



**Final Proposed Plan  
Kanaio Local Training Area  
Military Munitions Response Program  
Munitions Response Site, Hawaii  
AEDB-R Site ID HIHQ-006-R-01  
August 2022**

## 1.0 INTRODUCTION

This **Proposed Plan** presents the **Preferred Alternative** for addressing **munitions and explosives of concern (MEC)** at the Kanaio Local Training Area (LTA) **Military Munitions Response Program (MMRP)** site. The project site discussed herein is designated as a **Munitions Response Site (MRS)** specifically comprised of two areas (Area 1 and Area D) located within the 4771-acre proper Kanaio Local Training Area MRS (HIHQ-006-R-01) and located in Maui, Hawaii. The site includes the 1946-acre “Area 1” portion of the larger Kanaio LTA MRS (as divided during the 2018 Site Inspection) and the 37-acre “Area D” Area of Interest (AOI); a noncontiguous parcel located due east of Area 1 and along the coastline and accessible via King’s Trail. For consistency, the terms “Kanaio LTA MRS” or “the MRS” will be used throughout this document from here forward to specifically refer to the combined 1983 acres associated with Area 1 and Area D (**Figure 1**).

NOTE: Definitions for terms shown in **boldface** are included in a glossary in **Section 13** of this document. Acronyms and abbreviations used throughout this document are listed in **Section 12**.

The purpose of this Proposed Plan is to provide the rationale for the Preferred Alternative for the MRS pursuant to the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**. This Proposed Plan discusses the MRS history, findings, and conclusions from previous environmental investigations

**BOX 1. MARK YOUR CALENDAR  
FOR THE PUBLIC COMMENT  
PERIOD  
FROM August 23, 2022 THROUGH  
September 23, 2022**

The ARNG will accept written comments on the Proposed Plan during the public comment period. Comment letters must be postmarked by September 23, 2022, and should be submitted to:

Rob Halla  
Army National Guard Program Manager  
Army National Guard Installations and Environment  
111 South George Mason Dr.  
Arlington, VA 22204-3231  
703-607-7995  
walter.r.halla2.civ@army.mil

To request an extension, send a written request to the above.

**PUBLIC MEETING:**

The ARNG will hold an open house and public meeting to explain this Proposed Plan and answer questions. Oral and written comments will also be accepted at the meeting. The open house and public meeting are scheduled for 6:00 PM, August 23, 2022 at the Kula Elementary School Cafeteria, 5000 Kula Hwy, Kula, Hawaii 96709.

**Information Repository:**

For more information, see the Kanaio Local Training Area MRS project documents at:

Makawao Public Library  
1159 Makawao Avenue  
Makawao, HI 96768  
808-573-8785

Or online at:

<http://dod.hawaii.gov/env/kanaio-clean-up/>

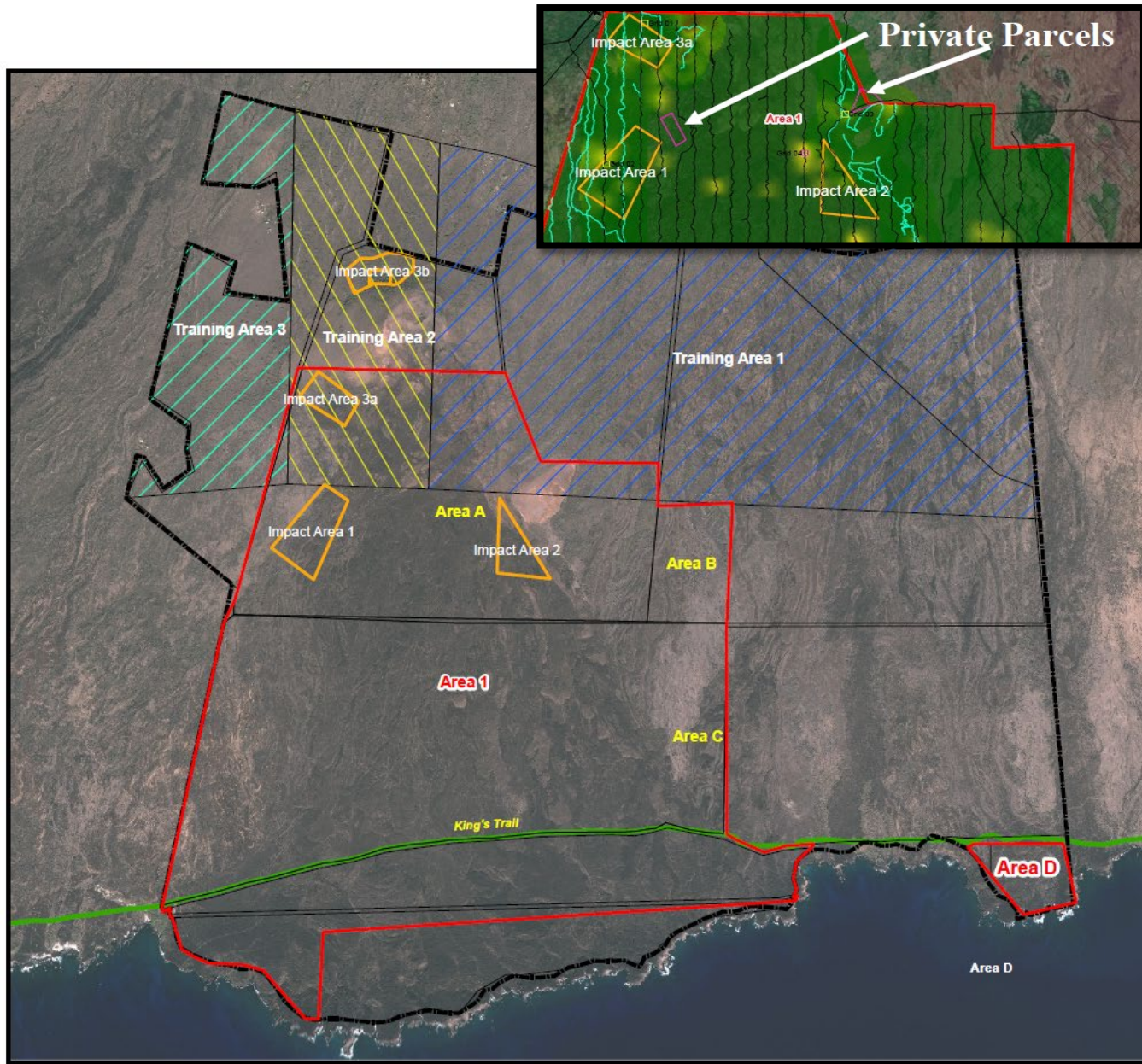
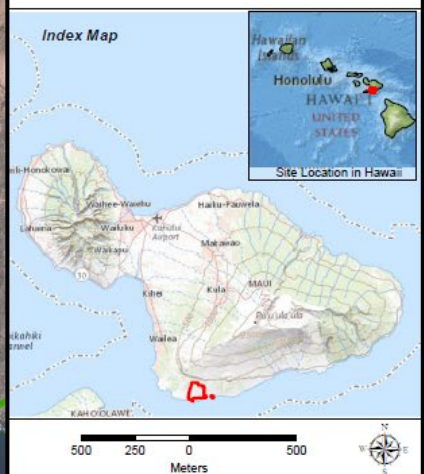


Figure 1  
**Kanaio Local Training Area Munitions Response Site ("Area 1") and Area of Interest ("Area D")**  
**Site Layout**  
 Maui, Hawaii

- Legend**
- Kanaio Local Training Area MRS (Area 1 and Area D) Boundary
  - King's Trail
  - Impact Area
  - Historic MRS Boundary
  - Training Area 1
  - Training Area 2
  - Training Area 3



PARSONS		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER	
DESIGNED BY: BT	<b>Site Layout</b>		
DRAWN BY: BT			
CHECKED BY: DS	SCALE: As Shown	PROJECT NUMBER: HW-17-00000001	
SUBMITTED BY: DS	DATE: July 2021	PAGE NUMBER: 25	
	FILE:		

conducted at the MRS and explains how the public can participate in the selection of remedial action at the MRS (**Box 1** on Page 1).

This document is being prepared by the National Guard Bureau Army Guard Directorate (ARNG), the lead agency for the site cleanup activities, and has been prepared in coordination with the Hawaii Department of Health (HDOH), the State regulatory authority for site cleanups, the Hawaii Army National Guard (HIARNG), the United States Army Corps of Engineers (USACE)-Sacramento District (CESPK), and the USACE-Baltimore District, and Hawaii Department of Land and Natural Resources (HI DLNR), the landowner. As a result of the previous environmental investigations conducted at the MRS detailed below, the ARNG, HIARNG, and USACE, in consultation with HDOH and HI DLNR, has concluded a focused surface and subsurface MEC removal with **land use controls** is recommended at the MRS.

The ARNG is required under CERCLA §117(a) and the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** §300.430(f)(2) to issue this Proposed Plan and seek public comment and participation. The ARNG will select the final action for the Kanaio LTA MRS after reviewing and considering all information submitted during the public comment period and the public meeting. The ARNG may modify the remedial action based on new information or public comments. A final remedial action will not be selected until the public comment period ends, and all comments are reviewed and addressed. Therefore, the public is encouraged to review and comment on the information and rationale presented in this Proposed Plan. See **Box 1** (Page 1) for public participation information.

This Proposed Plan summarizes information that can be found in greater detail in the

**Remedial Investigation/ Feasibility Study** Report (Parsons, 2022) and other documents contained in the **Administrative Record** File for this MRS, which can be viewed at the Information Repository listed in **Box 1** (Page 1). The ARNG encourages the public to review these documents to gain a more comprehensive understanding of the MRS and investigation activities that have been conducted. Public input to this Proposed Plan will be documented in a **Responsiveness Summary** that will be included in a **Record of Decision** that documents the selected final remedial action.

## 2.0 SITE BACKGROUND

The Kanaio LTA MRS is located on the southernmost extent of the Island of Maui, Hawaii. Aside from two privately-owned parcels located in the northern portion of the MRS, the balance of the project site is owned by the HI DLNR and includes a portion of the publicly accessible King’s Trail. The private parcels are very small (a few acres each), undeveloped (no structures or residential component), land-locked (no defined access routes), and both are significantly outside of the preferred remedial alternative cleanup area. The project investigation area included the 1946-acre “Area 1” portion of the Kanaio LTA MRS (as divided during the 2018 Site Inspection) and the 37-acre “Area D” Area of Interest; a noncontiguous parcel located due east of Area 1 and along the coastline and accessible via King’s Trail (**Figure 1**).

The Kanaio LTA MRS was utilized for live-fire practice as early as World War II by various branches of the military including the U.S. Army, U.S. Marine Corps, and the HIARNG and has been inactive since 2003. Area 1 was used from 1965 through the mid-1990s for training with 40-mm grenades and M72 light anti-armor weapon (LAW) rockets. In addition, evidence from prior studies indicated that recoilless rifles, high explosive anti-tank (HEAT) projectiles, various

mortars, and artillery rounds may have also been used in Area 1. Historical accounts indicate Area D was predominately used as a livestock watering area (Na Ali`i, 2018). The area was reportedly declared off-limits to HIARNG personnel as early as the 1960s. Anecdotal evidence suggests that Area D may at one point have been the target area for 4.2-inch mortars from Area B (Na Ali`i, 2018).

**Figure 2: Site view from North to South**



Earlier historical studies and cleanup efforts documented in the Historical Records Review prepared in support of the Site Inspection (Na Ali`i, 2017) confirmed MEC item recovery and removal actions as early as 1981 and continuing in 1988, 1995, and 1998. Reported findings included M72 LAW rockets, 105-mm projectiles, 106-mm projectiles, 40-mm HE projectiles, and 81-mm mortars. Various munitions debris (MD) from LAW rockets, 3.5-inch rockets, 40-mm HE grenades, 105-mm projectiles, 106-mm HEAT projectiles 4.2-inch mortars, 81-mm white phosphorus (WP) mortars, and 81-mm HE mortars were also identified during previous investigations and studies. Most of the findings, where identified, were within the Remedial Investigation/Feasibility Study investigation area. All prior MEC were reported as removed or detonated.

Seven relevant investigations or clearances

have occurred at the Kanaio LTA MRS. These include:

1. 1981 HIARNG Clearance (HIARNG, 1996)
2. 1988 Unexploded Ordnance (UXO) Consolidation Plan (USACHPPM, 2003)
3. 1996 Ordnance Removal Plan (HIARNG, 1996)
4. 1998 Surface Ordnance Removal (HIARNG, 1999)
5. 2003-2004 UXO Surveys and Clearance (HIARNG, 2005)
6. 2018 Site Inspection (Na Ali`i, 2018)
7. Remedial Investigation/Feasibility Study Report (Parsons, 2022)

***1981 HIARNG Clearance (HIARNG, 1996)***– In August and September 1981, HIARNG personnel, assisted by US Army munitions disposal specialists, conducted an on-foot sweep of the general firing range area. Two areas of the LTA, Impact Areas 1 and 2, were deemed “unclearable” by the munitions specialists, who suspected the presence of sub-surface unexploded munitions. The explosive ordnance disposal team concluded that the brittle a’a lava potentially allowed high-angle steel-cased and delay fuzed mortars to penetrate and detonate underground, resulting in a heaving effect, covering debris and UXO from the surface. (Note: Surface clearance at Impact Areas 1 and 2 was performed in future clearance efforts.) The sweep of the King’s Trail produced debris from various projectiles. Sweeps along fishermen’s trails and the area between King’s Trail and the ocean produced no UXO. A sweep of the 3.5-inch rocket range produced practice rounds, which contain no explosive hazards. Several UXO were reportedly located and destroyed in place; the locations of these munitions were not specified (HIARNG, 1996).

**1988 UXO Consolidation Plan (USACHPPM, 2003)** – HIARNG planned to conduct a UXO removal action during August through September 1988, including onsite detonation of UXO, and consolidation of inert ordnance and other scrap metal into a single location for abandonment. No direct follow-up to this plan was located on record, however prior to a 1998 removal operation, practice and illumination rounds were located in a pile within a ravine at the northern part of Impact Area 2. US Army Explosives Ordnance Disposal (EOD) experts concluded that consolidation was likely carried out as planned and that the material was carried in sandbags to a consolidation point to be detonated (USACHPPM, 2003).

**1996 Ordnance Removal Plan (HIARNG, 1996)**– In September 1995, an Ordnance Field Survey, an Archaeological Inventory Survey, and a Biological Resources Survey of Impact Areas 1, 2, 3A and 3B were conducted to prepare an Ordnance Removal Plan for these areas of the Kanaio LTA (HIARNG, 1996). The surveys characterized the nature and extent of surface and subsurface UXO in the four recognized impact areas, identified targets for removal and disposal, documented perceived immediate hazards, and identified any rare/endangered wildlife or plants and archaeological sites that may impact ordnance removal activities.

Outside of the four surveyed impact areas, teams located discarded unexpended blank and expended munitions, mainly near former firing points or in areas where troops had been maneuvering in the past. Also noted were car-related debris, scrap material, and trash, including three cars, a small dumpster, and a trash-filled lava tube near the entrance to the range on a privately-owned parcel. This investigation discovered several MEC items including: two unexploded M72 LAW anti-tank rockets and one unexploded 40-mm M79 grenade.

The surveys ultimately concluded that no

significant cultural resources were located within the surveyed impact areas that would preclude ordnance removal, but that areas outside the surveyed impact areas would require archaeological inventory prior to ordnance clearing. Because one of the plants known to occur on the Kanaio LTA MRS was not visible at the time of the surveys, biological monitoring was recommended during removal activities to reduce the potential of impacts. Activities outside of the impact areas require biological surveys to determine the presence or absence of rare or endangered species on site.

**1998 Surface Ordnance Removal (HIARNG, 1999)** - During the 1998 Ordnance Removal, erosion and sediment control measures, as well as pollution control measures were followed. The access road to the Kanaio LTA was reconstructed prior to field activities (HIARNG, 1999). The four impact areas were swept; a 100% surface inspection was conducted by teams moving at 5-foot separation intervals. Live ordnance items that could not be moved were marked with flagging tape, and the coordinates recorded. Scrap metal was removed from all areas of the site. No high explosive (HE) items were found in the areas outside of the impact areas, though considerable live, blank small arms cartridges were recovered.

The four abandoned cars and small dumpster were removed and properly disposed of, as well as the refuse in the lava tube. Three biased soil samples were collected from depths of 1-15 inches below ground surface (bgs) in areas expected to have the heaviest range use in Impact Area 3B. Samples indicated lead concentrations below action levels. A soil sample was also collected from the bottom of the lava tube and analyzed for volatile organic compounds (VOCs); sample results were non-detect. In all, 997-lbs of scrap were removed and 10 MEC items were disposed of by detonation.

**2003-2004 UXO Surveys and Clearance (HIARNG, 2005)** - During 2003 through 2004, 1500 acres were surveyed for UXO in conjunction with archaeological and biological monitoring at Kanaio LTA MRS. Due to targeting inaccuracy and the uncertainty of firing points, areas surrounding the formally delineated impact areas were suspected to contain UXO. The surveys took place in three separate phases, each covering 500 acres. Based on the map provided with the report, Phase 1 encompassed Impact Areas 1, 2, and 3A. As a result of the findings of Phase 1, which identified 81-mm illumination and 81-mm HE munitions debris, the survey was extended south. Phase 2 extended south encompassing a portion of Area C, including the Target Site. The results of Phase 2 also indicated the need to extend the survey further. Phase 3 covered the southwestern portion of Area C south to the King's Trail, the southeastern portion of Area A, and the southwestern portion of Area B. The surveys were conducted to identify and report expended munitions, live or potentially live munitions, dispose of munitions scrap, and dispose of any live and potentially live munitions (HIARNG, 2005). The surveys/clearance did not cover the entire Kanaio LTA MRS.

Approximately 2470 lbs. of munitions scrap was collected during Phases 1 and 2. Two unexploded 81-mm HE mortars and one unexploded 81-mm white phosphorus mortar were identified and disposed of by detonation. Five 3.5-inch rockets were found buried in a crevice adjacent to several sensitive archaeological features; this site was named T-26 Burial Complex. One 3.5-inch rocket was imbedded in a vertical rock face above this discovered cache; due to potential for impact on the identified cultural features these items were not disposed by detonation. The site, southeast of Pu`u Pimo`e, is roughly 60 meters long by 50 meters wide, and consists of a minimum of 24 features identified by the project archaeologist as

burial terraces. Based on the findings of the first two phases, additional survey and disposal were recommended, particularly beyond the southern and eastern boundaries of the Phase 2 survey (HIARNG, 2004). Approximately 500 lbs. of munitions scrap were collected during the Phase 3 survey. These munitions items were dispersed throughout the Phase 3 boundary and outside the previously delineated boundaries for the Impact Areas and the 3.5-inch Rocket Range.

Over all three phases, more than 3000 ordnance and ordnance-related items were collected, inspected, and de-militarized. More than 40 UXO items including LAWs, 3.5-inch rockets, 60-mm mortars, and 81-mm mortars were detonated in place. Confirmation soil sampling performed following the single de-militarization detonation to vent munitions scrap indicated no significant environmental impact. Further surveying was recommended to the east and south of the Phase 3 investigation boundary due to the presence of munitions scrap and potential target drums at the eastern and southern boundaries of the Phase 3 area (HIARNG, 2005).

**2018 Site Inspection (Na Ali'i, 2018)** - The Site Inspection fieldwork was conducted in November 2017 to gather data and determine whether the site warranted further response actions. The Site Inspection was conducted over the entire Kanaio LTA of which the Kanaio LTA MRS, that is the subject of this Proposed Plan, is a portion, specifically Area 1 and Area D. The inspection included an instrument-assisted visual survey along predetermined transects covering approximately one percent of the total site area. Transects were completed in areas not previously investigated, as well as in known impact areas. Much of the eastern half of the Kanaio LTA, particularly the southern area, was deemed inaccessible due to terrain and limited access, a small portion of this inaccessible area is at the eastern edge of the

subject MRS. The instrument-assisted visual survey resulted in the discovery of one MEC item, one item designated as material potentially presenting an explosive hazard (MPPEH) and requiring EOD response, and 61 MD items. These items were predominately located in the central to southern portion of the site (east central portion of Area 1). Survey results and HRR data were used to identify 10 Incremental Sampling Method (ISM) Decision Units (DUs) within the investigation area. One ISM surface soil sample was collected from each DU containing soil, to evaluate the presence and concentration of MC. Many of the proposed sample locations lacked sufficient soil for sample collection; only six of the intended 10 samples could be collected. Antimony, lead, and explosive compounds were not detected in any of the samples. Copper and zinc concentrations did not exceed project action limits.

Based on the historical data and Site Inspection findings, it was recommended that Kanaio LTA be managed as two distinct areas:

- Area 1, Approximately 1946 acres comprised of DUs 4, 6, 8, and the western third of DU9. This area contains the highest density of potential explosive hazards based on the Site Inspection and historical findings. The Site Inspection recommended that Area 1 proceed to a Remedial Investigation/Feasibility Study.
- Area 2, Approximately 2268 acres comprised of DUs 1, 2, 3, 5, 7, 10, and the remainder of DU9. No explosive hazards have been identified in this area. Small arms debris has been detected but does not present an explosive hazard. No Further Action (NFA) was recommended for this area in the Site Inspection.

**Remedial Investigation (Parsons, 2022)** – The 2021 Remedial Investigation (RI) was performed for the Kanaio LTA MRS based on the recommendations of the 2018 Site Inspection. The RI was planned to focus on Area 1 as Area 2 was recommended as NFA. As a result of discussions during the Systematic Planning Process (SPP), conducted to engage key stakeholders and regulators (HDOH), Area D was added to the investigation area addressed under this project. (**Figure 1**).

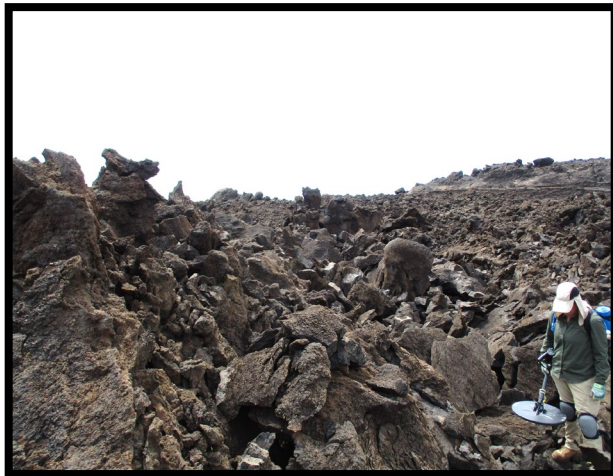
The Remedial Investigation MEC sampling was designed to determine the nature and extent of MEC contamination within the project site with contingencies to sample for and characterize the nature and extent of **munitions constituents (MC)** in soil based on the findings of the MEC sampling effort. The findings of the Remedial Investigation are summarized in **Sections 3 and 5**.

### 3.0 SITE CHARACTERISTICS

#### PHYSICAL SETTING

The Kanaio LTA MRS is located on the southernmost extent of Maui, Hawaii. The Kanaio LTA MRS is characterized by steep terrain with elevations ranging from sea-level in the south to 1800 feet above mean sea level to the north. Vegetation within the investigation area is largely non-existent with the surface consisting mostly of a’ava lava fields with loose rock, boulders, small cliffs, and several caves and tubes that have formed within lava voids (**Figure 3**). The most prominent features are two cinder cones in the northwest portion of the Kanaio LTA. No surface water bodies are present but trenchlike channels that align downslope have formed throughout the site.

**Figure 3: a'a Lava Field**



### CURRENT AND FUTURE USE

As noted above, the 1983-acre project area consists of almost exclusively HI DLNR owned land. The MRS is open to the public but the majority of the MRS is characterized by extremely adverse terrain with significant natural barriers limiting public access for recreational activities characteristic of the a'a lava conditions. With the exception of the difficult hike within the footprint of King's Trail, the vast majority of the MRS is near impassible and does not represent a recreational attraction to current receptors. Further, the MRS is isolated and offers no amenities. The coastline, primarily south of the King's Trail, is visited for cultural artifact collection, scenic viewing, photography, and religious activities and study. Recreational and subsistence hunting, fishing, and non-authorized shooting occur within the few areas of the Kanaio LTA MRS that are somewhat accessible. Future land use is likely to change. The DLNR is actively evaluating the establishment of a Forestry and Wildlife Management Area that would include a portion or all of the Kanaio LTA MRS. Per direct conversations with HI DLNR, this anticipated change in designation is not expected to have a significant impact on current and future recreational use of the area. When the designation moves forward, a

moderate increase in site use could result to include potential seasonal hunters and support personnel. Some limited development is expected to include boundary fence construction, access road installation/construction, hunter kiosks, and placement of game "water units". UXO Construction Support can be requested by HDOH/DLNR for development actions within the MRS where the risk of potential encounter with UXO remains before or following application of selected response actions. The request must be submitted with sufficient advance notification to ARNG to allow coordination and secure funding. At present this potential change in land use is in the preliminary stages and has been under consideration for a number of years. Currently an Environmental Assessment (EA) is being developed which will outline the specifics of planned actions for the area.

### FIELD INVESTIGATION ACTIVITIES

The Remedial Investigation survey was designed to obtain data to sufficiently characterize the presence or absence as well as nature and extent of MEC and MC contamination at the Kanaio LTA MRS in order to evaluate potential hazards or **risks** related to MEC and MC. These findings were planned to support the development of potential remedial alternatives where complete exposure pathways were identified. Therefore, the Remedial Investigation field activities were divided into two segments:

- **MEC Sampling** - consisted of three phases: A Digital Geophysical Mapping (DGM) transect survey, a DGM grid survey, and a "Modified Analog" transect survey where DGM wasn't physically possible. Followed by an intrusive investigation.
- **MC Sampling** – the MC sampling plan consisted of only sampling soil in locations where MEC was discovered.

The MEC sampling effort was designed to



delineate potential high use areas, low use areas, and no evidence of usage areas. Given the SI recommendation that “MC does not pose a risk to human health or the environment” and the lack of soil over the majority of the MRS, the Remedial Investigation MC sampling effort was limited to following circumstances; encountering low-order detonation munitions, encountering suspected contamination sources (e.g., a cache of Discarded Military Munitions [DMM]), conducting blow-in-place (BIP) activities for single munitions, or conducting consolidated detonation events and only in areas where there was sufficient soil to collect a sample.

### MEC INVESTIGATION RESULTS

Characterization of MEC consisted of a series of steps beginning with gathering both analog and DGM data on preliminary transects strategically spaced across the MRS. Analog data collection techniques were not originally planned; however, due to the extreme adverse terrain and presence of a’ā lava fields, data collection techniques were modified and documented in the Remedial Investigation/Feasibility Study Report (Parsons, 2022). The transect geophysical data were used to identify both surface and subsurface geophysical anomalies indicating the potential presence of metallic objects. This data was used to evaluate the horizontal distribution across the MRS and subsequently to differentiate between high anomaly density (HD) and low anomaly density (LD) areas within the Kanaio LTA MRS based on threshold criteria.

Following identification of both HD and LD areas, 13 0.25-acre sampling grids were established at locations selected by the SPP Project Team for transect mapping and intrusive investigation. Transect surveys were conducted on each of the 13 grids. However, as previously stated, a large section of the site (roughly 90%) is covered in a’ā lava which caused limitations in the ability to capture data accurately and safely with certain equipment.

Therefore, modified analog techniques were significantly used to augment conventional DGM and Advanced Geophysical Classification (AGC) mapping. Grids were intrusively investigated to confirm if individual HD or LD areas represented a high-use area (HUA) (i.e., an area contaminated with MEC or a significant amount of MD), low-use area (LUA), or neither. A determination of the vertical extent of MEC and MD contamination was also accomplished through the intrusive investigation.

Three grids (all LD) fell outside of the a’ā lava field and were on terrain on which DGM and AGC data collection was feasible. The remaining 10 grids (5 HD, 5 LD) were placed in the a’ā lava field and were unable to be collected in a safe and reliable manner with the DGM technology. In order to investigate these grids a safely and accurately “modified analog system was utilized. Analog sensors swept transects over the grids and any anomalies were intrusively investigated.

A single 36-acre HUA was identified based on the distribution of MEC and MD found during the Remedial Investigation and with consideration to known historical MD and MEC findings (where documented). The remaining 1947-acres were classified as an LUA. One MEC item, an 81-mm HE mortar (Grid 12), was discovered during the remedial Investigation inside the boundary of the identified HUA. Historically MEC items have been reported in this area. Most of the MEC findings, where documented, were within the Remedial Investigation HUA or in proximity. All prior identified MEC were reported as removed or detonated.

During the Remedial Investigation, a total of 854 MD items were recovered of which 371 were associated with the transect survey. The balance of the MD consisted of 357 MD items from 5 HD area grids and 96 MD items from 8 LD area grids. Additionally, a cache of 30 MD items (US Rocket Practice M29 Series rockets) were discovered by the field team

while traversing the site on the way to Grid 4. All MD was recovered from depths of less than 34 cm (~13.4 inches) bgs and 92.5 percent of MD was recovered at less than 15 cm bgs (~6 inches). Within much of the project area to include all of the HUA, minimal to no surface soil was present due to the presence of a’ua lava fields. As such, the MD recovered in this area (transects and grids) was generally located on the surface.

Details of the sampling methodology are documented in the Remedial Investigation Work Plan/**Uniform Federal Policy - Quality Assurance Project Plan (UFP-QAPP**; Parsons, 2021) The full results of the MEC sampling survey are provided in the Remedial Investigation/Feasibility Study Report (Parsons, 2022).

#### MC SAMPLING RESULTS

Previous investigations determined that throughout most of the Kanaio LTA MRS insufficient soil was present to collect MC samples. The Site Inspection Report concluded “Based on the analytical results, MC does not pose a risk to human health or the environment” (Na Ali’i, 2018). Based on the Site Inspection conclusions and known absence of soil within the impact area (the subject of this Remedial Investigation) and in accordance with the approved UFP-QAPP, MC sampling was limited to following circumstances; encountering low-order detonation munitions, encountering suspected contamination sources (e.g., a cache of DMM), conducting BIP activities for single munitions, or conducting consolidated detonation events and only in areas where there was sufficient soil to collect a sample.

During the Remedial Investigation, a single BIP (intact 81-mm HE mortar from Grid 12) was conducted and a stockpile of US Rocket Practice M29 Series rockets (MD) were found; however, in both cases no sampleable soil was present.

#### NATURE AND EXTENT OF MEC AND MC

Upon completion of the MEC investigation and intrusive operations one MEC item was found (81-mm HE Mortar) during the 2021 Remedial Investigation for Kanaio LTA MRS. Based on this finding, and distribution of MD items recovered during the Remedial Investigation field effort, with consideration to known historical MD and MEC findings (where documented), one 36-acre HUA was identified and confirmed at the MRS. The remaining 1947-acres were determined to be LUA. No “no evidence of use” (NEU) areas were identified.

MC contamination (i.e., contaminants of potential concern) was not identified within the MRS. Insufficient soil was present to sample in both areas meeting the sampling criteria (BIP and DMM stockpile).

#### **4.0 SCOPE AND ROLE OF THE ACTION**

This Proposed Plan addresses the Kanaio LTA MRS (HIHQ-006-R-01). The overall strategy of the ARNG is to protect human health and the environment. The proposed strategy is appropriate at this MRS because the results of the Remedial Investigation illustrated that the MRS has been sufficiently characterized and the “preferred” Alternative is protective of human health and the environment. Therefore, it is the ARNG’s, USACE’s, and HDOH’s current judgement that the “preferred” Alternative, Focused Surface and Subsurface MEC Removal and Land Use Controls, is appropriate at the Kanaio LTA MRS to protect human health, welfare, and the environment.

#### **5.0 SUMMARY OF SITE RISKS**

A baseline risk assessment was conducted to evaluate potential risk from MEC at the MRS using the risk management method (RMM). This RMM involves the use of four matrices to define acceptable and unacceptable risk from MEC hazards based on an evaluation of

site conditions related to the likelihood of an encounter, the severity of an incident, and the sensitivity of interaction based on expected land use activities. Based on the discovery of MEC, combined with the MD items found during the Remedial Investigation and current land use and accessibility of the assessment area, an unacceptable risk exists for human receptors to come in direct contact with explosive hazards at the MRS.

The absence of soil precluded MC sampling during this Remedial Investigation. Combined with the results of the limited soil sampling conducted during the Site Inspection and absence of surface soil to provide a complete exposure pathway throughout most of the site, no MC contamination was identified within the project area. Therefore, no risk assessment for MC was conducted.

## 6.0 REMEDIAL ACTION OBJECTIVES

This Proposed Plan recommends actions to address MEC contamination at the Kanaio LTA MRS that poses a risk to human health. The **Remedial Action Objective (RAO)** is to reduce the MEC risk due to presence of previously identified rockets, mortars, projectiles, and grenades within the Kanaio LTA MRS both on the surface and in the subsurface and to minimize the likelihood of exposure to trespassers and recreational users (hikers) via direct contact, through source removal, implementation of land use controls, and access restrictions, or a combination thereof, such that an acceptable condition is achieved.

## 7.0 SUMMARY OF REMEDIAL ALTERNATIVES

Based on the findings of the 2021 Remedial Investigation at the Kanaio LTA MRS, five removal action alternatives were developed. Each alternative was assessed individually against the assessment criteria required by law provided by the United States

Environmental Protection Agency (USEPA) in CERCLA §121(b) (full list of criteria is provided in **Table 1**). The alternatives proposed are as follows:

### ALTERNATIVE 1 – NO ACTION

Alternative 1 is no action to address the potential MEC at the Kanaio LTA MRS. Alternative 1 does not involve implementing any remedial actions. The NCP requires that a no action alternative be evaluated to provide a baseline for comparison to other alternatives. This alternative provides no actions to protect human health or the environment at the MRS. Because this alternative does not change the conditions at the MRS it is not included in the evaluation of alternatives (Section 8.0).

### ALTERNATIVE 2 – PUBLIC EDUCATION AND WARNING SIGNS (LAND USE CONTROLS)

Alternative 2 is the implementation of public education and warning signs which would serve to limit human interaction with surface and subsurface MEC within the MRS by increasing the awareness of potential MEC hazards. The land use controls implemented under Alternative 2 would focus on modifying human behavior through public education and warning signs. To educate the receptors of potential explosive hazards, educational pamphlets would be developed and distributed to local residents, posted on community boards, and included with hunting permits. Warning signs would be installed at MRS access points along the Piilani highway (Hawaii state route HI-37) to the north of the Kanaio LTA and the King's Trail (also referred to locally as Hoapili Trail or the King's Highway) in the south section of the Kanaio LTA MRS.

The signs would stress the importance of the "3Rs" — Recognize, Retreat, and Report. Any MEC that is found during current and future activities should be left undisturbed and should be reported to the appropriate authorities, per the "3Rs." The focus of

educational pamphlets should be the prevention of handling of suspected MEC and encouragement of reporting of suspected MEC. The signs would reinforce the link between appropriate access and safety. Annual maintenance would be necessary for the signs.

The specific pamphlet language, distribution points and mailings, and public meeting frequency and location will be developed in close collaboration with HI DLNR, HDOH, and ARNG as part of the subsequent Response/Removal Action phase of the project. The warning sign numbers, locations and text will similarly be addressed.

This alternative would require that Five-Year Reviews be conducted to ensure that the land use controls remain protective of potential human receptors.

#### ALTERNATIVE 3 – SURFACE MEC REMOVAL AND LAND USE CONTROLS

Alternative 3 is the implementation of a complete instrument-aided surface MEC removal and land use controls across the entire 1983-acre MRS which would serve to reduce risks by removing surface MEC throughout the MRS and would limit human interaction with surface and subsurface MEC at the MRS by increasing the awareness of potential hazards.

The first step MEC detection would be accomplished with an instrument aided-sweep of the MRS. Unexploded ordnance-qualified personnel would systematically walk the MRS and mark, identify, and record the locations of all MEC found on the surface for removal or subsequent disposal. The search would be conducted with a handheld analog magnetometer.

This alternative would consist of 100% coverage of the 1983-acre MRS. If the instrument indicates a response but the source item is not found on or just below the ground surface, the Unexploded Ordnance Technician would move on without extensive

digging into the subsurface.

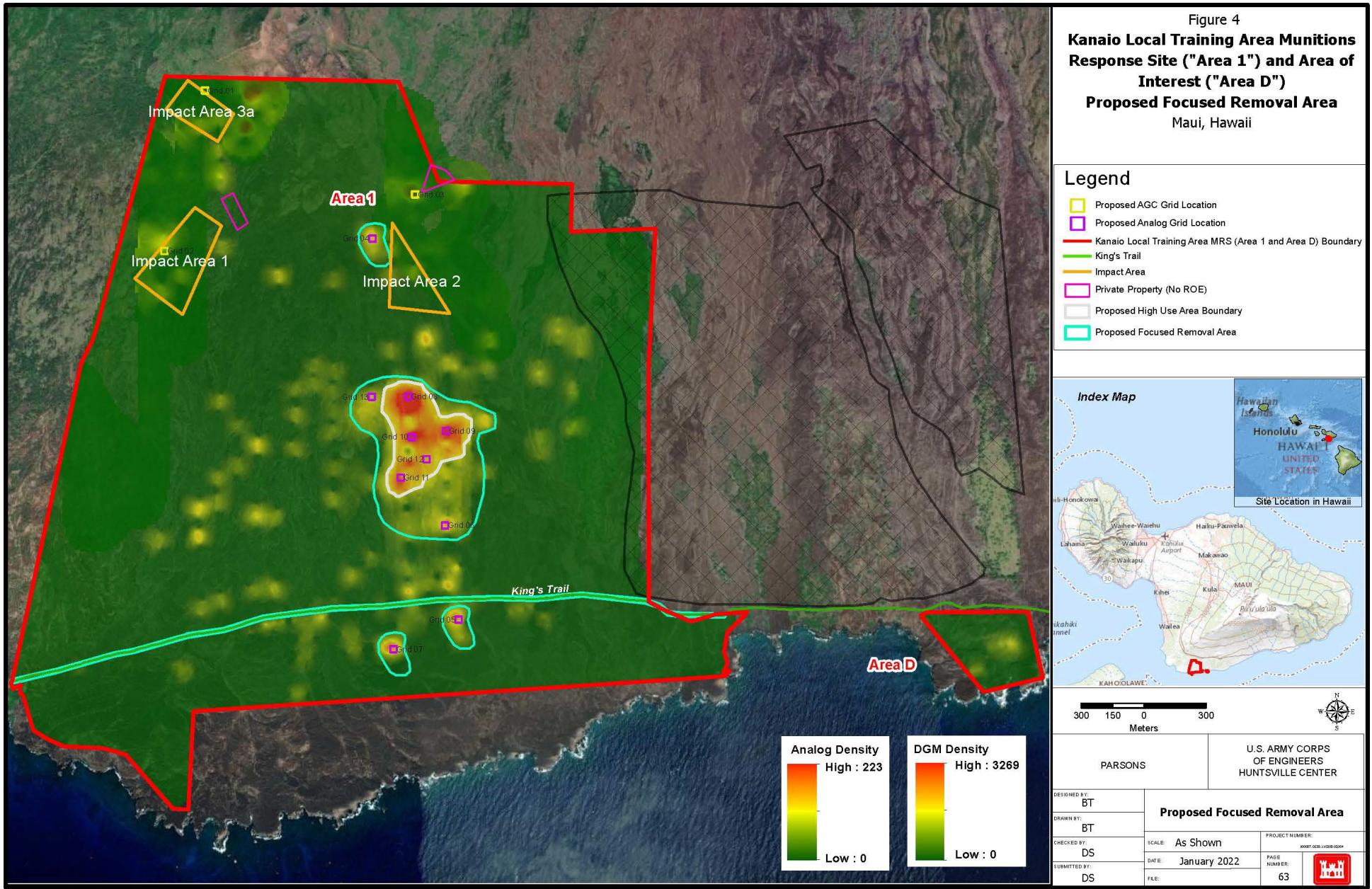
The same land use controls as described in Alternative 2 would be utilized. Five-Year Reviews would be conducted to ensure that the implementation of the selected remedy and land use controls remain protective of potential human receptors.

#### ALTERNATIVE 4 – FOCUSED SURFACE AND SUBSURFACE MEC REMOVAL AND LAND USE CONTROLS

Alternative 4 is the implementation of a 126-acre “focused” surface and subsurface MEC removal and land use controls which would serve to reduce risks by removing surface and subsurface MEC throughout a portion of the MRS and would limit human interaction with surface and subsurface MEC by increasing the awareness of potential hazards.

The 126-acre “focused” area is an area that is determined to be the area with the highest likelihood of MEC contamination at the MRS. The “focused” area includes the 36-acre HUA which is where the majority of the MD and single MEC item (81-mm HE mortar from Grid 12) were identified during the Remedial Investigation, as well as where the majority of the SI findings were located, plus a 90-acre buffer area. **Figure 4** shows the proposed “focused” removal areas bounded by turquoise lines. While it was determined to be low anomaly density, the King’s Trail is the highest traffic area onsite; therefore, a 50-foot swath (25 feet on each side of the centerline of the trail) will also be cleared the entire length of the trail within the MRS.

Following field-delineation of the 126-acre “focus” area (derived based on Remedial Investigation findings plus buffer area) and establishing a subgrid network for progress tracking purposes, analog sweeps would be conducted to investigate 100% of the surface and subsurface (if present, to maximum instrument detect depths or until rock is encountered). Note that rock is exposed at most areas of the surface, so subsurface work will not be needed in most of the “focus” area.



The same land use controls as described in Alternative 2 would be utilized. Five-Year Reviews would be conducted to ensure that the implementation of the selected remedy and land use controls remain protective of potential human receptors.

ALTERNATIVE 5 – COMPLETE SURFACE AND SUBSURFACE MEC REMOVAL

Alternative 5 is the implementation of a complete surface and subsurface MEC removal across the entire 1983-acre MRS and would serve to reduce risk by removing all surface and subsurface MEC throughout the MRS.

Alternative 5 would accomplish MEC detection using dynamic AGC methods where accessible, and analog methods elsewhere, followed by MEC removal through intrusive investigation of geophysical anomalies over all of the MRS.

MEC Detection would be accomplished with the goal of achieving 100% coverage of the accessible areas of the MRS with AGC equipment. Finally, all of the anomalies retained by the AGC survey would be intrusively investigated until the maximum equipment detection depth is attained.

Analog methods detailed in Alternatives 3 and 4 would be used on the remainder of the MRS where AGC methods are not feasible.

After implementation of this remedy Unlimited Use/Unlimited Exposure (UU/UE) conditions will be assessed. The depths that MEC is detected and removed and whether 100% coverage was attained would be evaluated post-removal to verify that UU/UE is achieved. UU/UE would also require that all right-of-entry (ROE) is granted or renewed for 100% of the MRS (to include the two private parcels). If UU/UE is not achieved land use controls as described in Alternative 2 would also be implemented with this alternative.

**8.0 EVALUATION OF ALTERNATIVES**

The Alternatives were evaluated with respect to the nine NCP criteria, as outlined by CERCLA (Table 1). The nine NCP criteria are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria.

**Table 1 – Evaluation Criteria for Remedial Alternatives**

<b>Threshold Criteria</b>	<b>Overall Protectiveness of Human Health and the Environment</b> determines whether an alternative adequately protects human health and the environment from unacceptable risks.
	<b>Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)</b> evaluates whether the alternative meets Federal and State environmental regulations and requirements that pertain to the site.
<b>Primary Balancing Criteria</b>	<b>Long-Term Effectiveness and Permanence</b> considers the ability of an alternative to maintain protection of human health and the environment over time.
	<b>Reduction of Toxicity, Mobility, and Volume (TMV) of Contaminants through Treatment</b> evaluates use of treatment to reduce harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
	<b>Short-Term Effectiveness</b> considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
	<b>Implementability</b> considers the technical and administrative feasibility of implementing the alternative, including factors such as the availability of goods and services.
	<b>Cost</b> includes estimated capital and annual operations and maintenance costs for a specific time period.
<b>Modifying Criteria</b>	<b>State/Support Agency Acceptance</b> considers whether the State agrees with the Army's analyses and recommendations, as described in the Remedial Investigation/Feasibility Study and Proposed Plan.
	<b>Community Acceptance</b> considers whether the local community agrees with the Army's analyses and Preferred Alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

The comparative analysis evaluates the relative performance of Alternatives 1, 2, 3, 4, and 5 with respect to each of the nine NCP criteria (**Table 2**). Identifying the advantages and disadvantages of each alternative, with respect to each other, helps identify relative strengths of the “preferred” Alternative. These strengths, combined with risk management decisions made by the ARNG, USACE, and HDOH, as well as input from the community, will serve as the basis for selecting the remedy.

#### Threshold Criteria

Remedial Alternatives 2, 3, 4 and 5 would be protective of human health and the environment by addressing the exposure of receptors to MEC such that there are no unacceptable risks remaining at the Kanaio LTA MRS. Remedial alternatives are either protective or not and, therefore, no comparison of overall protectiveness is possible between alternatives.

All remedial alternatives identified to address MEC risk at the Kanaio LTA MRS comply with applicable or relevant and appropriate requirements (ARARs). There are no chemical-specific or location-specific ARARs identified for any alternatives. One Action-Specific ARAR may be applicable to Alternatives 3, 4, and 5. Alternatives 3, 4, and 5 will include MEC disposal if MEC is encountered and will comply with Resource Conservation and Recovery Act (RCRA) Subpart X which is the USEPA guidance document for non-typical hazardous waste.

#### Primary Balancing Criteria

Notably, there are different degrees of long-term effectiveness and permanence associated with Alternatives 2, 3, 4, and 5. Alternatives 3 through 5 are more effective over the long-term and more permanent than Alternative 2 because they involve some measure of MEC removal. Of the alternatives, Alternative 5 is the most effective because the MEC removal is complete resulting in UU/UE.

Alternative 2 does not implement any treatment technologies, therefore does not provide any reduction of the toxicity, mobility, or volume of MEC. Alternatives 3 through 5 achieve reduction in TMV of wastes because they all involve some measure of MEC removal/disposal. Of these alternatives, Alternative 5 achieves the greatest reduction in TMV of wastes because the associated MEC removal/disposal includes both surface and subsurface MEC. The MEC removal associated with Alternative 3 only focuses on potential MEC located on the surface; therefore, the reduction achieved with Alternative 3 is not as great as with Alternative 4 or 5. The MEC removal associated with Alternative 4 only focuses on potential MEC located in a portion of the MRS; therefore, the reduction achieved with Alternatives 4 is not as great as with Alternative 5.

Implementation of Alternatives 2 through 5 would result in short-term hazards to workers involved with the MEC removal activities or the installation of warning signs because of the increased likelihood of MEC exposure. Of Alternatives 2, 3, 4, and 5, Alternatives 3 through 5 would present the greatest short-term hazards to workers because the associated MEC removal actions. In all cases, hazards to workers during implementation of the alternatives would be managed using industry standard safety procedures (e.g., using qualified UXO personnel, enforcement of safe separation distances, engineering controls, etc.), which would also minimize any associated potential risks to the surrounding community. Alternatives 2 through 5 would not cause any adverse short-term effects on the environment. The estimated timeframe for implementing the remedial actions of Alternative 2 is 2 weeks, Alternative 3 is 54 weeks, Alternative 4 is 18 weeks, and Alternative 5 is 75 weeks. Maintenance of warning signs and distribution of public educational materials will continue to be implemented annually.

**Table 2 - Comparison of Alternatives**

CERCLA Evaluation Criteria	Alternative 1 No Action	Alternative 2 LUCs	Alternative 3 Surface MEC Removal with LUCs	Alternative 4 Focused Surface and Subsurface MEC Removal and LUCs <sup>(1)</sup>	Alternative 5 Complete Surface and Subsurface MEC Removal
Protective of Human Health and the Environment	No	Yes Change in Decision Logic to Assess Risk (Unacceptable to Acceptable)	Yes Change in Decision Logic to Assess Risk (Unacceptable to Acceptable)	Yes Change in Decision Logic to Assess Risk (Unacceptable to Acceptable)	Yes Change in Decision Logic to Assess Risk (Unacceptable to Acceptable)
Complies with Applicable or Relevant and Appropriate Requirements	No	Yes	Yes	Yes	Yes
Effective and Permanent	No	Medium	High	High	Highest
Reduces Toxicity, Mobility, or Volume through Treatment	None (no treatment)	None (no treatment)	Reduction in volume of MEC on ground surface	Reduction in volume of MEC on ground surface and in subsurface in 126-acre “focused” area	Reduction in volume of MEC on ground surface and in subsurface
Short-Term Effectiveness	No short-term hazards to workers and surrounding area	Some short-term hazards to workers and surrounding area	Significant short-term hazards to workers and surrounding area	Greatest short-term hazards to workers and surrounding area	Greatest short-term hazards to workers and surrounding area
Implementable	Readily Implementable	Readily Implementable	Readily Implementable	Readily Implementable	Readily Implementable
State Acceptance	To be determined during the review of the Proposed Plan and captured in the Responsiveness Summary in the Record of Decision.				
Community Acceptance	To be determined during the review of the Proposed Plan and captured in the Responsiveness Summary in the Record of Decision.				
Cost <sup>(2)</sup>	\$0	\$639,694	\$15,128,084	\$3,344,876	\$23,256,301

(1) Conceptual “Focused Area” and “Remainder of MRS” areas are shown on Figure 4.

(2) Costs shown are based on alternative implementation duration estimates with recurring costs based on 30-year planning horizons specified in the Remedial Investigation/Feasibility Study Guidance (USEPA, 1988) for the purposes of evaluating and comparing alternatives with a 20% contingency reported as a **total present value (TPV)**. The TPV is based on a discount rate of 7 percent. Details of the cost estimates and the development of the TPVs are provided in Appendix J of the Remedial Investigation/Feasibility Study Report.



Alternatives 2, 3, 4, and 5 are all technically and administratively feasible but require (1) specialized personnel and equipment to implement MEC removal and (2) the development of detailed work plans. Additionally, ROE is required to perform any remedial action and implementation of these alternatives is dependent on landowner participation.

The cost associated with each is as follows: \$639,694 (Alternative 2), \$15.13M (Alternative 3), \$3.34M (Alternative 4), and \$23.26M (Alternative 5). Alternative 5 has the highest costs. Alternative 5 is more expensive than Alternatives 3 and 4 because it requires a complete removal of potential MEC, both surface and subsurface, while Alternative 3 only involves a surface MEC removal and Alternative 4 only involves a portion of the MRS. Alternative 2 is the least expensive of the three acceptable remedial alternatives as it does not involve a MEC removal action, only land use controls. Both Alternatives 2, 3, and 4 would require follow-on costs (i.e., operation & maintenance, periodic, or Five-Year Reviews). A summary of the detailed analysis of alternatives is shown in **Table 2**.

#### Modifying Criteria

Based on input from HDOH during the SPP Team meetings, HDOH concurs with the conclusions Remedial Investigation/Feasibility Study Report (Appendix A).

Community acceptance cannot be evaluated fully until public comments are received on the Proposed Plan (this document).

### **9.0 PREFERRED ALTERNATIVE**

The “preferred” Alternative is Alternative 4: Focused Surface and Subsurface MEC Removal and Land Use Controls.

Based on the information available at this time, ARNG and USACE believe that this alternative would be protective of humans and the environment and would achieve the

RAO of minimizing risk to human receptors from exposure to MEC. The “preferred” Alternative may be modified in response to public comments or new information.

Based on information currently available, ARNG and USACE believe the Preferred Alternative meets the threshold criteria and provides the best balance of trade offs among the other alternatives with respect to the balancing and modifying criteria. USACE expects the “preferred” Alternative to satisfy the following statutory requirements of CERCLA §121(b):

1. Protects humans and the environment;
2. Complies with ARARs;
3. Is cost-effective;
4. Utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and
5. Satisfies the preference for treatment as a principal element (or justify not meeting the preference).

### **10.0 REGULATORY PARTICIPATION**

HDOH and USACE actively participated with the ARNG to evaluate the Kanaio LTA MRS (HIHQ-006-R-01) during development of the Remedial Investigation Work Plan/UFP-QAPP and the Remedial Investigation/Feasibility Study Report. In cooperation, ARNG and USACE, in consultation with HDOH, are in mutual agreement that Alternative 4 – Focused Surface and Subsurface Removal and Land Use Controls is an appropriate decision for the MRS. Appendix A contains a letter from HDOH concurring with the Remedial Investigation/Feasibility Study Report. The July 8, 2022 HDOH letter suggests that UXO construction support be provided by the ARNG regarding construction activities by DLNR associated with creation of the anticipated wildlife management area. The

ARNG will arrange for UXO construction support related to such construction activities provided adequate advance notice and description is provided of the need and adequate funding is available to support the activity.

The proposed decision can change in response to public comment or if new information is obtained for the MRS.

## **11.0 COMMUNITY PARTICIPATION**

Public input is important to the decision-making process. Information regarding the implementation of the proposed Alternative 4 – Focused Surface and Subsurface Removal and Land Use Controls decision at the Kanaio LTA MRS (HIHQ-006-R-01) is provided to

the public through information and documents in the ARNG Administrative Record File, and announcements published in local newspapers. The public is encouraged to refer to these sources to stay informed on issues pertaining to activities at the MRS.

The dates for the public comment period and the location of the Remedial Investigation/Feasibility Study report at the local public library are provided on Page 1 of this Proposed Plan. Nearby residents and other interested parties are encouraged to use the comment period for questions and concerns about the proposed decision for the MRS. ARNG will summarize and respond to public comments in a Responsiveness Summary, which will become part of the Record of Decision.

## 12.0 ACRONYMS AND ABBREVIATIONS

AGC	advanced geophysical classification
AOI	Area of Interest
ARARs	Applicable or Relevant and Appropriate Requirements
ARNG	National Guard Bureau Army Guard Directorate
BIP	blow(n)-in-place
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESPK	(USACE) Sacramento District
cm	centimeters
DGM	Digital Geophysical Mapping
DMM	Discarded Military Munitions
DU	Decision Unit (for ISM sampling)
EA	Environmental Assessment
EOD	Explosive Ordnance Disposal (unit of US Army)
FS	Feasibility Study
HAR	Hawaii Administrative Rules
HD	high (anomaly) density
HDOH	Hawaii Department of Health
HE	high explosive
HEAT	high explosive anti-tank
HIARNG	Hawaii Army National Guard
HI DLNR	Hawaii Department of Land and Natural Resources
HRR	Historical Records Review
HUA	high-use area
ISM	Incremental Sampling Method
LAW	light anti-armor weapon (rockets)
LD	low (anomaly) density
LTA	(Kanaio) Local Training Area
LUA	low-use area
MC	munitions constituents
MD	munitions debris
MEC	munitions and explosives of concern
MPPEH	material potentially presenting an explosive hazard
mg/kg	milligrams per kilogram
mm	millimeter
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEU	no evidence of use (area)
NFA	No Further Action
PP	Proposed Plan
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RMM	Risk Management Method

ROE	right-of-entry
SCP	State Contingency Plan
SPP	Systematic Planning Process
TPV	Total Present Value
UFP-QAPP	Uniform Federal Policy-Quality Assurance Project Plan
USACE	United States Corps of Engineers
USEPA	United States Environmental Protection Agency
UU/UE	Unlimited Use/Unlimited Exposure
UXO	unexploded ordnance
VOC	volatile organic compounds

## 13.0 GLOSSARY

**Administrative Record** – A collection of documents made available to the public that includes all the information considered and relied on in selecting a remedy for a contaminated site.

**Applicable or Relevant and Appropriate Requirements (ARARs)** – Applicable requirements mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Relevant and appropriate requirements mean those cleanup standards that address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be deemed ARARs. (40 CFR 300.5).

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)** - Passed in 1980 and subsequently amended, this law provides for liability, compensation, cleanup, and emergency response in connection with the cleanup of inactive hazardous waste disposal sites that endanger public health and safety of the environment.

**Contaminant** – A compound or element that upon exposure will or may reasonably be anticipated to cause certain specified harmful health effects.

**Feasibility Study (FS)** - A document that describes and evaluates potential cleanup alternatives for a contaminated site based on data and risk assessments documented in the RI.

**Land use controls:** Government ordinances, codes, and permit requirements that restrict the private use of land and natural resources. The primary private land-use control is deed restrictions, limiting what can be done on the property by the owner. Land use controls also include public education and warning signs.

**Military Munitions Response Program (MMRP)**: A program under the Defense Environmental Restoration Program that addresses training ranges that are no longer used but suspected or known to contain munitions or contamination from munitions.

**Munitions Response Site (MRS)**: A site that was formerly used as a military training range or for munitions disposal but is no longer in use. An MRS may contain munitions and/or munitions contamination.

**Munitions and Explosives of Concern (MEC)** - This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means unexploded ordnance, discarded military munitions, or munitions constituents (for example, TNT) that are present in high enough concentrations to pose an explosive hazard.

**Munitions Constituents (MC)** – Materials that originate from ordnance or other military munitions such as bullets.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** - A set of federal regulations that provide the organizational structure and procedures for preparing for and responding to discharges of oils and releases of hazardous substances, pollutants, or contaminants into the environment. (See 40 CFR Part 300).

**Preferred Alternative** – The alternative that, when compared to other alternatives, best meets the Comprehensive Environmental Response, Compensation, and Liability Act evaluation criteria,

and is proposed for implementation at a site.

**Total Present Value (TPV)** – The current value of a future sum of money.

**Proposed Plan (PP)** - A document used to facilitate public involvement in the remedy selection process for a CERCLA contaminant release site. The document presents the lead agency's preliminary recommendation concerning how best to address contamination at a site.

**Record of Decision** - A legal document that certifies that the remedy selection process was carried out in accordance with CERCLA and the NCP, that documents the cleanup action or remedy selected for a site, the basis for the choice of that remedy, and public comments received on the Proposed Plan.

**Remedial Action Objective** – A site-specific objective developed based on evaluation of potential risks to human health and the environment for future protection of environmental resources.

**Remedial Investigation (RI)** - A study of a contaminant release site that includes data collection and analysis to determine 1) the nature and extent of the contamination, 2) the potential risks to human health and the environment from that contamination, and 3) whether or not remedial action is warranted.

**Responsiveness Summary** – A summary of responses to comments made by the public during the public comment period.

**Risk** - A measure of the probability that damage to life, health, property, and/or the environment will occur as a result of a given hazard.

**Systematic Project Planning** - Systematic Project Planning is a rigorous project planning process that lays a scientifically defensible foundation for proposed project activities. The Systematic Project Planning Team consists of ARNG, USACE, HDOH, the landowner (HI DLNR), and the contracted company performing the work.

**Uniform Federal Policy - Quality Assurance Project Plan (UFP-QAPP)** – a comprehensive planning document that addresses the complete scope of a project, from planning through implementation, sampling design, analytical laboratory performance, assessment, data validation and verification, data usability, and reporting.

## 14.0 DOCUMENT REFERENCES

- Code of Federal Regulations (CFR). Revised 2014. Applicable Sections of Title 40, Part 300, National Oil and Hazardous Substances Pollution Contingency Plan.
- HIARNG, 1996. Final Ordnance Removal Plan, Hawaii Army National Guard, Kanaio Impact Range, Ulupalakua, Maui. Prepared by Ogden Environmental and Energy Services Co., Inc. July.
- HIARNG, 1999. After Action Report Ordnance Removal, Hawaii Army National Guard, Kanaio Training Area, Ulupalakua, Maui. Prepared by Goodfellow Brothers, Inc. (GBI).
- HIARNG, 2004. UXO Survey and Disposal Report Kanaio Training Area, Kanaio, Hawaii. Prepared by AMEC Earth & Environmental, Inc. (AMEC). Honolulu, HI: HIARNG. April.
- HIARNG, 2005. UXO Survey and Disposal Report Phase 3 Addendum, Kanaio Training Area, Kanaio, Hawaii. Prepared by AMEC Earth & Environmental, Inc. (AMEC). Honolulu, HI: HI-ARNG. January.
- Na Ali'i Consulting and Sales LLC, 2017. Final Munitions Response Historical Records Review, Army National Guard Military Munitions Response Program, Site Inspection, Kanaio Local Training Area, Maui, Hawaii.
- Na Ali'i Consulting and Sales LLC, 2018. Final Site Inspection Report, Army National Guard Military Response Program, Site Inspection, Kanaio Local Training Area, Maui, Hawaii. August.
- Parsons, 2021. Final Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP), Remedial Investigation (RI)/Feasibility Study (FS), Kanaio Local Training Area (Area 1 and Area D) Revision 4, Maui, Hawaii. March.
- Parsons 2022. Final Remedial Investigation /Feasibility Study Report, Kanaio Local Training Area (Area 1 and Area D) AEDB-R Site ID HIHQ-006-R-01, Maui, Hawaii, April 2022.
- U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM, 2003). ARNG Range Assessment No. 38-EH-00WVa-03 Hawaii Army National Guard Kanaio. Training Area, Ulupalakua, Maui, Hawaii 20-28 February 2003.
- U.S. Environmental Protection Agency (USEPA), 1988. Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, October 1988, OSWER Directive 9355.3-01, EPA/540/G-89/004, <http://www.epa.gov/superfund/policy/remedy/pdfs/540g-89004-s.pdf>

## APPENDIX A

### Hawaii Department of Health Concurrence Letter



DAVID Y. IGE  
GOVERNOR OF HAWAII



ELIZABETH A. CHAR, M.D.  
DIRECTOR OF HEALTH

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

In reply, please refer to:  
File:  
184820 SL

July 7, 2022

Mr. Rob Halla  
Army National Guard Directorate  
ATTN: ARNG-ILE  
111 S. George Mason Drive  
Arlington, Virginia 22204  
(sent via e-mail to: [walter.r.halla2.civ@army.mil](mailto:walter.r.halla2.civ@army.mil))

Facility/Site: **HIARNG Kanaio Local Training Area**

Subject: **Review of on FINAL REMEDIAL INVESTIGATION /  
FEASIBILITY STUDY REPORT, Kanaio Local Training Area (Area  
1 and Area D), AEDB-R Site ID HIHQ-006-R-01 dated April 2022**

Dear Mr. Halla:

The Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office has reviewed the Final Remedial Investigation/Feasibility Study (RI/FS) Report referenced above and has determined that all previous comments have been adequately resolved. HDOH has no further comments at this time. A copy of this Final RI/FS report has been added to our database. Please proceed to prepare a Proposed Plan for this project.

If you have any questions, please do not hesitate to contact me at 808-586-5815 or via e-mail at [sven.lindstrom@doh.hawaii.gov](mailto:sven.lindstrom@doh.hawaii.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Sven Lindstrom".

Sven Lindstrom  
Voluntary Cleanup Program Specialist  
Site Discovery, Assessment, and Remediation  
Hazard Evaluation and Emergency Response Office  
Hawaii Department of Health

cc: Don Silkebakken (via e-mail)

DAVID Y. IGE  
GOVERNOR OF HAWAII



ELIZABETH A. CHAR, M.D.  
DIRECTOR OF HEALTH

**STATE OF HAWAII**  
**DEPARTMENT OF HEALTH**  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

In reply, please refer to:  
File:  
**196534 SL**

August 4, 2022

Mr. Rob Halla  
Army National Guard Directorate  
ATTN: ARNG-ILE  
111 S. George Mason Drive  
Arlington, Virginia 22204  
(sent via e-mail to: [walter.r.halla2.civ@army.mil](mailto:walter.r.halla2.civ@army.mil))

Facility/Site: **HIARNG Kanaio Local Training Area**

Subject: **Review of Responses to Comments and Revised Draft Final Proposed Plan, Kanaio Local Training Area, Military Munitions Response Program, Munitions Response Site, Hawaii, AEDB-R Site ID HIHQ-006-R-01, received July 25, 2022**

Dear Mr. Halla:

The Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office has reviewed the Responses to Comments and red-lined Revised Draft Proposed Plan referenced above and has determined that all previous comments have been satisfactorily addressed. HDOH has no additional comments at this time. Please finalize the Proposed Plan and provide a PDF copy for our records.

If you have any questions, please do not hesitate to contact me at 808-586-5815 or via e-mail at [sven.lindstrom@doh.hawaii.gov](mailto:sven.lindstrom@doh.hawaii.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Sven Lindstrom".

Sven Lindstrom  
Voluntary Cleanup Program Specialist  
Site Discovery, Assessment, and Remediation  
Hazard Evaluation and Emergency Response Office  
Hawaii Department of Health

cc: Don Silkebakken (via e-mail)