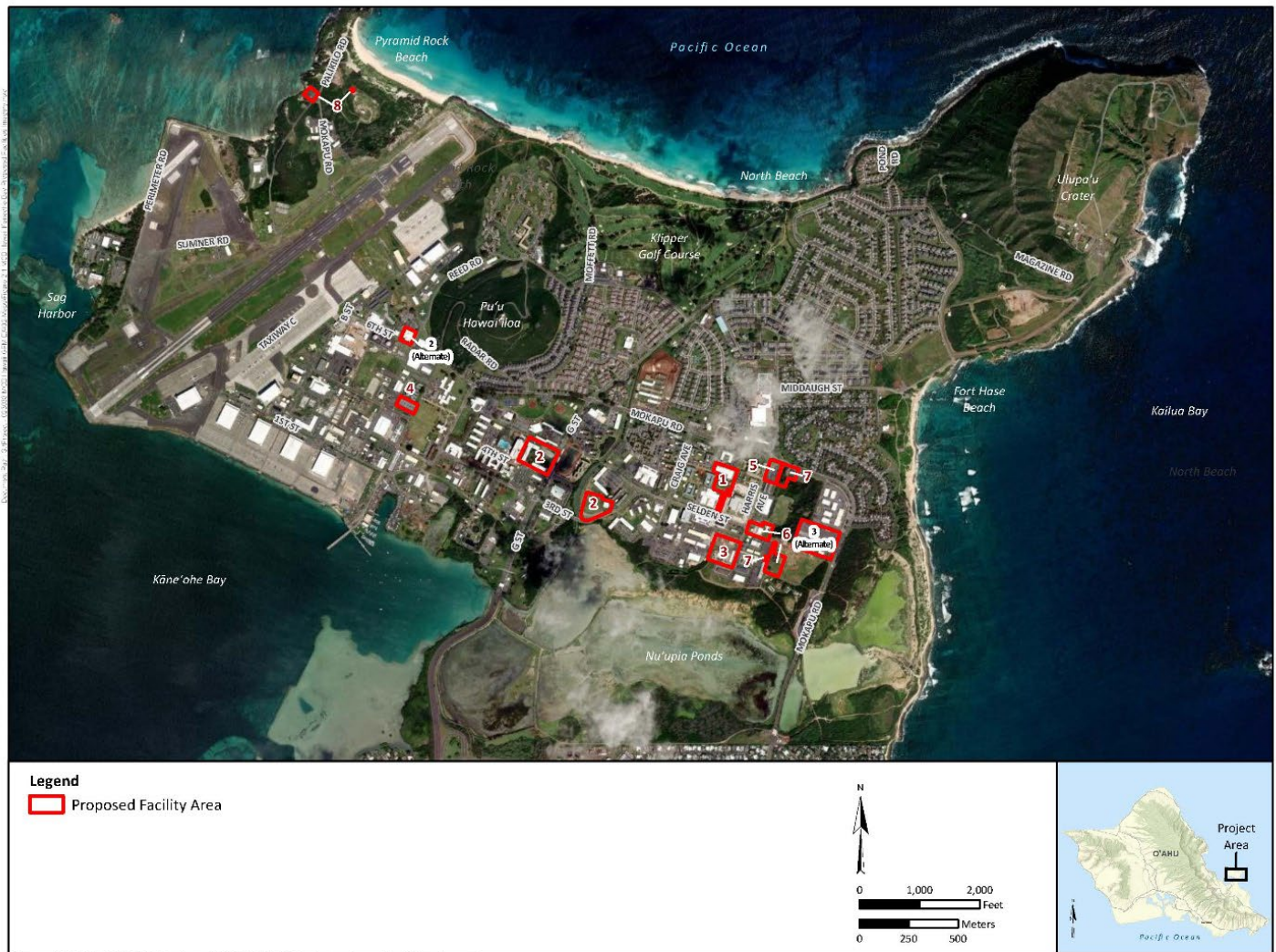


Figure 2 Proposed Facilities Preferred Locations, MCB Hawaii Kaneohe Bay

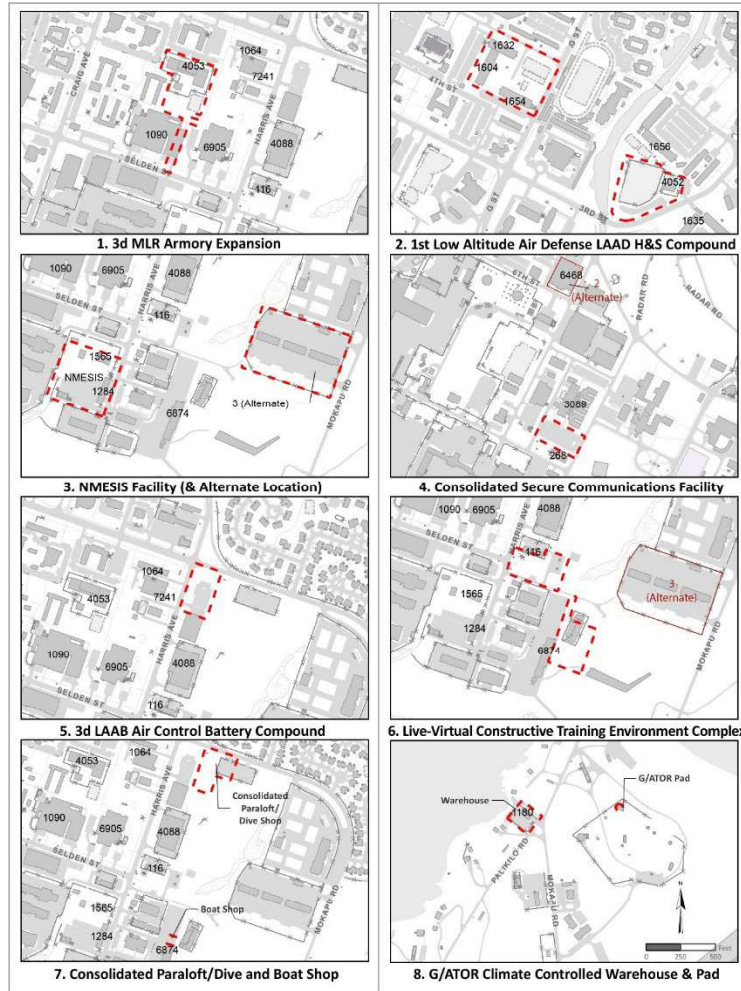


Figure 3 Proposed Facilities Project Footprints

Please direct correspondence regarding this matter to Lance Bookless, MCB Hawaii Senior Natural Resource Manager at lance.bookless1@usmc.mil, (808) 257-7000.

Sincerely,

HART.JEFFRY Digitally signed by
HART.JEFFRY.P.1242350568
Date: 2024.01.10 10:18:32
-10'00'

J. P. HART
Director, Environmental Compliance and Protection
Division
By direction of the Commanding Officer

Enclosure: 1. Biological Assessment of the Proposed MCB Hawaii Ground Forces Modernization

APPENDIX E

COASTAL ZONE MANAGEMENT ACT COORDINATION

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Peer Amble

From: Mendes, Debra L <debra.l.mendes@hawaii.gov>
Sent: Thursday, November 30, 2023 4:17 PM
To: Santos CIV Thomas E
Cc: Bomar CIV Jacquelyn C; Hart Maj Jeffry P; Nihipali, Justine W; Peer Amble; Bigay, John C CIV USN (USA); McWhirter Maj Travis E; Crawford LtCol Christiana R; Glover CTR Rachel K
Subject: RE: Notification of Proposed Marine Corps Ground Forces Modernization at Marine Corps Base (MCB) Hawaii, Navy/Marine Corps De Minimis Activities under CZMA

Aloha Mr. Santos,

Thank you for the additional information. This acknowledges receipt of the notification by the U.S. Marine Corps of the CZMA De Minimis List for the subject Proposed Marine Corps Ground Forces Modernization at Marine Corps Base Hawaii, Kaneohe Bay. This Hawaii CZM Program acknowledgment of receipt does not represent an endorsement of the proposed activity.

Thank you.

Debra

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Debra L. Mendes

Hawaii Coastal Zone Management Program

PO Box 2359

Honolulu, HI 96804-2359

Ph: 808.587.2840

Email: Debra.L.Mendes@hawaii.gov

~*~*~*~*~*~*~*~*~*~*~*~*~*~*~*~*

From: Santos CIV Thomas E <thomas.e.santos.civ@usmc.mil>

Sent: Thursday, November 30, 2023 10:04 AM

To: Mendes, Debra L <debra.l.mendes@hawaii.gov>

Cc: Bomar CIV Jacquelyn C <jacquelyn.bomar@usmc.mil>; Hart Maj Jeffry P <jeffry.hart@usmc.mil>; Nihipali, Justine W <justine.w.nihipali@hawaii.gov>; Peer Amble <Peer.Amble@cardno-gs.com>; Bigay, John C CIV USN (USA) <john.c.bigay.civ@us.navy.mil>; McWhirter Maj Travis E <travis.mcwhirter@usmc.mil>; Crawford LtCol Christiana R <christiana.crawford@usmc.mil>; Glover CTR Rachel K <rachel.glover.ctr@usmc.mil>

Subject: [EXTERNAL] RE: Notification of Proposed Marine Corps Ground Forces Modernization at Marine Corps Base (MCB) Hawaii, Navy/Marine Corps De Minimis Activities under CZMA

Good Morning Ms. Mendes,

There will not be any changes/alterations to the training dates/times as the type of training and associated activities would be consistent with historic Marine Corps range utilization in Hawaii.

V/R

Thomas Santos

NEPA Program Manager

Environmental Compliance and Protection Division
Marine Corps Base Hawaii
Kaneohe Bay, HI
DSN: 315-496-7139
Commercial: 1-808-496-7139
Cell: 808-272-5549
E-mail: Thomas.e.santos.civ@usmc.mil

From: Mendes, Debra L <debra.l.mendes@hawaii.gov>
Sent: Wednesday, November 29, 2023 2:26 PM
To: Santos CIV Thomas E <thomas.e.santos.civ@usmc.mil>
Cc: Bomar CIV Jacquelyn C <jacquelyn.bomar@usmc.mil>; Hart Maj Jeffry P <jeffry.hart@usmc.mil>; Nihipali, Justine W <justine.w.nihipali@hawaii.gov>; Peer Amble <Peer.Amble@cardno-gs.com>; Bigay, John C CIV USN (USA) <john.c.bigay.civ@us.navy.mil>; McWhirter Maj Travis E <travis.mcwhirter@usmc.mil>; Crawford LtCol Christiana R <christiana.crawford@usmc.mil>; Glover CTR Rachel K <rachel.glover.ctr@usmc.mil>
Subject: [Non-DoD Source] RE: Notification of Proposed Marine Corps Ground Forces Modernization at Marine Corps Base (MCB) Hawaii, Navy/Marine Corps De Minimis Activities under CZMA

Aloha Mr. Santos,
Will there be any changes/alterations to training dates/times (i.e. additional days or hours)?
Thank you.

~ * ~ * ~ * ~ * ~ * ~ * ~ * ~ * ~ * ~ * ~

Debra L. Mendes
Hawaii Coastal Zone Management Program
PO Box 2359
Honolulu, HI 96804-2359
Ph: 808.587.2840
Email: Debra.L.Mendes@hawaii.gov
~*~*~*~*~*~*~*~*~*~*~*~*~*~*~*~*

From: Santos CIV Thomas E <thomas.e.santos.civ@usmc.mil>
Sent: Wednesday, November 29, 2023 11:17 AM
To: Mendes, Debra L <debra.l.mendes@hawaii.gov>
Cc: Bomar CIV Jacquelyn C <jacquelyn.bomar@usmc.mil>; Hart Maj Jeffry P <jeffry.hart@usmc.mil>; Peer Amble <Peer.Amble@cardno-gs.com>; Bigay, John C CIV USN (USA) <john.c.bigay.civ@us.navy.mil>; McWhirter Maj Travis E <travis.mcwhirter@usmc.mil>; Crawford LtCol Christiana R <christiana.crawford@usmc.mil>; Glover CTR Rachel K <rachel.glover.ctr@usmc.mil>
Subject: [EXTERNAL] Notification of Proposed Marine Corps Ground Forces Modernization at Marine Corps Base (MCB) Hawaii, Navy/Marine Corps De Minimis Activities under CZMA

Aloha Ms. Mendes,

The U. S. Marine Corps is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA), as implemented by the Council on Environmental Quality regulations, Department of the Navy Regulations, and Marine Corps Order 5090.2 for implementing NEPA. The proposed action is the modernization of equipment, infrastructure, and training for Marine Corps ground forces in Hawaii.

The purpose of the proposed action is to modernize existing Marine Corps ground forces in Hawaii. The need for the proposed action is to enhance the combat capability of Hawaii-based Marine Corps ground forces, enabling them to meet U.S. Marine Corps responsibilities set forth in Title 10 United States Code (USC) Section 8063 in support of the U.S. Indo-Pacific Command (USINDOPACOM).

The proposed action would occur at MCB Hawaii and associated training ranges in Hawaii. The proposed action has three components: (1) modernize equipment; (2) upgrade, renovate, and construct support facilities; and (3) conduct training activities with the modernized equipment. There would be no change in the number of Marine Corps Hawaii ground forces personnel because of the proposed action.

The proposed action falls within the Navy/Marine Corps De Minimis Activities Under CZMA, Item 1: New Construction, Item 2: Utility Line Activities, Item 10: Studies and Data Collection and Survey Activities, Item 11: Demolition, and Item 12: Military Testing and Training.

Item 1. Construction of new facilities and structures wholly within Navy/Marine Corps controlled areas (including land and water) that is similar to present use and, when completed, the use or operation of which complies with existing regulatory requirements.

Item 2. Acquisition, installation, operation, construction, maintenance, or repair of utility or communication systems that use rights of way, easements, distribution systems, or facilities on Navy/Marine Corps controlled property. This also includes the associated excavation, backfill, or bedding for the utility lines, provided there is no change in preconstruction contours.

Item 10. Studies, data and information-gathering, and surveys that involve no permanent physical change to the environment. Includes topographic surveys, wetlands mapping, surveys for evaluating environmental damage, engineering efforts to support environmental analyses, core sampling, soil survey sampling, and historic resources surveys.

Item 11. Demolition and disposal involving buildings or structures when done in accordance with applicable regulations and within Navy/Marine Corps controlled properties.

Item 12. Routine testing and evaluation of military equipment on or over military [land or water areas], or an established range, restricted area or operating area or training conducted on or over military land or water areas in which the impact is not significant.

The relevant project mitigation/general conditions under the De Minimis agreement for New Construction, Utility Line Activities, Repair and Maintenance, Studies and Data Collection and Survey Activities, Demolition, and Military Testing and Training actions are: 1, 2, 3, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16:

1. Navy/Marine Corps controlled property refers to land areas, rights of way, easements, roads, safety zones, danger zones, ocean and naval defensive sea areas under active Navy/Marine Corps control.

2. If any listed species enters the area during conduct of construction activities, all activities should cease until the animal(s) voluntarily depart the area.

3. Turbidity and siltation from project related work will be minimized and contained to within the vicinity of the site through appropriate use of effective silt containment devices and the curtailment of work during adverse tidal and weather conditions.

6. No project-related materials (fill, revetment, rock, pipe, etc.) will be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands, etc.).
8. No contamination (trash or debris disposal, alien species introductions, etc.) of adjacent marine/aquatic environments (reef flats, channels, open ocean, stream channels, wetlands, etc.) shall result from project-related activities.
9. Fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored on-site, if appropriate, to facilitate clean-up of accidental petroleum releases.
10. Any under-layer fills used in the project shall be protected from erosion with stones (or core-loc units) as soon after placement as practicable.
11. Any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric, etc.) after exposure and stabilized as soon as practicable (with vegetation matting, hydroseeding, etc.).
12. Section 106, of the National Historic Preservation Act (NHPA), consultation requirements must be met. Also, follow guidelines in the area-specific Integrated Cultural Resources Management Plan (ICRMP) if applicable.
13. Project-related activities will not affect federally listed endangered/threatened plan species.
14. The National Environmental Policy Act (NEPA) review process will be completed.
15. The training, testing and evaluation will be conducted in accordance with applicable standard operating procedures protective of the environment.
16. Navy or Marine Corps staff shall notify State CZM of de minimis list usage for projects which require an Environmental Assessment (EA).

The attached document highlights proposed facilities and locations that this EA will cover.

If you have any questions or would like more information, you can reach me by e-mail at Thomas.e.santos.civ@usmc.mil or by phone at (808) 496-7139.

Thank you.

V/R

Thomas Santos

NEPA Program Manager
Environmental Compliance and Protection Division
Marine Corps Base Hawaii
Kaneohe Bay, HI
DSN: 315-496-7139
Commercial: 1-808-496-7139
Cell: 808-272-5549

E-mail: Thomas.e.santos.civ@usmc.mil

APPENDIX F

AIR EMISSIONS CALCULATIONS

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Basic Conversions

453.59 grams per pound (lbs)
 43,560 Conversion from acre to square feet (SF)
 0.03704 Cubic feet to cubic yards (CY)
 0.1111 SF to square yards (SY)
 2000 lbs per ton
 145 lbs/cubic feet (ft³) density of Hot Mix Asphalt (HMA)
 12 CY haul truck capacity
 9 CY concrete truck capacity
 1 ft excavation depth
 0.5 ft (6 in) gravel
 0.5 ft (6 in) concrete/asphalt

Table 1.1 Demolition 176,391 SF 59 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	470	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	470	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	470	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				32.85	123.35	363.98	10.05	25.81	25.04	46,719
Loader w/integral Backhoe				27.13	139.25	120.29	2.82	20.14	19.54	13,104
Small backhoe				17.15	88.03	76.04	1.78	12.73	12.35	8,284
Subtotal in lbs				77	351	560	15	59	57	68,107
Demo Total in Tons				0.04	0.18	0.28	0.01	0.03	0.03	
Demo Total in Metric Tons										31

Table 1.2 Demolition - Hauling 2,156 10 Truck trips miles per trip

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck (12 CY)	21,559	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck (12 CY)			32.80	173.38	777.63	0.39	32.43	31.43	74,131
Subtotal in lbs			33	173	778	0	32	31	74,131
Demo Hauling Grand Total in Tons			0.02	0.09	0.39	0.00	0.02	0.02	
Demo Hauling total in Metric Tons									34

Table 1.3 Site Preparation

Site Pre - Excavate/Fill (CY) 13,602 CY 9 days 1,134 truck trips
 Grading (SY) 40,803 SY 20 days

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Excavator	73	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	163	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	163	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Compactor	163	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	536
Grader	163	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Excavator				7.85	27.73	92.40	2.64	5.11	4.96	12,286
Skid Steer Loader				5.07	19.46	57.45	1.53	4.04	3.92	7,093
Dozer (Rubber Tired)				11.59	43.54	128.47	3.59	9.11	8.84	16,490
Compactor				8.45	33.76	98.15	2.48	6.86	6.65	11,514
Grader				20.45	71.84	242.08	6.86	13.42	13.01	31,868

Excavation - Hauling 20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	22,671	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck			34.49	182.32	817.73	0.41	34.11	33.05	77,953
Subtotal in lbs			88	379	1,436	17	73	70	157,204
Site Prep Grand Total in Tons			0.04	0.19	0.72	0.01	0.04	0.04	
Site Prep Grand Total in Metric Tons									71

Table 1.4 Gravel Work 6,801 CY 68 days 567 truck trips

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	544	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	544	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	544	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				45.01	158.07	534.21	15.05	29.60	28.71	70,150
Wheel Loader for Spreading				21.47	76.86	260.65	7.10	14.70	14.26	32,988
Compactor				19.10	71.12	236.50	6.12	13.66	13.25	28,462

20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	11,331	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck			17.24	91.16	408.86	0.20	17.05	16.52	38,977
Subtotal (lbs)			103	397	1,440	29	75	73	170,577
Gravel Work Grand Total in Tons			0.05	0.20	0.72	0.01	0.04	0.04	
Gravel Work Grand Total in Metric Tons									77

Table 1.5 Concrete Work 6,801 CY 68 days 756 truck trips

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr

Concrete Mixer	544	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	544	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
Annual Emissions										
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb	
Concrete Mixer			1.24	5.50	11.14	0.23	0.98	0.95	1,062.02	
Concrete Truck			58.73	270.14	956.66	17.64	41.58	40.33	81,994.97	
Subtotal (lbs):			60	276	968	18	43	41	83,057	
Concrete Work Grand Total in Tons				0.03	0.14	0.48	0.01	0.02	0.02	
Concrete Work Grand Total in Metric Tons										38

20 miles RT									
On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Concrete Truck	15,114	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Concrete Truck			22.99	121.54	545.15	0.27	22.74	22.03	51,969
Subtotal (lbs):			23	122	545	0	23	22	51,969
Concrete Truck Travel Grand Total in Tons			0.01	0.06	0.27	0.00	0.01	0.01	
Concrete Truck Travel Grand Total in Metric Tons									24

Table 1.6 Construction Year 1 181,199 SF 230 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crane	1,840	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,840	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	1,840	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	920	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	920	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,840	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
All Terrain Forklift	920	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Annual Emissions				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Crane				190.77	946.85	4,083.80	88.57	161.28	156.44	411,734
Concrete Truck				98.17	761.15	2,260.99	60.37	109.93	106.63	280,622
Diesel Generator				18.32	98.30	244.78	7.53	16.18	15.69	37,412
Telehandler				60.37	466.74	583.94	15.15	61.74	59.89	70,444
Scissors Lift				50.61	391.31	489.57	12.70	51.76	50.21	59,059
Skid Steer Loader				271.38	1,277.65	1,074.04	23.83	190.69	184.96	110,784
All Terrain Forklift				51.22	396.02	495.46	12.86	52.38	50.81	59,771
Subtotal (lbs):				741	4,358	9,233	221	644	625	1,029,827
Year 1: Building Construction Grand Total in Tons				0.37	2.17	4.62	0.11	0.32	0.31	
Year 1: Building Construction Grand Total in Metric Tons										467

Construction Year 2 53,161 SF 200 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Crane	1,600	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,600	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	1,600	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	800	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	800	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,600	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
All Terrain Forklift	800	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Annual Emissions				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Crane				165.88	823.35	3,551.13	77.02	140.24	136.04	358,030
Concrete Truck				85.37	661.87	1,966.08	52.48	95.59	92.72	244,019
Diesel Generator				15.93	85.48	212.85	6.58	14.07	13.65	32,532
Telehandler				52.49	405.86	507.77	13.18	53.68	52.07	61,256
Scissors Lift				44.01	340.27	425.71	11.08	45.01	43.66	51,356
Skid Steer Loader				235.98	1,111.00	933.95	20.72	165.81	160.84	96,334
All Terrain Forklift				44.54	344.37	430.84	11.18	45.55	44.18	51,975
Subtotal (lbs):				644	3,772	8,028	192	560	543	895,502
Year 2: Building Construction Grand Total in Tons				0.32	1.89	4.01	0.10	0.28	0.27	
Year 2: Building Construction Grand Total in Metric Tons										409

Construction Year 3 18,070 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.19	1.19	1.15	691
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,015
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,167
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 3: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 3: Building Construction Grand Total in Metric Tons										203

Construction Year 4 20,285 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.19	1.19	1.15	691
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,015
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,167
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 4: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 4: Building Construction Grand Total in Metric Tons										203

Construction Year 5 34,974 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.19	1.19	1.15	691
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,015
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,167
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 5: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 5: Building Construction Grand Total in Metric Tons										203

Construction Year 6 16,088 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.19	1.19	1.15	691
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,015
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,167
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 6: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 6: Building Construction Grand Total in Metric Tons										203

Construction Year 7 36,606 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr

	Hours of Operation			VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	800	40	0.43	0.28	1.41	3.51	0.11	0.23	0.22	536
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	800	67	0.59	1.65	7.97	6.70	0.15	1.19	1.15	691
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,019
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,167
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				324	1,866	4,014	94	280	272	447,751
Year 7: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 7: Building Construction Grand Total in Metric Tons										203

Construction Year 8				6,878 SF		100 days					
Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors							
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr	
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530	
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536	
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536	
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593	
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593	
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691	
All Terrain Forklift	400	84	0.59	0.53	3.94	4.93	0.13	0.52	0.51	593	
				Annual Emissions							
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb	
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,015	
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010	
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266	
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628	
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678	
Skid Steer Loader				117.99	555.50	466.97	10.38	82.91	80.42	48,167	
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987	
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751	
Year 8: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14		
Year 8: Building Construction Grand Total in Metric Tons											
				203							

Paving		19,246 ft3		1395 tons		5 days				
Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO2 g/hp-hr
Grader	40	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	40	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	40	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536
Asphalt Curbing Machine	40	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Grader				2.84	10.65	31.39	0.87	2.23	2.16	4,041
Roller				7.12	51.38	115.48	2.40	7.07	6.85	11,179
Paving Machine				3.24	12.31	36.28	0.98	2.56	2.48	4,571
Asphalt Curbing Machine				2.67	10.62	30.88	0.78	2.16	2.09	3,623

On-road Equipment	Hours of Operation	Engine HP	Productivity based Speed	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO2 lb/mile
Dump Truck	40	230	17	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
Water Truck	40	230	10	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
			Dump Truck	1.03	5.47	24.53	0.01	1.02	0.99	2,338.21
			Water Truck	0.63	3.22	14.43	0.01	0.60	0.58	1,375.42

Hot Mix Asphalt (HMA)	Volume of HMA (ft³)	Weight of HMA (tons)	VOC lb/ton	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Standard Hot Mix Asphalt	19,240	1,395	0.04	55.83	-	-	-	-	-	-
Subtotal (lbs):				73	94	253	5	16	15	27,128
Year 1 only: Paving Grand Total in Tons				0.04	0.05	0.13	0.00	0.01	0.01	
Year 1 only: Paving Grand Total in Metric Tons										1.2

			260 76 15	work days per year (5/day work week) trips per day (max workers per day, all years) miles RT (based on estimated distance from center of MCBH to Kaneohe per Google maps)					
Table 1.9 Construction - Worker Trips (Annual)			VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
On-road Equipment	Miles	Engine HP							
Light-duty Truck	296,804	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Light-duty Truck			451.54	2386.89	10705.75	5.36	446.53	432.67	1,020,574
Subtotal (lbs):			452	2,387	10,706	5	447	433	1,020,574
Construction Worker Trips Grand Total in Tons			0.23	1.19	5.35	0.00	0.22	0.22	
Construction Worker Trips Grand Total in Metric Tons									463

Table 1.10 Material Deliveries (Annual) 4 trips per day 1,040 trips per year 15 miles RT (based on estimated distance from center of MCBH to Kaneohe per Google maps)

On-road Equipment	Miles	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO ₂ lb/mile
Delivery Truck	15,600	265	-	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO ₂ lb
			Delivery Truck	23.73	125.45	562.69	0.28	23.47	22.74	53,641.24
Material Deliveries Grand Total in Tons				0.01	0.06	0.28	0.00	0.01	0.01	
Material Deliveries Grand Total in Metric Tons										24

Table 1.11 Fugitive Dust Emissions

Year	PM ₁₀ tons/acre/ mo	acres	days of disturbance	PM ₁₀ Total	PM2.5/ PM ₁₀ Ratio	PM _{2.5} Total
ALL	0.42	7	29	4.5	0.1	0.4

Table 1.12 Total Emissions

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO ₂ Metric Tons
Year 1	0.73	3.82	11.62	0.13	2.84	0.83	1,088
Year 2	0.59	3.28	10.09	0.10	1.19	0.59	936
Year 3	0.41	2.26	7.82	0.05	0.61	0.40	707
Year 4	0.41	2.24	7.79	0.05	0.63	0.40	704
Year 5	0.42	2.28	7.92	0.05	0.68	0.42	717
Year 6	0.41	2.27	7.84	0.05	0.58	0.39	710
Year 7	0.42	2.29	7.94	0.05	0.84	0.42	713
Year 8	0.40	2.22	7.71	0.05	0.46	0.38	697

TAB B.

CONSTRUCTION EMISSIONS Alternative 2

Basic Conversions

453.59 grams per pound (lbs)
 43,560 Conversion from acre to square feet (SF)
 0.03704 Cubic feet to cubic yards (CY)
 0.1111 SF to square yards (SY)
 2000 lbs per ton
 145 lbs/cubic feet (ft³) density of Hot Mix Asphalt (HMA)
 12 CY haul truck capacity
 9 CY concrete truck capacity
 1 ft excavation depth
 0.5 ft (6 in) gravel
 0.5 ft (6 in) concrete/asphalt

Production rates from MDOT:

https://mdotwiki.state.mi.us/images/construction/a/a4/MDOT_Production_Rates.pdf

Table 1.1 Demolition 117,494 SF 39 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	313	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	313	87	0.21	1.43	7.35	6.39	0.15	1.06	1.03	693
Small Backhoe	313	55	0.21	1.43	7.35	6.39	0.15	1.06	1.03	693
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				21.88	82.16	242.45	6.69	17.19	16.68	31,119
Loader w/integral Backhoe				18.07	92.75	80.12	1.88	13.42	13.01	8,725
Small backhoe				11.42	58.64	50.65	1.19	8.48	8.23	5,513
Subtotal in lbs				51	234	373	10	39	38	45,366
Demo Total in Tons				0.03	0.12	0.19	0.00	0.02	0.02	
Demo Total in Metric Tons										21

Table 1.2 Demolition - Hauling 1,436 10 Truck trips miles per trip

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck (12 CY)	14,360	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck (12 CY)			21.85	115.49	517.98	0.26	21.60	20.93	49,375
Subtotal in lbs			22	115	518	0	22	21	49,375
Demo Hauling Grand Total in Tons			0.01	0.06	0.26	0.00	0.01	0.01	
Demo Hauling Total in Metric Tons									22

Table 1.3 Site Prep Site Pre-Excavate/Fill (CY) 1,979 CY 1 day 165 truck trips
Grading (SY) 5,936 SY 3 days

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Excavator	11	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	534
Skid Steer Loader	24	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	538
Dozer (Rubber Tired)	24	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Compactor	24	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	538
Grader	24	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	538
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Excavator				1.15	4.03	13.44	0.38	0.74	0.72	1,781
Skid Steer Loader				0.74	2.83	8.36	0.22	0.59	0.57	1,031
Dozer (Rubber Tired)				1.69	6.33	18.69	0.52	1.33	1.29	2,399
Compactor				1.24	4.91	14.28	0.36	1.00	0.97	1,671
Grader				2.97	10.45	35.22	1.00	1.95	1.89	4,634

Excavation - Hauling 20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile	PM _{2.5} lb/mile	CO ₂ lb/mile
Dump Truck	3,298	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dump Truck			5.02	26.52	118.96	0.06	4.96	4.81	11,340
Subtotal in lbs			13	55	209	0	11	10	22,869
Site Prep Grand Total in Tons			0.01	0.03	0.10	0.00	0.01	0.01	
Site Prep Grand Total in Metric Tons									10

Table 1.4 Gravel Work 989 CY 10 days 82 truck trips

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Dozer	79	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	538
Wheel Loader for Spreading	79	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	538
Compactor	79	103	0.43	0.36	1.34	4.43	0.12	0.26	0.25	538
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Dozer				6.55	23.00	77.71	2.20	4.31	4.18	10,203
Wheel Loader for Spreading				3.12	11.18	37.92	1.03	2.14	2.07	4,799
Compactor				2.78	10.35	34.40	0.89	1.99	1.93	4,140

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO ₂ lb/mile	PM ₁₀ lb/mile
Dump Truck	1,649	230	0.0015	0.0080	0.0361	0.0000	0.0015
	VOC	CO	NOx	SO ₂	PM10	PM2.5	CO ₂
	lb	lb	lb	lb	lb	lb	lb
Dump Truck	2.51	13.26	59.48	0.03	2.48	2.40	5.67
Subtotal (lbs):	15	58	210	4	11	11	24,814
Gravel work Grand Total in Tons	0.01	0.03	0.10	0.00	0.01	0.01	
Gravel Work Grand Total in Metric Tons							1

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Concrete Mixer	79	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	583
Concrete Truck	79	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Concrete Mixer				0.18	0.80	1.64	0.03	0.14	0.14	154.49
Concrete Truck				8.54	39.30	139.17	2.57	6.05	5.87	11,927.89
Subtotal (lbs):				9	40	141	3	6	6	12,082
Concrete Work Grand Total in tons				0.00	0.02	0.07	0.00	0.00	0.00	
Concrete Work Grand Total in Metric tons										

[illegible]

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO2 g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.34	0.12	0.21	0.20	538
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	538
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.19	1.19	1.15	693
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,019
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,623
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,674
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,981
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 1: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 1: Building Construction Grand Total in Metric Tons										203

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO2 g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	53
Concrete Truck	800	300	0.43	0.19	1.45	4.34	0.12	0.21	0.20	53
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	53
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	59
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	59
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.19	1.19	1.15	69
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	59
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,015
Concrete Truck				42.68	330.94	983.04	26.29	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,623
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,981
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 2: Building Construction Grand Total in Tons				0.16	0.94	2.03	0.09	0.14	0.14	203
Year 2: Building Construction Grand Total in Metric Tons										

Construction Year 3 2,629 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	538
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	538
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	693
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,013
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.89	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,981
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 3: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 3: Building Construction Grand Total in Metric Tons										203

Construction Year 4 2,951 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	538
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	538
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	693
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,013
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.89	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,981
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 4: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 4: Building Construction Grand Total in Metric Tons										203

Construction Year 5 5,088 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	538
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	538
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	693
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,013
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.89	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,981
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,751
Year 5: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 5: Building Construction Grand Total in Metric Tons										203

Construction Year 6 2,340 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.13	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	530
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	530
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	693
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,013
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,753
Year 6: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 6: Building Construction Grand Total in Metric Tons										203

Construction Year 7 5,325 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.13	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	530
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	530
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	693
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,013
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,753
Year 7: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 7: Building Construction Grand Total in Metric Tons										203

Construction Year 8 1,001 SF 100 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO ₂ g/hp-hr
Crane	800	330	0.58	0.25	1.22	5.26	0.13	0.21	0.20	530
Concrete Truck	800	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	530
Diesel Generator	800	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	530
Telehandler	400	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Scissors Lift	400	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
Skid Steer Loader	800	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	693
All Terrain Forklift	400	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	593
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM10 lb	PM2.5 lb	CO ₂ lb
Crane				82.94	411.67	1,775.56	38.51	70.12	68.02	179,013
Concrete Truck				42.68	330.94	983.04	26.25	47.79	46.36	122,010
Diesel Generator				7.96	42.74	106.42	3.27	7.03	6.82	16,266
Telehandler				26.25	202.93	253.89	6.59	26.84	26.04	30,628
Scissors Lift				22.00	170.13	212.85	5.52	22.50	21.83	25,678
Skid Steer Loader				117.99	555.50	466.97	10.36	82.91	80.42	48,161
All Terrain Forklift				22.27	172.18	215.42	5.59	22.78	22.09	25,987
Subtotal (lbs):				322	1,886	4,014	96	280	272	447,753
Year 8: Building Construction Grand Total in Tons				0.16	0.94	2.01	0.05	0.14	0.14	
Year 8: Building Construction Grand Total in Metric Tons										203

Table 1.7 Paving 0 ft3 0 tons 0 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO2 g/hp-hr
Grader	0	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	0	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	0	164	0.59	0.38	1.44	4.29	0.12	0.30	0.29	536
Asphalt Curbing Machine	0	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Grader				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Machine				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Curbing Machine				0.00	0.00	0.00	0.00	0.00	0.00	0.00

On-road Equipment	Hours of Operation	Engine HP	Productivity based Speed	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO2 lb/mile
Dump Truck	0	230	17	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.43854
Water Truck	0	230	10	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.43854
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Dump Truck				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck				0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hot Mix Asphalt (HMA)	Volume of HMA (ft³)	Weight of HMA (tons)	VOC lb/ton	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Standard Hot Mix Asphalt	0	0	0.04	0.00	-	-	-	-	-	-
Subtotal (lbs):				0	0	0	0	0	0	0
Year 1 only: Paving Grand Total in Tons				0.00	0.00	0.00	0.00	0.00	0.00	0.00
Year 1 only: Paving Grand Total in Metric Tons										

Table 1.8 Construction – Workers Trips (Annual) 260 work days per year (5/day work week)
11 trips per day (max workers per day, all years)
15 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO2 lb/mile
Light-duty Truck	43,176	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Light-duty Truck			65.69	347.22	1557.38	0.78	64.96	62.94	148,464
Subtotal (lbs):			66	347	1,557	0	65	63	148,464
Construction Worker Trips Grand Total in Tons			0.03	0.17	0.78	0.00	0.03	0.03	
Construction Worker Trips Grand Total in Metric Tons									67

Table 1.10 Material Deliveries (Annual) 4 trips per day
1,040 trips per year 15 miles RT

On-road Equipment	Miles	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO2 lb/mile
Delivery Truck	15,600	265	-	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO2 lb
Delivery Truck				23.73	125.45	562.69	0.28	23.47	22.74	53,641.24
Material Deliveries Grand Total in Tons				0.01	0.06	0.28	0.00	0.01	0.01	
Material Deliveries Grand Total in Metric Tons										24

Table 1.11 Fugitive Dust Emissions

Year	PM10 tons/acre/mo	acres	days of disturbance	PM10 Total	PM2.5/PM10 Ratio	PM2.5 Total
ALL	0.42	7	4	0.7	0.1	0.1

Table 1.12 Total Emissions

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO2 Metric Ton
Year 1	0.22	1.26	3.33	0.05	0.52	0.23	320
Year 2	0.22	1.23	3.20	0.05	0.29	0.20	307
Year 3	0.21	1.20	3.13	0.05	0.22	0.19	307
Year 4	0.21	1.19	3.10	0.05	0.22	0.18	298
Year 5	0.21	1.21	3.14	0.05	0.11	0.19	307
Year 6	0.21	1.21	3.15	0.05	0.22	0.19	303
Year 7	0.21	1.21	3.15	0.05	0.25	0.19	303
Year 8	0.21	1.19	3.09	0.05	0.20	0.18	297

TAB C. Operational Emissions

NMESIS

Baseline

On-road Equipment	Miles	VOC g/VMT	CO g/VMT	NOx g/VMT	SO ₂ g/VMT	PM ₁₀ g/VMT	PM _{2.5} g/VMT	CO ₂ g/VMT	CH ₄ g/VMT	N ₂ O g/VMT	CO ₂ e g/VMT
SUSH Truck	9,216	0.31	1.7382	3.1896	0.0033	1.3723	0.3327	972.7910	0.0146	0.0024	973.846
		VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb			
Light-duty Truck		6.23	35.32	64.81	0.07	27.88	6.76	19765.08	0.30	0.05	19786.51
Subtotal (lbs):		6	35	65	0	28	7	19,765	0	0	19,787
Travel to training areas - Annual Grand Total in Tons		0.00	0.02	0.03	0.00	0.01	0.00				
Travel to training areas - Annual Grand Total in Metric Tons								9	0	0	9

Alternative 1

On-road Equipment	Miles	Duration (kw hr/hp-hr)	VOC g/VMT	CO g/kW-hr	NOx g/kW-hr	SO ₂ g/VMT	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/kW-hr	CH ₄ g/VMT	N ₂ O g/VMT	CO ₂ e g/VMT
JLTV	23,040	11,592	0.31	2.00	6.30	0.0033	0.0707	0.0707	679.6800	0.0146	0.0024	
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb			
JLTV			15.57	51.11	161.00	0.17	1.81	1.81	17369.98	0.74	0.12	17412.79
Subtotal (lbs):			16	51	161	0	2	2	17,370	1	0	17,413
Travel to training areas - Annual Grand Total in Tons			0.01	0.03	0.08	0.00	0.00	0.00				
Travel to training areas - Annual Grand Total in Metric Tons									8	0	0	8

Alternative 2

On-road Equipment	Miles	Duration (kw hr/hp-hr)	VOC g/VMT	CO g/kW-hr	NOx g/kW-hr	SO ₂ g/VMT	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/kW-hr	CH ₄ g/VMT	N ₂ O g/VMT	CO ₂ e g/VMT
JLTV	27,648	13,910	0.31	2.0000	6.3000	0.0033	0.0707	0.0707	679.6800	0.0146	0.0024	
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb			
JLTV			18.69	61.33	193.20	0.20	2.17	2.17	20843.98	0.89	0.14	20909.75
Subtotal (lbs):			19	61	193	0	2	2	20,844	1	0	20,910
Travel to training areas - Annual Grand Total in Tons			0.01	0.03	0.10	0.00	0.00	0.00				
Travel to training areas - Annual Grand Total in Metric Tons									9	0	0	9

MADIS and L-MADIS, G/ATOR

Baseline

On-road Equipment	Miles	VOC g/VMT	CO g/VMT	NOx g/VMT	SO ₂ g/VMT	PM ₁₀ g/VMT	PM _{2.5} g/VMT	CO ₂ g/VMT	CH ₄ g/VMT	N ₂ O g/VMT	CO ₂ e g/VMT
SUSH Truck/HMMWV	41,984	0.31	1.7382	3.1896	0.0033	1.3723	0.3327	972.7910	0.0146	0.0024	973.846
		VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb			
Light-duty Truck		28.38	160.89	295.22	0.31	127.02	30.79	90040.91	1.35	0.22	90138.56
Subtotal (lbs):		28	161	295	0	127	31	90,041	1	0	90,139
Travel to training areas - Annual Grand Total in Tons		0.01	0.08	0.15	0.00	0.06	0.02				
Travel to training areas - Annual Grand Total in Metric Tons								41	0	0	41

Alternative 1

On-road Equipment	Miles	Duration (kw hr/hp-hr)	VOC g/VMT	CO g/kW-hr	NOx g/kW-hr	SO ₂ g/VMT	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/kW-hr	CH ₄ g/VMT	N ₂ O g/VMT	CO ₂ e g/VMT
JLTV	41,984	11,592	0.31	2.00	6.30	0.0033	0.0707	0.0707	679.6800	0.0146	0.0024	
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb			
JLTV			28.38	51.11	161.00	0.31	1.81	1.81	17369.98	1.35	0.22	17447.98
Subtotal (lbs):			28	51	161	0	2	2	17,370	1	0	17,448
Travel to training areas - Annual Grand Total in Tons			0.01	0.03	0.08	0.00	0.00	0.00				
Travel to training areas - Annual Grand Total in Metric Tons									8	0	0	8

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors							
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr	
Diesel Generator	60	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536	
				Annual Emissions							
				VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂	
				lb	lb	lb	lb	lb	lb	lb	
Radar PEG				0.60	3.21	7.98	0.25	0.53	0.51	1219.94	
Annual Diesel Generator Total in Tons				0.00	0.00	0.00	0.00	0.00	0.00		
Annual Diesel Generator Total in Metric Tons										1	

Alternative 2

On-road Equipment	Miles	Duration (kw hr/hp-hr)	VOC g/VMT	CO g/kW-hr	NOx g/kW-hr	SO ₂ g/VMT	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/kW-hr	CH ₄ g/VMT	N ₂ O g/VMT	CO ₂ e g/VMT
JLTV	50,381	13,910	0.31	2.0000	6.3000	0.0033	0.0707	0.0707	679.6800	0.0146	0.0024	
			VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb			
JLTV			34.05	61.33	193.20	0.37	2.17	2.17	20843.98	1.62	0.26	20963.84
Subtotal (lbs):			34	61	193	0	2	2	20,844	2	0	20,964
Travel to training areas - Annual Grand Total in Tons			0.02	0.03	0.10	0.00	0.00	0.00				
Travel to training areas - Annual Grand Total in Metric Tons									9	0	0	10

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors						
				VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO ₂ g/hp-hr	PM ₁₀ g/hp-hr	PM _{2.5} g/hp-hr	CO ₂ g/hp-hr
Diesel Generator	72	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
				Annual Emissions						
				VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb
Radar PEG				0.7166773	3.8464872	9.57823	0.2946293	0.633123	0.614129342	1463.93178
Annual Diesel Generator Total in Tons				0.00	0.00	0.00	0.00	0.00	0.00	
Annual Diesel Generator Total in Metric Tons										1

TOTALS

Baseline	VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb	CH ₄ lb	N ₂ O lb	CO ₂ e lb
Baseline	34.61	196.21	360.03	0.37	154.90	37.55	109805.99	1.64	0.27	109925.08
Subtotal (lbs):	35	196	360	0	155	38	109,806	2	0	109,925
Training Activity - Annual Grand Total in Tons	0.02	0.10	0.18	0.00	0.08	0.02				
Training Activity - Annual Grand Total in Metric Tons							50	0	0	50

Alternative 1	VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb	CH ₄ lb	N ₂ O lb	CO ₂ e lb
Alternative 1	44.55	105.43	329.99	0.72	4.14	4.13	35959.91	2.09	0.34	35962.33
Subtotal (lbs):	45	105	330	1	4	4	35,960	2	0	35,962
Training Activity - Annual Grand Total in Tons	0.02	0.05	0.16	0.00	0.00	0.00				
Training Activity - Annual Grand Total in Metric Tons							16	0	0	16

Alternative 2	VOC lb	CO lb	NOx lb	SO ₂ lb	PM ₁₀ lb	PM _{2.5} lb	CO ₂ lb	CH ₄ lb	N ₂ O lb	CO ₂ e lb
Alternative 2	53.46	126.52	395.99	0.86	4.97	4.95	43151.89	2.50	0.41	43154.80
Subtotal (lbs):	53	127	396	1	5	5	43,152	3	0	43,155
Training Activity - Annual Grand Total in Tons	0.03	0.06	0.20	0.00	0.00	0.00				
Training Activity - Annual Grand Total in Metric Tons							20	0	0	20

TAB D. GHG Analysis

<i>Construction GHG Emissions Alt 1</i>	<i>CO2e (metric tons)</i>	<i>GHG Social Cost (3%)</i>	<i>Social Cost-GHG 95th Percentile</i>
Year 1 (2025)	1,086	\$ 61,258	\$ 183,655
Year 2 (2026)	936	\$ 53,827	\$ 161,664
Year 3 (2027)	707	\$ 41,427	\$ 124,634
Year 4 (2028)	704	\$ 41,995	\$ 126,554
Year 5 (2029)	717	\$ 43,528	\$ 131,381
Year 6 (2030)	710	\$ 43,823	\$ 132,476
Year 7 (2031)	719	\$ 45,229	\$ 136,988
Year 8 (2032)	697	\$ 44,670	\$ 135,547
Total	6,277	\$ 375,755	\$ 1,132,899

Alt 1	
<i>Activity</i>	<i>CO2e (metric tons)</i>
Baseline Annual Operational GHG Total	49.9
25-year lifecycle emissions	1247
Alt 1 Annual Operational GHG Total	16.3
25-year lifecycle emissions	407.8
Annual GHG Net Change After Construction	-33.5
25-year net change lifecycle emissions	-839
Alt 2	
<i>Activity</i>	<i>CO2e (metric tons)</i>
Baseline Annual GHG Total	49.9
25-year lifecycle emissions	1247
Alt 2 Annual GHG Total	19.6
25-year lifecycle emissions	489.4
Annual GHG Net Change After Construction	-30.3
25-year net change lifecycle emissions	-757

Alt 1			
	CO2		
2025	\$56	16	\$920
2050	\$85		\$1,381
2025	\$169	16	\$2,759
2050	\$260		\$4,240
	CH4		
2025	\$1,720	0.001	\$2
2050	\$3,067		\$3
2025	\$4,548	0.001	\$4
2050	\$8,175		\$8
	N2O		
2025	\$20,591	0.0002	\$3
2050	\$32,989		\$5
2025	\$54,295	0.0002	\$8
2050	\$88,166		\$14
	CO2e		
2025			\$925
2050			\$1,389
2025			\$2,772
2050			\$4,261

Alt 2			
	CO2		
2025	\$56	20	\$1,104
2050	\$85		\$1,657
2025	\$169	20	\$3,311
2050	\$260		\$5,088
	CH4		
2025	\$1,720	0.001	\$2
2050	\$3,067		\$3
2025	\$4,548	0.001	\$5
2050	\$8,175		\$9
	N2O		
2025	\$20,591	0.0002	\$4
2050	\$32,989		\$6
2025	\$54,295	0.0002	\$10
2050	\$88,166		\$16
	CO2e		
2025			\$1,110
2050			\$1,667
2025			\$3,326
2050			\$5,114