

**FINAL**

**DECISION DOCUMENT**

**WAIKANE TRAINING AREA  
WESTERN/MOUNTAINOUS REGION MRS  
KANEOHE, OAHU, HAWAII  
RMIS ID: H09HI035403**

**Task Order: 0025**



**Prepared by:**

**U.S. Army Engineering and Support Center,  
Huntsville**

**and**

**U.S. Army Corps of Engineers, Honolulu District**

**MAY 2014**

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**Former Waikane Training Area  
Western/Mountainous Region MRS  
Kaneohe, Oahu, Hawaii  
RMIS ID: H09HI035403**

CONTRACT: W912DY-04-D-0007  
TASK ORDER: 0025

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## **EXECUTIVE SUMMARY**

ES.1 This Decision Document (DD) presents the selected remedy for the Western/Mountainous Region Munitions Response Site (MRS) (RMIS ID H09HI035403).

ES.2 The Western/Mountainous Region MRS is within the Former Waikane Training Area (WTA), Formerly Used Defense Sites (FUDS) Property No. H09HI0354. This MRS is comprised of 692 acres located in Waikane Valley in the District of Koolaupoko on the windward side of the island of Oahu, Hawaii (Figure 1). From 1942 to 1976, Department of Defense (DoD) used the former WTA as a training and artillery impact area. Live fire at the former WTA reportedly ceased in the early 1960s, but numerous types of munitions and explosives of concern (MEC) have since been recovered from the WTA. Historical information related to the former use of the Western/Mountainous Region MRS as training and artillery impact area resulted in the potential for MEC being present on site. Prior investigations confirmed no MEC and only a single item of munitions debris (MD), other than that related to small arms ammunition, were recovered within accessible areas of the Western/Mountainous Region MRS. There is limited physical evidence of MEC, and accessible areas within this MRS do not appear to have been affected by concentrated munitions use.

ES.3 The Western/Mountainous Region MRS is privately owned land and is comprised of undeveloped densely forested lands. The majority of the area consists of extremely rugged terrain that limits accessibility due to steep gulches, canyons, rocky outcrops, and mountains rising over 2,200 feet above sea level. The heavy vegetation stabilizes the soil and controls potential erosion in the MRS. Reasonably anticipated future land use includes agricultural (forest restoration and taro farming) and recreational (unauthorized hunting and motocross/all-terrain vehicle [ATV]). Although this area does not appear to have been affected by concentrated munitions use, and exposure to explosive hazards in these areas is unlikely, the potential for explosive hazards cannot be completely dismissed due to the impracticality of safely investigating many areas of the MRS.

ES.3 The Remedial Action Objective (RAO) is to limit or mitigate an interaction between a receptor and potential MEC items remaining in the MRS. The selected remedy is chosen to satisfy the RAO. Land Use Controls (LUCs) will be implemented and maintained by the U.S. Army Corps of Engineers (USACE) to inform the landowner and community of a potential hazard and provide education with regard to proper safety and reporting procedures in the event that MEC is encountered. In developing the RAO, current and future land use was taken into account.

ES.4 The selected remedy for the Western/Mountainous Region MRS is Implementation of LUCs. LUCs will include a community MEC awareness training and distribution of informational documents. Five-year reviews will be conducted to ensure the selected remedy remains effective in protecting human health and the environment.

ES.5 The selected remedy is protective of human health and the environment and is cost effective. The total estimated present worth cost of implementing LUCs over 30 years at the Western/Mountainous Region MRS is approximately \$747,170 and represents approximately

16% of the total estimated cost-to-complete response actions for the entire FUDS property. The funds for the implementation of LUCs are required for Fiscal Year 2015.

ES.6 The No Action alternative was considered but judged to be unprotective of human health, specifically, for limited accessible areas where it was impractical to safely investigate and determine if a MEC hazard source is present. Other alternatives, such as Surface and Subsurface MEC Remediation and Implementation of LUCs were not considered. Subsurface Clearance to Support Unlimited Use was considered; however, was eliminated from further evaluation during the initial screening of the alternatives during the Feasibility Study. Based on the results of the EE/CA and the Remedial Investigation (RI), neither physical evidence nor evidence of concentrated munitions within the accessible areas were confirmed in the MRS. Munitions constituents (MC) do not pose an unacceptable risk to human health and the environment and no further action is recommended for MC at the Western/Mountainous Region MRS.

ES.7 The expected result of implementing this remedy is to provide an effective means of influencing behavior to reduce the risk of incident and exposure if potential MEC is encountered for current and reasonably anticipated future land use activities based on best available information at this time.

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## **ABBREVIATIONS AND ACRONYMS**

ARARs	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	chemical of concern
COPC	Chemical of Potential Concern
CSM	conceptual site model
DD	Decision Document
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EAL	Environmental Action Level
EE/CA	Engineering Evaluation/Cost Analysis
FRMS	FUDS Record Management System
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
FUDSMIS	Formerly Used Defense Sites Management Information System
HDOH	State of Hawaii, Department of Health
HE	High explosive
HEAT	High explosive anti-tank
LUC	land use control
MC	munitions constituent
MD	munitions debris
MEC	munitions and explosives of concern
MEC HA	MEC Hazard Assessment
mm	millimeter
MRS	munitions response site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NTCRA	Non-Time Critical Removal Action
RAB	Restoration Advisory Board
RAO	remedial action objective
RI	Remedial Investigation
SI	Site Inspection
TAL	Target Analyte Metals
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
USEPA	U.S. Environmental Protection Agency
USMC	U.S. Marine Corps
UU/UE	unlimited use/unrestricted exposure
UXO	unexploded ordnance
WTA	Waikane Training Area
WVTA	Waikane Valley Training Area
ZAPATA	Zapata Incorporated

## **1.0 PART 1: THE DECLARATION**

### **1.1 PROJECT NAME AND LOCATION**

The Western/Mountainous Region MRS (RMIS ID: H09HI035403) is located in the western portion of the WTA Formerly Used Defense Site (FUDS Property No. H09HI0354). The former WTA is located in Waikane Valley in the District of Koolaupoko on the windward side of the island of Oahu, Honolulu County, Hawaii. The location of the MRS is shown on Figure 1.

### **1.2 STATEMENT OF BASIS AND PURPOSE**

1.2.1 This Decision Document is being presented by the USACE to describe the Department of Defense (DoD) selected remedy for the Western/Mountainous Region MRS of the former WTA in Honolulu County, Hawaii. The FUDS Charter designated the Army as the Executive Agent on behalf of the DoD charged with meeting all applicable environmental restoration requirements at FUDS, regardless of which DoD component previously owned or used the property. The Secretary of the Army further delegated the program management and execution responsibility for FUDS to the USACE. The USACE is the lead agency for investigating, reporting, evaluating and implementing remedial actions at the Western/Mountainous Region MRS.

1.2.2. This Decision Document is a requirement of Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S. Code (USC) § 9617), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), also known as Superfund, and follows the requirements of USACE Engineer Regulation 200-3-1, *Formerly Used Defense Site Program Policy*, and the United States Environmental Protection Agency (USEPA) guidance provided in EPA 540-R-98-031, *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*.

1.2.3. The remedy described in this Decision Document was selected in accordance with CERCLA, 42 USC § 9601 et seq., as amended, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300. The State of Hawaii, Department of Health (HDOH) has reviewed the Proposed Plan and provided no comment on the acceptability of the selected remedy. The Administrative Record provides supporting documentation for this decision.

### **1.3 ASSESSMENT OF PROJECT MRS**

1.3.1 Historical information related to the former use of the WTA as a training and artillery impact area indicated the potential for MEC to be present on the Western/Mountainous Region MRS. However, prior investigations found no MEC and only a single item of MD, other than that related to small arms ammunition, within accessible areas of the MRS. This limited physical evidence of MEC indicates that accessible areas within the MRS were not likely affected by concentrated munitions use and that a complete MEC exposure pathway is unlikely in these areas due to the probable lack of a source. However, the extreme topography of the MRS makes much of it inaccessible, and consequently no further field investigations were conducted during the Remedial Investigation (RI). As a result, the inaccessible areas of the MRS cannot be characterized with confidence, and the possibility that an isolated explosive hazard exists within the MRS cannot be completely dismissed.

#### **1.4 DESCRIPTION OF SELECTED REMEDY**

1.4.1 The response action selected in this Decision Document is necessary to protect the public health and welfare or the environment from potential interaction with unexploded ordnance (UXO), if encountered. The selected remedy for addressing potential hazards at Western/Mountainous Region MRS is Implementation of Land Use Controls which involves the following component:

- Implementation of LUCs in the form of community MEC awareness training and distribution of informational documents.

1.4.2 LUCs will be implemented and maintained by the USACE and will include community MEC awareness training and distribution of informational documents. The City and County of Honolulu, Department of Planning and Permitting is willing to participate in implementing the selected remedy by attaching informational documents with approved building permits for the parcel. The City and County of Honolulu, Department of Emergency Management is willing to maintain and reproduce copies of the informational documents in accordance with Emergency Planning and Community Right-to-Know Act. The Landowner is accepting of the selected remedy.

#### **1.5 STATUTORY DETERMINATIONS**

1.5.1 In accordance with CERCLA §121, the selected remedy is protective of human health and the environment; complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action; and is cost effective. Permanent solutions and alternative treatment technologies are not being used, and the selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy, because the steep topography poses a safety hazard to response personnel, preventing access to the areas where MEC could potentially be present. The selected remedy will reduce the associated hazard to human receptors through education resulting from a community MEC awareness training and distribution of informational documents.

1.5.2 The NCP, at 40 CFR 300.430(f)(4)(ii), requires five-year reviews if the remedial action results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure. Because the selected remedy may result in pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment. Statutory reviews will continue to be conducted no less often than every five years.

#### **1.6 DATA CERTIFICATION CHECKLIST**

1.6.1 The following information is included in the Decision Summary section of this Decision Document. Additional information can be found in the Administrative Record file.

- A summary of MEC and MC found at Western/Mountainous Region MRS;
- Baseline hazard represented by MEC;
- How MEC will be addressed;



- Current and reasonably anticipated future land use assumptions;
- Total present worth costs and the number of years over which the remedy cost estimates are projected; and
- Key factors that led to selecting the remedy.

1.6.2 The risk assessment concluded that the potential for adverse risks to human health or ecological receptors from exposure to MC in soil and sediment are considered negligible at the former WTA. No further action is recommended for MC. As such, the following information is not included in this Decision Document:

- MC and their respective concentrations;
- Baseline risk represented by the MC;
- Cleanup levels established for MC and the basis for these levels;
- How MC will be addressed; and
- Current and potential beneficial uses of groundwater used in the baseline assessment and decision document.

#### 1.7 AUTHORIZING SIGNATURES

This Decision Document presents the selected response action for Western/Mountainous Region MRS (RMIS ID H09HI035403) at the Former Waikane Training Area, Honolulu County, Hawaii. The U.S. Army Corps of Engineers is the lead agency under the Defense Environmental Restoration Program at the former Waikane Training Area, and has developed this Decision Document consistent with Comprehensive Environmental Response, Compensation, and Liability Act, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan. This Decision Document will be incorporated in the larger Administrative Record file for the former Waikane Training Area, which is available for public view at the Kaneohe Public Library, 45-829 Kamehameha Highway, Kaneohe, HI 96744 and at KEY Project, 47-200 Waihee Road, Kaneohe, HI 96744. This document, presenting a selected remedy with a present worth cost of \$747,170, is approved by the undersigned, pursuant to Memorandum, DAIM-ZA, September 9, 2003, subject: Policies for Staffing and Approving Decision Documents, and to Engineer Regulation 200-3-1, FUDS Program Policy.

APPROVED:

  
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Christopher W. Crary  
Lieutenant Colonel, U.S. Army  
District Engineer

Date: 26 Sep 14

## **2.0 PART 2: THE DECISION SUMMARY**

### **2.1 PROJECT NAME, LOCATION, AND BRIEF DESCRIPTION**

2.1.1 The former WTA, Formerly Used Defense Site Property Number H09HI0354, is located in Waikane Valley in the District of Koolaupoko on the windward side of the island of Oahu, Honolulu County, Hawaii. The former WTA was a portion of the Waikane Valley Training Area (WVTA). The WVTA consisted of approximately 1,061 acres that were used by the Department of Defense as a training and artillery impact area. The former WTA covers approximately 933 acres of the WVTA and consists of three MRSs (Southeastern Region MRS, Southern Impact Region MRS, and Western/Mountainous Region MRS). Figure 1 presents the location of the former WTA and the MRSs. The remainder of the WVTA is currently owned by the U.S. Marine Corps (USMC) and is therefore not an eligible property under the Defense Environmental Restoration Program-Formerly Used Defense Sites (DERP-FUDS) program. This Decision Document addresses the Western/Mountainous Region MRS (RMIS ID: H09HI035403).

2.1.2 The Western/Mountainous Region MRS is presently owned by a single private entity. The Western/Mountainous Region MRS (692 acres) is bordered to east by the Southern Impact Region MRS and the Southeastern Region MRS. The majority of the area is composed of dense vegetation and very steep slopes. Site access by the general public is limited due to the rugged terrain and dense vegetation.

### **2.2 PROJECT HISTORY**

2.2.1 In 1942, the Department of the Army entered into a lease agreement with Lincoln L. McCandless heirs and Waiahole Water Company, Ltd. for the right to use approximately 1,061 acres in Waikane Valley for advanced offensive warfare training and air-to-ground practice bombing due to the valley's geographical location and terrain. Between 1943 and 1953, the Army used this property for maneuvers, jungle training, and small arms, artillery, and mortar firing. Authorization for the Army to use Waikane Valley continued until July 1953, when the USMC was substituted as lessee. USMC training consisted of small arms fire, 3.5-inch rockets, and possibly medium artillery fire. Due to fire hazards, incendiaries were prohibited and all ammunition in excess of .50 caliber was to be fired into the designated impact area. The USMC leased the property from 1953 until 1976. Live fire reportedly ceased in the early 1960s.

2.2.2 In 1944, while the site was an active training area, a 60mm High Explosive (HE) mortar was discovered in Waikane Valley. The accidental detonation of that mortar killed two individuals and injured two others. Three children were injured in 1963 when a souvenir rifle grenade, reportedly discovered in Waikane Valley, exploded after it was thrown against a wall. There are no other reports of fatalities or injuries attributable to MEC discovered at Waikane Valley.

2.2.3 In 1989, the United States acquired title to the USMC property. Consequently, the USMC property is not eligible for cleanup under the FUDS program. Instead, it is currently being investigated by the USMC under the Military Munitions Response Program.

## **2.3 PREVIOUS INVESTIGATIONS AND REMOVAL ACTIONS**

### ***2.3.1 1976 and 1984 Surface Clearance***

Two EOD sweeps of artillery impact areas at the WTA have taken place, one in August 1976 and the other from February to April 1984. These clearances recovered as much as 40,000 pounds of demilitarized practice ordnance as well as 37mm and 75mm high explosive rounds, 60mm mortars, 2.36 and 3.5-inch High explosive anti-tank (HEAT) rockets, M28 HEAT grenades, and M9A1 AT rifle grenades, which were summarily destroyed.

### ***2.3.2 1990 Archaeological Survey***

In 1990, an archaeological survey was conducted south and west of the USMC property. Three MEC items were identified in what is now called the Southern Impact Region MRS.

### ***2.3.3 Inventory Project Report (INPR) 1996 and Supplement 2004***

The INPR was approved in 1996, followed by an INPR Supplement in 2004. These documents established the Waikane Training Area as a FUDS, established a site boundary, defined the past usage, and assigned the former WTA FUDS Project No. H09HI0354. Based on the historic use of the site, the INPR recommended further action.

### ***2.3.4 2006 Engineering Evaluation/Cost Analysis***

An EE/CA evaluating MEC hazard within the 933-acre former WTA was conducted in 2006 (*Final Engineering Evaluation/Cost Analysis Report, Former Waikane Valley Training Area, Island of Oahu, Hawaii, November 2008*). During the EE/CA, 150 grids (100-ft by 100-ft) and nine miles of transects (three feet wide) were investigated. Seven MEC items were recovered: two 81mm HE mortar rounds, three 60mm HE mortar rounds, and two 37mm HE projectiles. All of the MEC items were recovered in the southeastern portion of the former WTA, which adjoins the southern boundary of the USMC property. According to field observations made during the EE/CA fieldwork, most of the former WTA appeared to have been used for foot maneuvers as evidenced by the significant amount of small arms throughout the valley. The former WTA was divided up into the four regions during the EE/CA with an outcome of three recommended MRSs at completion. Combining the Western and Mountainous Regions into a single MRS was recommended to reflect the new and more accurate information obtained during the EE/CA (i.e., similar geographic setting, rights-of-entry, land use, anticipated response, hazard/risk management, etc.).

### ***2.3.5 2008 Abbreviated Site Investigation***

An abbreviated Site Investigation (SI) focusing on the FUDS property was conducted in 2008 by the USACE. The sampling team collected two multi-incremental soil samples in areas where MEC was found during the EE/CA, and collected two co-located surface water and sediment samples from Waikane Stream, downstream of locations where MEC was found. The samples were analyzed for Target Analyte Metals (TAL) metals and explosives. Resulting Chemicals of Potential Concern (COPC) identified in the SI were chromium, iron, vanadium, cobalt, mercury, and RDX.

### **2.3.6 Former Waikane Training Area RI/FS and Proposed Plan**

2.3.6.1 In 2011, USACE conducted a Remedial Investigation (RI) at the former WTA in Waikane Valley to determine the nature and extent of MEC and MC contamination in order to adequately characterize the area (*Final Remedial Investigation Report for the Former Waikane Training Area, Kaneohe, Oahu, Hawaii, August 2012*). Transects generally traversed the Southern Impact Region MRS and Southeastern Region MRS in a west to-east direction and extended into the Western/Mountainous Region MRS. Approximately 6.47 acres (3-foot path width) were investigated and was comprised of over 17.8 miles of transect coverage. Based on the results of analog-and-dig transect surveys, an additional 0.82 acres (57 individual 25-foot x 25-foot grids) of geophysical grids were intrusively investigated. However, the majority of Western/Mountainous region is inaccessible due to slopes exceeding 30 degrees and the project delivery team agreed that a complete MEC exposure pathway (i.e., lack of MEC source, receptor, and receptor acting upon MEC item) was unlikely in this MRS.

2.3.6.2 During the RI, a total of 5,341 anomalies were identified and intrusively investigated. The items recovered included over 3,400 items of MD but no MEC. The MD included remnants of 37mm and 75mm projectiles, 60mm and 81mm HE mortars, 3.5-inch rockets, hand grenades, rifle grenades, trip flares, expended fuzes, and small arms ammunition, and other unidentifiable munitions fragments. The Western/Mountainous Region MRS area contained primarily MD from small arms ammunition.

2.3.6.3 MC sampling was also conducted to support the RI; discrete subsurface soil, multi-incremental soil (MIS) samples and discrete sediment samples were collected from the MRS. These were analyzed for explosives constituents, including nitroglycerine and PETN, using sample preparation and analysis methodology outlined in EPA Method 8330B. In addition, samples were analyze for selected metals (copper and lead) using EPA Method 6010C. Confirmation soil sampling was performed in the area where the highest lead concentration was measured.

2.3.6.4 Groundwater in this area is not expected to be part of a complete exposure pathway to receptors at this site, therefore was not sampled.

2.3.6.5 During the RI, a risk assessment was conducted to determine the human health and ecological risks associated with potential MC exposure at the Western/Mountainous Region MRS. Based on the MC analytical results, the risk assessments concluded that the potential for adverse risks to human health or ecological receptors from exposure to MC is negligible. Therefore, MC do not pose an unacceptable risk to human health and the environment and no further action is recommended for MC.

2.3.6.6 The Feasibility Study (FS) developed and evaluated effective remedial alternatives using the result from the RI (*Final Feasibility Study Report for the Former Waikane Training Area, Kaneohe, Oahu, Hawaii, June 2013*). The Proposed Plan was presented by the U.S. Army Corps of Engineers USACE to facilitate public involvement to review and comment in the remedy selection process for the former WTA.

### **2.3.7 Removal Action**

2.3.7.1 A Non-Time Critical Removal Action (NTCRA) Action Memorandum (*Former Waikane Training Area Action Memorandum, Non-Time Critical Removal Action, Island of Oahu, Hawaii, June 2009*) was developed upon finalization of the EE/CA. As was noted, a clearance to depth of detection was the recommended alternative for approximately 14.9 acres and 26.2 acres encompassing areas where MEC and relatively high MD concentrations were found in the Southern Impact Region MRS and Southeastern Region MRS, respectively. It was determined during the EE/CA that a response action was not required for the Western/Mountainous Region MRS.

2.3.7.2 A NTCRA was conducted in 2011 and occurred in 7.3 acres of the Southern Impact Region MRS, 32.6 acres of the Southeastern Region MRS, and 0.5 acres of unimproved road surface area spanning the two MRSs; the results were presented the Site Specific Final Report, Munitions and Explosives of Concern Removal Action and Supporting Functions, Waikane Training Area, Island of Oahu, Hawaii, 2012.

## **2.4 CERCLA ENFORCEMENT ACTIONS**

2.2.4.1 No CERCLA enforcement actions have taken place at the Western/Mountainous Region MRS.

## **2.5 COMMUNITY PARTICIPATION**

2.5.1 A Public Involvement Plan was prepared in April 2010 to facilitate dialogue between the USACE and residents of the surrounding community regarding the RI/FS activities at the former WTA. Fact sheets were prepared in August 2010 and distributed to property owners and tenants, citizen groups, environmental groups, area businesses, regulatory officials, elected/civic officials, and local and regional media to address concerns expressed by the local community and update the status of studies and removal actions.

2.5.2 A Restoration Advisory Board (RAB) was formed in 2011 to increase public awareness and encourage open communication with the community. The first RAB meeting was held in April 2011. Subsequent RAB meetings have been held in May 2011, June 2011, July 2011, September 2011, April 2012, February 2013 and June 2013 to keep the public informed of ongoing activities at the former WTA. During these RAB meetings the reasonably anticipated future land uses were determined by input from landowners.

2.5.3 The RI Report, FS Report, and Proposed Plan for the former WTA Western/Mountainous Region MRS were made available to the public for commenting and are available in the Administrative Record file, which is located at the Kaneohe Public Library, 45-829 Kamehameha Highway, Kaneohe, Hawaii 96744 as well as online (i.e., KEY project) and at the USACE-Honolulu District Office. The Proposed Plan was issued on 19 June 2013, and a public meeting was held at the Waiahole Elementary School, Waiahole, Hawaii on 19 June 2013. The notice of the public meeting and the availability of the Proposed Plan was published on 13 June 2013 in the Honolulu Star-Advertiser, military newspapers and MidWeek Magazine, which all circulate in the City and County of Honolulu, State of Hawaii. Oral and written comments were

solicited at the meeting and accepted during a public comment period from 19 June 2013 through 19 July 2013. No comments were received.

## **2.6 SCOPE AND ROLE OF RESPONSE ACTION**

2.6.1 The former WTA is comprised of three MRSs. This Decision Document addresses only the Western/Mountainous Region MRS. The Southeastern Region MRS and Southern Impact Region MRS will be addressed in separate Decision Documents.

2.6.2 The selected remedy for the Western/Mountainous Region MRS is protective of human health and the environment through eliminating, reducing, or controlling potential MEC exposure hazards at the site by utilizing land use controls. These controls will provide a community MEC awareness training and distribution of informational documents to land users on past military-related activities and information regarding appropriate responses, if munitions are encountered. The risk assessment concluded that the potential for adverse risks to human health or ecological receptors from exposure to MC in soil and sediment are considered negligible in the Western/Mountainous Region MRS. No further action is recommended for MC. Implementation of this remedy can occur within three to six months with ongoing distribution of materials. It is anticipated that fact sheets will be prepared and distributed to the community with subsequent MEC awareness training. The selected remedy will be implemented under the authority of the USACE.

## **2.7 PROJECT MRS CHARACTERISTICS**

### **2.7.1 Site Characteristics**

2.7.1.1 Site hazards were evaluated in terms of a Conceptual Site Model that consists of a source of contamination, a receptor, and interaction at the exposure point or exposure pathways (Figures 2 and 3). Within this model, the sources would consist of MEC in the environment. Receptors include adults and children, workers associated with agriculture or construction, recreational users, and visitors.

2.7.1.2 The Western/Mountainous Region MRS (approximately 692 acres) is bordered to the east by the Southern Impact Region MRS and the Southeastern Region MRS (Figure 1). The entire MRS is privately owned by a single entity and is comprised of undeveloped steep terrain and densely forested lands. The site contains areas with limited accessibility resulting from the rugged terrain and dense vegetation. Reasonably anticipated future land use includes agricultural (forest restoration and taro farming) and recreational use (such as hiking, hunting, motocross, etc.).

2.7.1.3 The Waikane-Waikeekie Stream system is the primary stream network passing through the MRS. The Waikane and Waikeekie Streams originate at Koolauloa Mountain Range and are fed by spillway tunnels associated with the Waiahole Ditch Tunnel Network. The Waikane and Waikeekie Streams combine and drain into Kaneohe/Koolau Bay. The tunnel network was completed in 1916 to transport water to the leeward side of the island for irrigation. The area is well drained, generally to the east, with no wetlands except along the creek banks near the streams outlets.

2.7.1.4 Encounters with species listed as threatened or endangered under the Endangered Species Act are possible since there is the potential for such wildlife to be present in areas within the former WTA. Efforts were made to avoid, minimize or mitigate any potential impacts during performance of the fieldwork. There are numerous threatened and endangered species on Oahu; threatened and endangered species that may potentially occur within the Waikane site include:

- Newell's Shearwater (*Puffinus auricularis newelli*) - threatened. This seabird breeds in burrows dug into steep mountain slope areas that are usually sheltered by 'uluhe. Otherwise it spends most of its life at sea.
- Oahu Elepaio (*Chasiempis ibidis*) – endangered. These little wren-like flycatchers occur in a variety of forest types and across a range of elevations, primarily in valleys and particularly those with tall riparian vegetation, a continuous canopy, and dense understory. Populations have seriously declined in recent decades on Oahu.
- Snail Species (*Achatinella spp.*) - endangered. These small tree snails are isolated on Oahu's mountain ridges spend almost their entire lives on one tree (usually an 'ohia or kopiko tree) and feed on a type of fungus that grows on the leaves.

2.7.1.5 A number of culturally significant and archeological sites exist within the Western/Mountainous Region MRS. A field archaeologist accompanied project field personnel on all field activities to identify cultural resources and make recommendations to avoid or mitigate any potential impacts during field activities. There were no impacts to culturally significant or archeological sites during the field activities.

## **2.7.2 Sampling Strategy**

2.7.2.1 Transects near the southeastern boundary of the MRS were positioned generally in a west-to-east direction and were evaluated using an analog instrument (MineLab Explorer SE PRO Series metal detector) with intrusive anomaly investigation. As previously described, the majority of Western/Mountainous Region MRS has limited accessibility.

2.7.2.2 MC sampling was also conducted to support the RI; discrete subsurface soil, multi-incremental soil (MIS) samples and discrete sediment samples were collected from the Western/Mountainous Region MRS. Samples were collected from August 15 through 31, 2011. These were analyzed for explosives constituents, including nitroglycerine and PETN, using sample preparation and analysis methodology outlined in EPA Method 8330B. In addition, samples were analyze for selected metals (copper and lead) using EPA Method 6010C.

2.7.2.3 MIS sampling was conducted in 100-ft x 100-ft decision units (DUs) and were collected in triplicate (one primary and two replicates). Samples were collected from a total of three DUs within the Western/Mountainous Region MRS. Each sample consisted of approximately 50 increments collected at randomly selected, evenly-spaced points along parallel lines traversing the DU at a depth of approximately 2-in. below ground surface.

2.7.2.4 A total of three discrete subsurface soil (not accounting for QC/QA samples) samples were collected within the MRS from a depth of 0.5 to 1-ft below ground surface. Discrete subsurface soil samples were collected across the MRS with the majority of the samples being collected within DUs chosen for MIS samples.

2.7.2.5 Fourteen sediment samples (not accounting for QC/QA samples) were collected from selected areas upstream and downstream along the Waikane and Waikēē Streams (and respective branches) to delineate potential MC.

2.7.2.6 Groundwater in this area is not expected to be part of a complete exposure pathway to receptors at this site, therefore was not sampled.

### **2.7.3 *Western/Mountainous Region MRS Contamination***

2.7.3.1 Based on the results of the EE/CA and RI field work, no MEC items have been observed in the Western/Mountainous Region MRS nor was there evidence of concentrated munitions use within accessible areas of the MRS. Exposure to explosive hazards in accessible areas is considered unlikely.

2.7.3.2 Areas with limited accessibility are present throughout the MRS where it is impractical to safely investigate and determine if a MEC hazard source is present. As such, the potential for explosive hazards cannot be completely dismissed in these areas.

2.7.3.3 MC concentrations above the HDOH Environmental Action Level (EAL) were not detected in soil or sediment samples collected from the Western/Mountainous Region MRS. As such, MC do not pose an unacceptable risk to human health and the environment and no further action is recommended for MC.

### **2.7.4 *Location of Contamination and Routes of Migration***

2.7.4.1 Waikane Training Area was one of several sites utilized for advanced training of most units preparing for combat operations in the Pacific basin during World War II. Emphasis in training was placed almost entirely on offensive warfare. The training area was also reportedly used for air-to-ground practice bombing during that period.

2.7.4.2 If present, MEC may remain for long periods of time. Several factors influence the possible migration of MEC from the site. The possibility exists for human activity resulting in redistribution of MEC items. Another factor involves the movement of smaller MEC items by overland water flow, particularly in drainages and low-lying areas subject to periodic flooding. There is no potential for MC contamination migration due to the lack of a source.

## **2.8 *CURRENT AND FUTURE LAND AND WATER USES***

### **2.8.1 *Land Uses***

2.8.1.1 The majority of the MRS consists of extremely rugged terrain that limits accessibility due to steep gulches, canyons, rocky outcrops, and high mountains. There is heavy vegetation present at the site including mature trees and thick understory. Current land use patterns include unauthorized recreational use such as hiking, hunting and motocross/ATV. Reasonably anticipated future land use includes agriculture (forest restoration and taro farming) by the individual landowner, Ohulehule Forest Conservancy, LLC, and recreation (unauthorized hiking, hunting and motocross/ATV).



## **2.8.2 *Groundwater and Surface Water Uses***

2.8.2.1 Groundwater in this area is not expected to be part of a complete exposure pathway to receptors at this site. According to well records data, no groundwater wells were identified within the Western/Mountainous Region MRS.

2.8.2.2 The primary water use for the Waikane and Waikēkē Streams is to supply water to the leeward side of the island for irrigation via the Waiahole Ditch Tunnel Network.

## **2.9 SUMMARY OF PROJECT SITE RISKS**

### **2.9.1 *Human Health & Ecological Risks***

During the RI, a risk assessment was conducted to determine the human health and ecological risks associated with potential MC exposure at the Western/Mountainous Region MRS. Based on the MC analytical results, the risk assessments concluded that the potential for adverse risks to human health or ecological receptors from exposure to MC is negligible. No further action is recommended for MC.

### **2.9.2 *MEC Hazard Assessment***

Prior investigations found no MEC and only a single item of MD, other than that related to small arms ammunition, within accessible areas of the Western/Mountainous Region MRS. As such, a qualitative MEC Hazard Assessment (HA) was not conducted for the Western/Mountainous Region MRS.

### **2.9.3 *Basis for Response Action***

2.9.3.1 The selected remedy for the Western/Mountainous Region MRS is Implementation of LUCs. Due to extreme terrain, it was not considered safe or practical to investigate many areas of the MRS. Slopes in excess of 30 degrees are still accessible although the terrain does limit access. Due to this uncertainty and the fact that historical records suggest this area was used for military training, there is potential for MEC to remain within the MRS and for a complete exposure pathway to exist.

2.9.3.2 Accessible areas within this MRS were investigated during the EE/CA and the RI. Based on the results of the investigation field work, no MEC items were observed in the Western/Mountainous Region MRS nor was there evidence of concentrated munitions use within accessible areas of the MRS. Exposure to explosive hazards in accessible areas is considered unlikely.

2.9.3.3 LUCs will reduce hazard associated with potential residual munitions within the MRS. LUCs include a community MEC awareness training and distribution of informational documents. Five-year reviews will be conducted to ensure the selected remedy remains effective in protecting human health and the environment and continues to manage residual hazard in the long-term.

## **2.10 REMEDIAL ACTION OBJECTIVES**

The MRS-specific RAO is to limit or mitigate an interaction between a receptor and potential MEC items remaining in the MRS. The selected remedy is chosen to satisfy the RAO. LUCs will

inform the landowner and community of the potential hazard and provide education with regard to proper safety and reporting procedures in the event that MEC is encountered. In developing the RAO, current and future land use was taken into account.

## **2.11 DESCRIPTION OF ALTERNATIVES**

2.11.1 The FS developed and assessed two remedial alternatives for the Western/Mountainous Region MRS:

- Alternative 1 – No Action; and
- Alternative 2 – LUCs

2.11.2 Other alternatives, such as Surface and Subsurface MEC Remediation and Implementation of LUCs were not considered. An additional alternative, Alternative 5 (Unlimited Use/Unrestricted Exposure) was considered; however, was eliminated from further evaluation during the initial screening of the alternatives during the Feasibility Study.

### ***2.11.3 Remedy Components***

2.11.3.1 Alternative 1 - No Further Action is carried forward for Western/Mountainous Region MRS to represent the current existing condition at the site. Under CERCLA, the No Action alternative is required for use as a baseline measure against the other alternatives. No Further Action assumes the following:

- No treatment technology;
- No containment technology;
- No Land Use Controls; and
- No monitoring requirements.

2.11.3.2 Alternative 2 – LUCs assumes that no physical MEC remediation would take place but would involve the following components:

- Funded and implemented by USACE;
- Community MEC awareness training conducted by USACE; and
- Distribution of informational documents by USACE, Landowner and Local Agency.

### ***2.11.4 Common Elements and Distinguishing Features of Each Alternative***

2.11.4.1 Applicable or Relevant and Appropriate Requirements (ARARs)

ARARs are “those cleanup standards, standards of control, and other substantive environmental protection 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” as defined in 40 CFR 300.5. Although there are likely threatened or endangered species present at the Western/Mountainous Region MRS, there are no ARARs because no on-site activities are proposed as part of either alternative.

### **2.11.5 Long-term Reliability**

2.11.5.1 Alternative 1 – No Further Action provides no reduction in MEC hazard and therefore, offers no permanent remedy.

2.11.5.2 Alternative 2 – LUCs provides no reduction in MEC volume because no MEC remediation will take place. However, there is a reduction of MEC hazard to receptors through MEC education.

### **2.11.6 Estimated time to Implement**

2.11.6.1 Alternative 1 – No Further Action can be implemented immediately.

2.11.6.2 Alternative 2 – Implementation LUCs can occur within three to six months. Distribution of material should be ongoing.

### **2.11.7 Cost**

Estimated present worth costs for each alternative are shown in Table 2-1.

**TABLE 2-1 ALTERNATIVE APPROXIMATE COST SUMMARY**

<b>Alternative</b>	<b>Present Worth* (\$)</b>
1. No Action	\$0
2. LUCs	\$747,170

\*The estimated net present worth cost for this alternative is over 30 years and includes cost of 5-year reviews. Though not part of the remedy, the cost of five-year reviews is included in cost estimate.

### **2.11.8 Expected Outcomes of Each Alternative**

2.11.8.1 Western/Mountainous Region MRS is solely owned by Ohulehule Forest Conservancy, LLC. Ohulehule Forest Conservancy, LLC has publically presented future land use plans that include restoring/preserving the native forest and re-establishing taro farming along Waikane stream and lower portions of Waikeekie stream. In the interim, it is expected that current land use patterns (i.e., unauthorized recreational use such as hiking, hunting, motocross, etc.) will likely continue.

2.11.8.2 Alternative 1 affords no protection to human health and is not effective in reducing the MEC hazard at the Western/Mountainous Region MRS. Alternative 2 – LUCs will reduce the hazard to workers, recreational users and visitors through education resulting from a community MEC awareness training and distribution of informational documents. However, there is no reduction in volume of MEC with Alternative 2.

## **2.12 COMPARATIVE ANALYSIS OF ALTERNATIVES**

Table 2-2 provides an assessment of each remedial alternative with respect to the nine NCP criteria.

**TABLE 2-2 ASSESSMENT OF REMEDIAL ALTERNATIVES - WESTERN/MOUNTAINOUS REGION MRS**

Remedial Alternative	EPA's CERCLA Nine Evaluation Criteria								
	Threshold Criteria		Balancing Criteria				Modifying Criteria		
	Overall Protectiveness of Human Health and the Environment	Compliance with ARARs	Short-Term Effectiveness	Long-Term Effectiveness & Permanence	Reduction of Toxicity, Mobility, and Volume Through Treatment	Implementability	Cost	State Acceptance	Community Acceptance
<p><b>Alternative 1</b></p> <p><b>No Action</b> No action would be taken to reduce potential MEC hazards to a potential receptor.</p>	<p>No action would be taken to reduce potential MEC hazards to a potential receptor.</p> <p>This alternative is not protective of human health and the environment.</p>	N/A	<p>No action would be taken to reduce potential MEC hazards to a potential receptor. Accordingly, alternative would be implemented immediately, there would be no risks resulting from implementation, but risks to receptors would remain the same.</p>	<p>No action would be taken to reduce potential MEC hazards to a potential receptor.</p>	<p>No action would be taken to reduce mobility or volume of MEC.</p>	<p>There are no implementability concerns posed by this remedy, since no action would be taken.</p>	<p>No cost associated with this alternative.</p>	<p>The State did not comment on the acceptability of Alternative 1.</p>	<p>No comments from the public were received.</p>
<p><b>Alternative 2</b></p> <p><b>Land Use Controls (LUCs)</b> LUCs include a community MEC awareness training and distribution of informational documents.</p>	<p>LUCs will reduce the hazard to human receptors through education resulting from a community MEC awareness training and distribution of informational documents.</p>	N/A	<p>Individuals familiar with formerly used military sites, munitions types, and safety would be involved with the development of community MEC awareness training and distribution of informational documents. Protection will occur immediately following implementation and can be executed within three to six months. Distribution of materials will be ongoing.</p>	<p>Since MEC is not removed from the MRS, the long-term effectiveness/permanence is questionable. Community MEC awareness training and distribution of informational documents would need to occur continually to ensure availability to workers, site visitors and recreational users.</p>	<p>No reduction in volume as no MEC remediation would take place.</p>	<p>Community MEC awareness training and distribution of informational documents are technically feasible.</p> <p>Materials and personnel are readily available for implementation.</p> <p>Property rights-of-entry would likely not be required.</p> <p>Implementation of LUCs can occur within three to six months. Distribution of materials should be ongoing.</p>	<p>\$747,170</p>	<p>The State did not comment on the acceptability of Alternative 2.</p>	<p>No comments from the public were received.</p>

## **2.13 PRINCIPAL MEC/MC ISSUES**

Although this MRS does not appear to have been affected by concentrated munitions use, and exposure to explosive hazards in accessible areas is considered unlikely, the potential for explosive hazards cannot be completely dismissed. Areas with limited accessibility are present throughout the MRS where it is impractical to safely investigate and determine if a MEC hazard source is present. Based on the results of the EE/CA and RI field work, no MEC items have been observed in the Western/Mountainous Region MRS nor was there evidence of concentrated munitions use within accessible areas of the MRS.

## **2.14 SELECTED REMEDY**

The selected remedy for the Western/Mountainous Region MRS at the former WTA is implementation of LUCs.

### ***2.14.1 Summary of the Rationale for the Selected Remedy***

2.14.1.1 The selected remedy, which includes a community MEC awareness training and distribution of informational documents, is appropriate for this MRS. As a result of the extreme terrain, limited accessible areas are present throughout the MRS where it is impractical to safely investigate and determine if a MEC hazard source is present. Based on the results of the EE/CA and RI field work, limited physical evidence of concentrated munitions use has been observed within accessible areas of the MRS. The implementation of LUCs will manage potential residual hazards within all areas of the MRS.

2.14.1.2 USACE believes that the selected remedy is protective of human health and the environment; complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action; and is cost effective. The use of permanent solutions and alternative treatment technologies are limited in areas of the site due to the steep topography which imposes concerns for worker safety during execution of such remedies, if a hazard is present. Exposure to potential explosive hazards in areas is unknown due to the accessibility limitations generated by extreme topography. If a MEC hazard is encountered, the selected remedy will reduce the associated hazard to human receptors through education resulting from a community MEC awareness training and distribution of informational documents. A relatively low long-term threat for a complete MEC exposure pathway is suspected in the MRS based on the results of field investigations.

### ***2.14.2 Detailed Description of the Selected Remedy***

2.14.2.1 LUCs include community MEC awareness training and distribution of informational documents. The selected remedy will inform the public about potential hazards (MEC) and will explain appropriate response procedures in the event MEC is found. USACE will conduct MEC awareness training on an annual basis at a centrally located facility, such as the Waiahole Elementary School, mail informational documents (i.e., fact sheets) to local residents, and make informational documents (i.e., fact sheets) available at community gathering locations such as public schools and libraries within a two-mile radius of the MRS. Mailings will occur on an annual basis or more often if deemed appropriate. The City and County of Honolulu, Department of Planning and Permitting is willing to participate in implementing the selected remedy by attaching informational documents with approved building permits for the

parcel. The City and County of Honolulu, Department of Emergency Management is willing to maintain and reproduce copies of the informational documents in accordance with Emergency Planning and Community Right-to-Know Act. The Landowner is accepting of the selected remedy and will be provided fact sheets to distribute to site visitors.

### ***2.14.3 Cost Estimate for Selected Remedy***

2.14.3.1 A summary of the cost estimate for Implementation of LUCs is provided in Table 2-3. Detailed cost is provided in the Feasibility Study Report located in the Information Repository/Administrative Record.

2.14.3.2 The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record file, an explanation of significant differences, or a Decision Document amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

### ***2.14.4 Expected Outcomes of the Selected Remedy***

The selected remedy will provide risk reduction through increased hazard awareness and education. The expected result of implementing this remedy is to provide an effective means of influencing behavior to reduce the risk of incident and exposure if potential MEC is encountered for current and reasonably anticipated future land use activities based on best available information at this time. The selected remedy will not impact current or anticipated future land uses.

**TABLE 2-3 LAND USE CONTROLS - COST ESTIMATE**

Task	DESCRIPTION	Total*
	<b>Land Use Controls: Educational Material</b>	
	Contractor Cost (Labor, Supplies, and Travel)	\$ 36,200.00
	Government Cost (30% of Contractor Cost)	\$ 10,860.00
	Subtotal	\$ 47,060.00
	Contingency (20% of Subtotal)	\$ 9,420.00
	<b>Total</b>	<b>\$ 56,480.00</b>
	<b>Land Use Controls: Community Relations Plan</b>	
	Contractor Cost (Labor, Supplies, and Travel)	\$ 18,440.00
	Government Cost (30% of Contractor Cost)	\$ 5,540.00
	Subtotal	\$ 23,980.00
	Contingency (20% of Subtotal)	\$ 4,800.00
	<b>Total</b>	<b>\$ 28,780.00</b>
	<b>Land Use Controls: MEC Awareness Training</b>	
	Contractor Cost (Labor, Supplies, and Travel)	\$ 35,370.00
	Government Cost (30% of Contractor Cost)	\$ 10,620.00
	Subtotal	\$ 45,990.00
	Contingency (20% of Subtotal)	\$ 9,200.00
	<b>Total</b>	<b>\$ 55,190.00</b>
	<b>GRAND TOTAL:</b>	<b>\$ 140,450.00</b>
	<b>Long Term Management (5-yr reviews)</b>	
	Contractor Cost (Labor, Supplies, and Travel)	\$ 42,130.00
	Government Cost (100% of Contractor Cost)	\$ 42,130.00
	Subtotal	\$ 84,260.00
	Contingency (20% of Subtotal)	\$ 16,860.00
	Subtotal	\$ 101,120.00
	<b>6 Reviews Present Worth</b>	<b>\$ 606,720.00</b>

Cost Assumptions:

\* See individual cost sheets for detailed cost breakdown contained in Feasibility Study

Though not part of the remedy, the cost of 5-year reviews is included.

## 2.15 STATUTORY DETERMINATIONS

In accordance with statutory requirements of CERCLA, the remedial action shall be protective of human health, comply with ARARs, be cost effective, utilize permanent solutions and alternative treatment technologies to the maxim extent practicable, and prefer treatment as a principal element.

### ***2.15.1 Protection of Human Health and the Environment***

This remedy will be protective by implementing LUCs in form of a community MEC awareness training and distribution of informational documents to educate workers, recreational users and site visitors on MEC safety. The implementation of the Selected Remedy will not pose unacceptable short-term risks to human health or the environment or result in any cross-media impacts.

### ***2.15.2 Compliance with Applicable or Relevant and Appropriate Requirements***

There are no ARARs for the Western/Mountainous Region MRS for implementing the selected remedy.

### ***2.15.3 Cost Effectiveness***

The selected remedy is considered cost effective because it provides long-term effectiveness at a reasonable cost as compared to the other alternatives. The estimated costs presented in Table 2-3 represent the costs developed for the Feasibility Study Report, which considered a remediation timeframe of 30 years.

### ***2.15.4 Permanent Solution and Alternate Technology***

Permanent solutions and alternative treatment technologies are not being used because the steep topography poses a safety hazard to response personnel, preventing access to areas where MEC could potentially be present. The selected remedy will reduce the associated hazard to human receptors through education resulting from a community MEC awareness training and distribution of informational documents. A community MEC awareness training would be offered annually and distribution of informational documents would occur as needed to ensure availability to workers, site visitors and recreational users. A relatively low long-term threat for a complete MEC exposure pathway is suspected in the MRS.

### ***2.15.5 Preference for Treatment as a Principal Element***

The selected remedy does not meet the statutory preference for treatment as a principal element. Active response measures are not practical in many areas of the MRS due to worker safety concerns and site accessibility limitations. A relatively low long-term threat for a complete MEC exposure pathway is suspected in the MRS.

### ***2.15.6 Five-year Reviews***

Five-year reviews are a requirement for alternatives not allowing for unlimited use and unrestricted exposure (UU/UE) in accordance with 40 CFR 300.430(f)(4)(ii). Five-year reviews would be conducted to 1) ensure that public health, safety, and the environment are being protected by the response actions implemented; 2) verify the integrity of any site controls; 3) determine if new information has become available that may warrant further action; 4) determine if there is an immediate threat to the public or environment that may require an accelerated response; and 5) review decisions for technical impracticability to determine if new technology will address potential MEC safety hazard. Data gathered during the review process will be used to determine if further action needs to be taken to protect public safety and the environment. If no changes have taken place, the site would continue to be monitored at the specified intervals. At the completion of the review, a Five-year Review Report would be prepared, and a public



notice would be placed in the local newspaper concerning the continued effectiveness of the remedy.

## **2.16 DOCUMENTATION OF SIGNIFICANT CHANGES FROM THE PROPOSED PLAN**

The Proposed Plan for the Western/Mountainous Region MRS at the former WTA was released for public comment on 19 June 2013. The Proposed Plan identified Alternative 2 – Implementation of LUCs as the Preferred Alternative. No significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

### **3.0 PART 3: THE RESPONSIVENESS SUMMARY**

The public comment period for the Proposed Plan was from 19 June 2013 to 19 July 2013. USACE sponsored a public meeting at the Waiahole Elementary School Cafeteria on 19 June 2013.

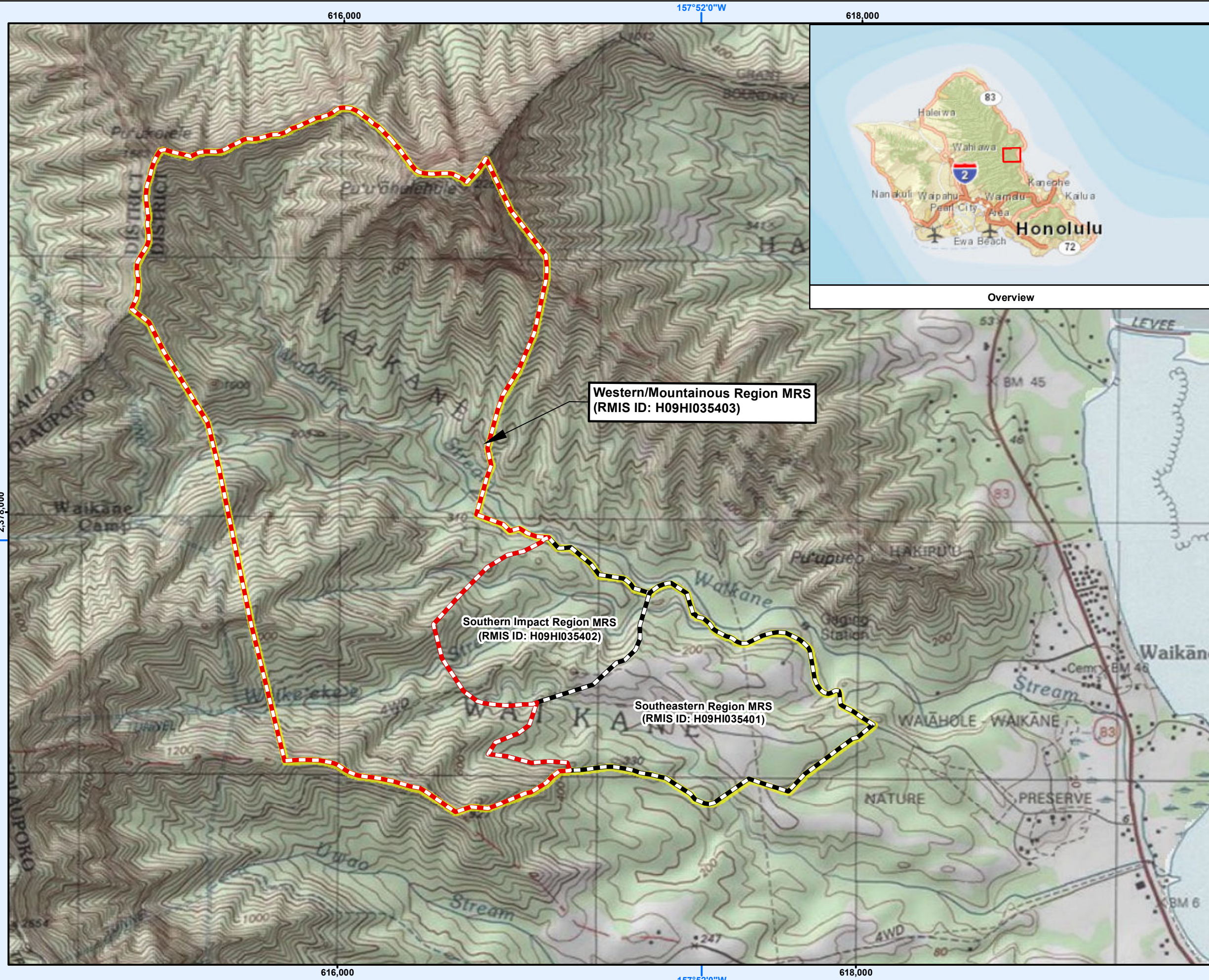
#### **3.1 STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES**

No comments were received on the Proposed Plan.

#### **3.2 TECHNICAL AND LEGAL ISSUES**

No technical or legal issues have been identified.





Site Location  
 Decision Document - Western/Mountainous Region MRS  
 Former WTA, Oahu, HI

Project Number	Date	Figure
00008	May 2014	1

**KEY**

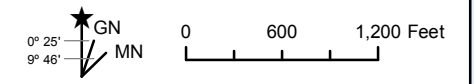
- MRS Boundary
- Western/Mountainous Region MRS
- WTA MRA

Overview

Western/Mountainous Region MRS  
 (RMIS ID: H09HI035403)

Southern Impact Region MRS  
 (RMIS ID: H09HI035402)

Southeastern Region MRS  
 (RMIS ID: H09HI035401)



**Source(s)**  
 ZAPATA, USAESCH, USGS, ESRI, NOAA

**Projection**  
 WGS 1984 UTM Zone 4N  
 Note: Main Data Frame Rotated to True North

**Note(s)**  
 Engineering scale may only be accurate on a map size of 11 x 17

Magnetic Declination Date: 5/23/2011  
 Magnetic Declination Shifting by 0° 2' W per year

Checked By	Engineering Scale	Drawn By
DSW	1" = 1,200'	CRP

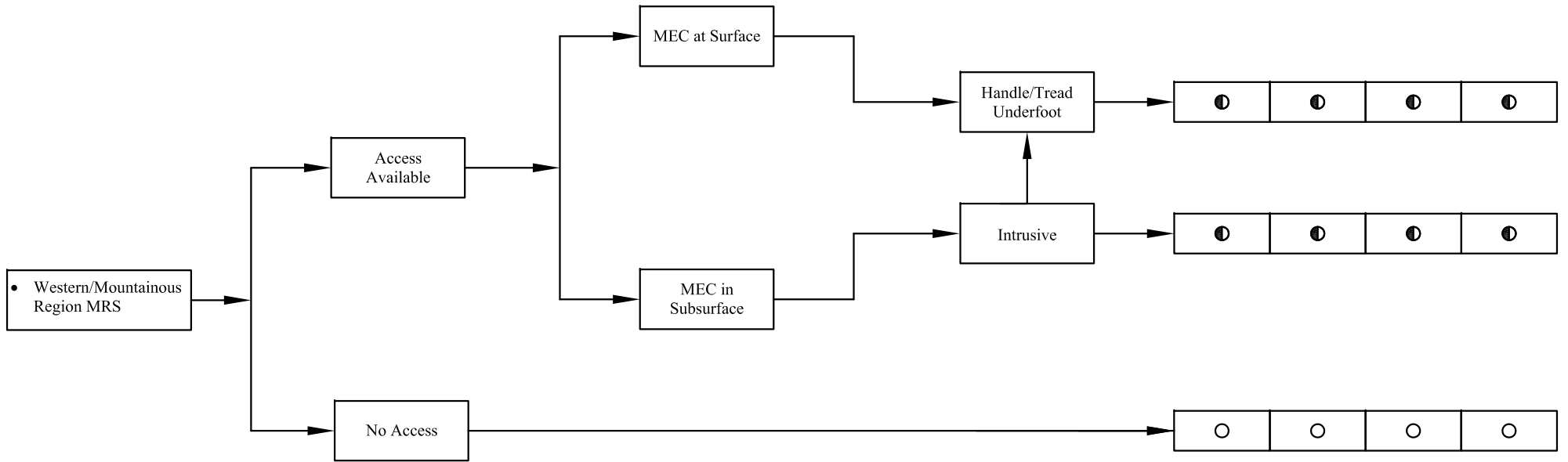


U.S. Army Corps of Engineers  
 Engineering and Support Center Huntsville  
 4820 University Square  
 Huntsville, AL 35816



Source Area	Access	MEC Locations/Release Mechanisms	Activity	Receptors
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Residents	Authorized Contractors and Vistors	Agriculture or Construction Workers	Recreational Users or Trespassers
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- Potential Complete Pathway
- Complete Pathway
- Incomplete Pathway

