



Fact Sheet 2021-01
March 2021

Air Force Civil Engineer Center



Proposed Plan for Mock Village Munitions Response Site

The Air Force Civil Engineer Center (AFCEC) is the agency responsible for the *Military Munitions Response Program* (MMRP) at Joint Base Cape Cod (JBCC). The MMRP at JBCC addresses issues related to munitions and explosives of concern (MEC) and munitions constituents (MC) in areas other than operational ranges.

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) oversee cleanup activities conducted by AFCEC at JBCC.

Words in *italics* are defined at the end of this document in the glossary section.

This fact sheet has been coordinated with the EPA and MassDEP.

Plan Summary: The Air Force has identified their preferred remedy for the Mock Village Munitions Response Site (MRS) (EPA Operable Unit 29) at Joint Base Cape Cod (JBCC). The U.S. Environmental Protection Agency (EPA) has concurred with this remedy, and the Massachusetts Department of Environmental Protection (MassDEP) will state their preference for a remedy after consideration of comments received during the public comment period. The Air Force's preferred remedy for the Mock Village MRS is *Land Use Controls* (LUCs) with *Unexploded Ordnance* (UXO) Construction Support for *munitions and explosives of concern* (MEC). Under this remedy, LUCs and annual inspections will include the implementation of physical, administrative, and legal measures to limit access to or use of the site. The site is currently undeveloped forest with no recreational use. MEC or *munitions* constituents (MC) have not been identified to date including during the demolition of buildings or investigations at the site; however, the potential remains for MEC in uninvestigated portions of the site and in the shallow subsurface throughout the MRS. Since the probability of encountering MEC is low, the LUCs response action relies on the education program and access control strategies to reduce the exposure to the potential MEC hazard. It would also provide on-call UXO construction support when any potential MEC hazard is identified. Annual inspections and *five-year reviews* will be conducted to ensure that the remedy continues to remain protective of human health and the environment. This remedy is presented as a recommendation for public review and comment.

The Air Force is issuing this *Proposed Plan* as part of its public participation responsibilities under Section 117(a) of the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) (42 United States Code [USC] 9601, et seq.), and Section 300.430 (f) (2) and (3) of the *National Oil and Hazardous Substances Pollution Contingency Plan* (NCP). This Proposed Plan summarizes and references other related documents pertaining to the Mock Village MRS (EPA Operable Unit 29) at the JBCC site contained in the libraries of Bourne, Falmouth, Sandwich, and Mashpee. The Proposed Plan and *Remedial Investigation/Feasibility Study* (RI/FS) can be found on AFCEC's webpage <https://www.massnationalguard.org/JBCC/afcec.html>. The RI/FS is also found on AFCEC's online Administrative Record at <https://ar.afcec-cloud.af.mil/> (search for AR# 605208). The Air Force encourages the public to review these documents for more information.

What do you think?

The Air Force is accepting public comments on this Proposed Plan from 12 March 2021 through 10 April 2021. You do not have to be a technical expert to comment. If you have a comment, concern, or preference, AFCEC, the EPA, and the MassDEP would like to hear it before making a final decision on how to address the Mock Village MRS. Page 15 of this Proposed Plan describes how to submit comments.

A **public meeting/hearing** will be held during a virtual public meeting to discuss this Proposed Plan for the Mock Village MRS on **24 March 2021 at 6 PM**. For more information call the AFCEC Community Involvement Office at (508) 968-4678 x2.

Introduction

This munitions response action for the Mock Village MRS (EPA Operable Unit 29) is authorized by the Defense Environmental Restoration Program (DERP) statute (10 USC §2701 et seq.) and follows CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), and the NCP requirements. The Department of Defense (DoD) established the *Military Munitions Response Program* (MMRP) to address the remediation of MC and MEC, which include UXO, *discarded military munitions* (DMM), and MC at concentrations high enough to pose a risk to human health or the environment on defense sites (locations that are or were owned by, leased to, or otherwise possessed or used by the DoD).

In accordance with Executive Order 12580, the U.S. Air Force is the lead agency for remedial actions at JBCC. The land where this MRS is located was used by the U.S. Army for historical training operations as a mock village. The land is owned by the Commonwealth of Massachusetts and is now controlled by the U.S. Coast Guard (USCG); however, AFCEC manages CERCLA cleanups at the site on behalf of the Army under a Federal Facilities Agreement (FFA). The Air Force's vision is to make the MRS safe and clean for reasonable anticipated future use which is consistent with current use (undeveloped forest with no recreational use). It is the Air Force's current judgement that the Preferred Alternative identified in this Proposed Plan is necessary to protect public health and the environment from actual or threatened releases of hazardous substances into the environment. The purpose of this Proposed Plan is to present the Air Force's preferred remedy and solicit public input to be considered by the Air Force and regulatory agencies prior to final remedy selection for the Mock Village MRS. The locations of JBCC and the Mock Village MRS are shown in Figure 1, on page 3.

Site Description and History

The 1.9-acre Mock Village MRS is located in the northeast area of JBCC on Jefferson Road midway between Greenway and Barlow Roads (Figure 1). The MRS is located on property currently owned by the Commonwealth of Massachusetts that is leased to the USCG.

The Mock Village MRS was used to simulate a mock German village and used as an urban training complex from 1943 through the early 1950s. Soldiers were trained in street reconnaissance, urban fighting techniques, and clearing houses and villages. The MRS consisted of 15 buildings that simulated a town (Figure 2), and dugouts were constructed where operators would hide and deploy targets as soldiers approached. Based on a review of historical aerial imagery, the former building structures were demolished prior to 1966. Since then, the MRS has become non-operational and there has been no development of the site. LUCs have not previously been instituted at the site and there have been no documented incidents of MEC being encountered. Currently, remnants of the timber-reinforced and earthen dugouts have been found onsite and the remainder of the site has become forested with dense trees and thick underbrush.

Munitions permitted for battle simulations at the Mock Village MRS included blocks of trinitrotoluene (TNT) (non-MEC) (requires detonator to ignite), and pyrotechnics (booby traps) (non-MEC). Instructors were allowed to use fragmentation hand grenades (live grenades) in the advanced demonstrations; however, there is no indication that these were used. Since personnel were raising and lowering the targets during training, it is unlikely that live ordnance would have been used. In addition, field training protocols restricted the use of live munitions to the pits and required the training areas to be thoroughly policed following training activities and prior to subsequent training activities. The trainees (attacking troops) were allowed to use practice or blank ammunition, including practice hand grenades and weapons (machine guns) with blank ammunition. While not reported in historical records or evident during field investigations, there is a very small possibility that MEC may be present at the site as a result of disposal or other activities.



Mock Village Proposed Plan Joint Base Cape Cod, Massachusetts

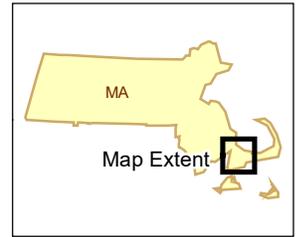
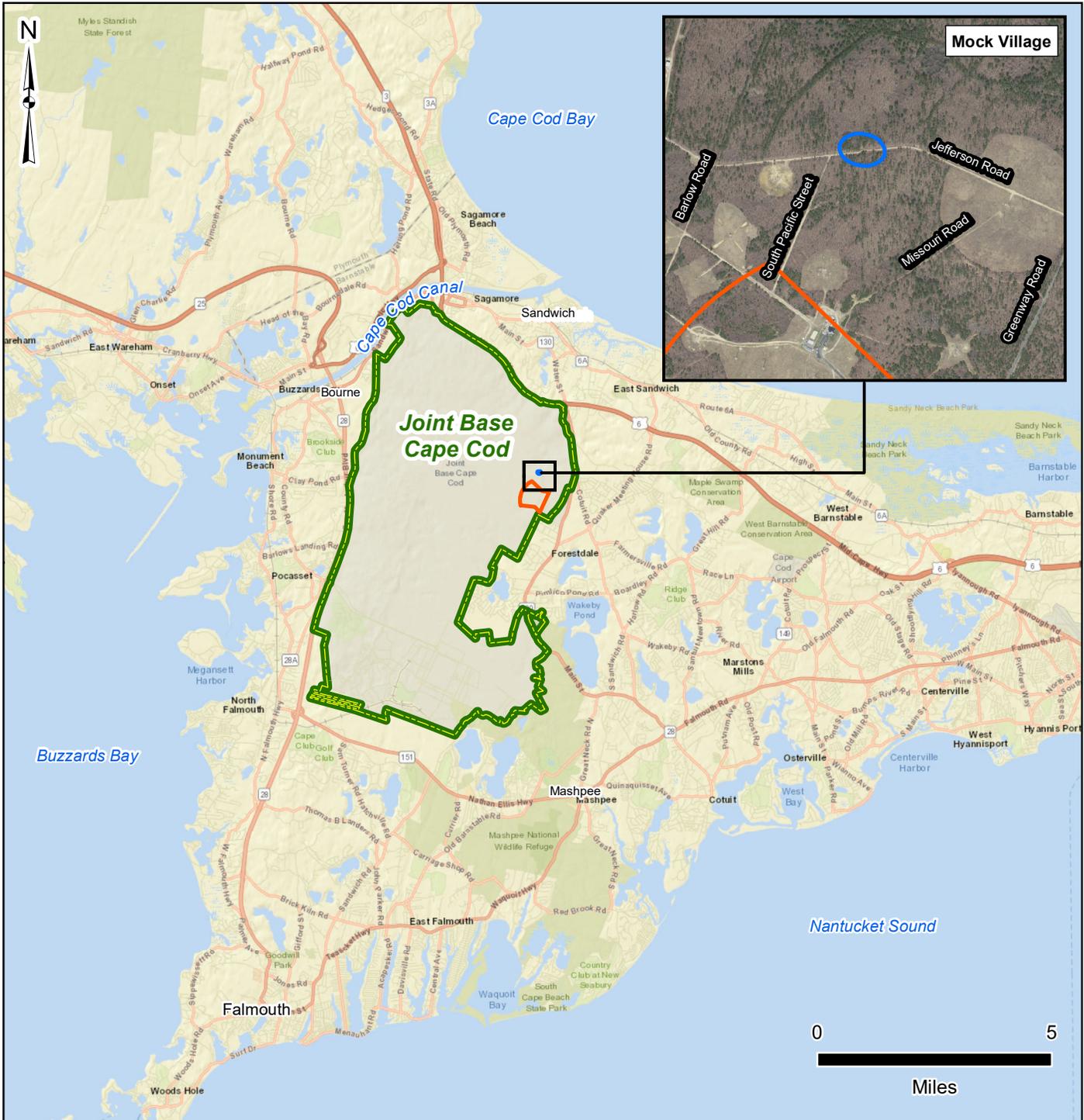


Figure 1 Mock Village MRS Location



- Legend**
- Installation Boundary
 - Mock Village MRS Boundary
 - Old K Range MRA Boundary

- Notes:**
1. MRS = Munitions Response Site
 2. MRA = Munitions Response Area

Service Layer Credits: ESRI Street Map, 2016
Final CSE Phase II Report for Joint Base Cape Cod, Massachusetts, February 2018.

Document Path: \\ovetongis\GISdata\Federal\Northeast\Massachusetts\JB Cape Cod\WXD\MockVillage_RIFS\Figure 1-1 Site Location.mxd



Mock Village Proposed Plan Joint Base Cape Cod, Massachusetts

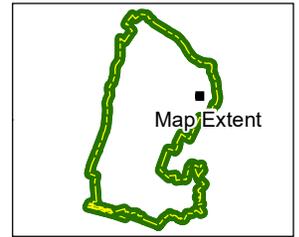
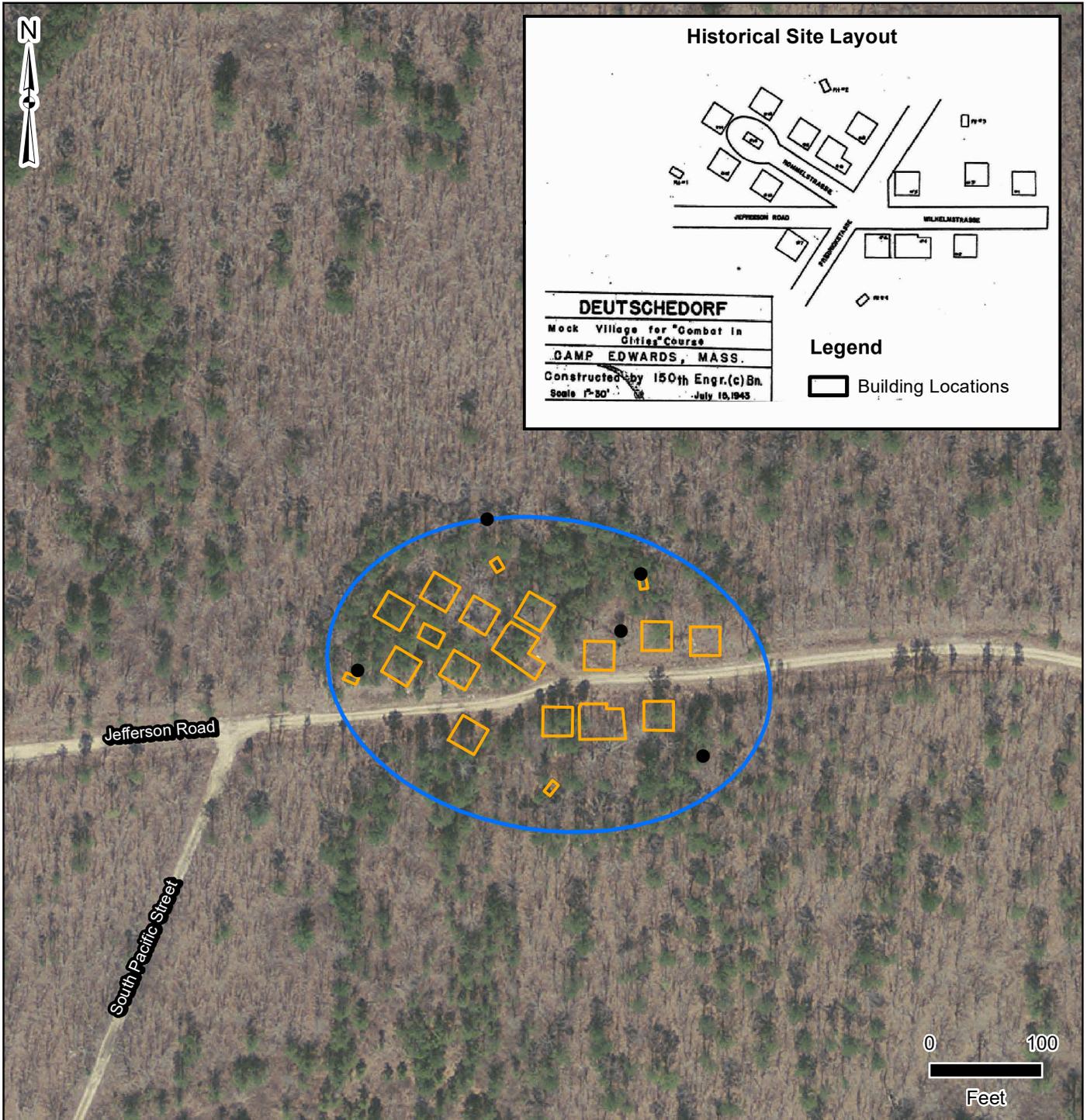


Figure 2 Historical Mock Village MRS Layout



- Legend**
- Installation Boundary
 - Mock Village MRS Boundary
 - Approximate Former Building Location
 - Approximate Location of Observation Pits

Notes:
 1. MRS = Munitions Response Site

Service Layer Credits: Aerial MassGIS 2009
 Final CSE Phase II Report for Joint Base Cape Cod, Massachusetts. February 2018.

Document Path: \\ovetongis\GISdata\Federal\Northeast\Massachusetts\JB CapeCod\MXD\MockVillage_RIFS\Figure 1-2 Historical MRS Layout.mxd

Phase IIB Investigation: Visual reconnaissance of the Mock Village MRS was conducted in 2000 and 2001 by AMEC Earth & Environmental, Inc. Several earthen structures and timber-reinforced pits or tunnels were discovered (Figure 3). No range-related features were identified on the south side of Jefferson Road. No ordnance, pyrotechnics, or evidence of TNT use were found during the inspections. Three shallow pits were discovered and presumed to be the remnants of pyrotechnic pits. Rusted 5-gallon containers located nearby each of these pits were thought to be the remnants of smoke pots used during training exercises.

Soil sampling at the Mock Village MRS included explosives, semivolatile organic compounds (SVOCs), metals, and dyes. No explosives or dyes were detected in the three soil samples. Detected SVOCs did not exceed site-specific background concentrations or screening levels. Most concentrations of metals exceeded background concentrations; however, none of the concentrations of metals exceeded EPA's industrial or residential regional soil screening levels (RSLs) (with the exception of arsenic, which is naturally occurring in soils, was detected in levels similar to JBCC background, and is not considered a MC of concern) or MassDEP S-1 soil standards. Therefore, no further action (NFA) was recommended.

Comprehensive Site Evaluation (CSE): AFCEC conducts the CSE process to serve as the initial munitions response action for the MMRP. The goal of the CSE is to obtain sufficient data to support informed decision-making to effectively manage areas where munitions were formerly used, stored, or disposed of. The CSE consists of two phases. The first phase, Phase I, is equivalent to a CERCLA *Preliminary Assessment*. The second phase, Phase II, is equivalent to a CERCLA *Site Inspection*.

CSE Phase I: AFCEC performed the CSE Phase I field effort at JBCC from 2010 through 2011. A discussion of the CSE Phase I process is presented in a fact sheet dated March 2011, which is available in the Administrative Record for JBCC. The CSE Phase I evaluated risks to human and ecological receptors from MEC and MC at the Mock Village MRS. The CSE Phase I indicated potentially impacted surface and subsurface material and recommended a CSE Phase II be conducted.

CSE Phase II: A CSE Phase II investigation was conducted in November 2015 to determine the presence or absence of MEC and MC associated with historical military munitions use. The Mock Village MRS was visually surveyed by a UXO team to assess the presence of MEC at the surface. Two additional observation pits were identified. A portion of the MEC survey was biased toward range related features (i.e., observation pits and former building footprints identified on aerial imagery) and the other portion of the transects were unbiased for site coverage. The Mock Village MRS was divided into two *decision unit(s)* (DU), one for the footprints of the former buildings and the other for five observation pits. Soil sampling was conducted using *incremental sampling methodology* (ISM) for explosive constituents in surface soils (0 to 2 inches).

No explosives constituents were detected above reporting limits; therefore, MC results were below EPA's industrial or residential RSLs and MassDEP S-1 standards. The visual survey data and analytical soil data collected during the CSE Phase II, combined with historical data were used to evaluate the MRS for past munitions usage, *risk assessment*, and to make recommendations for future munitions response actions. Based on a review of the historical use of the site, including the potential for high explosive grenades, the CSE Phase II recommended further assessment and/or action to address potential residual MEC.



Mock Village Proposed Plan
Joint Base Cape Cod, Massachusetts

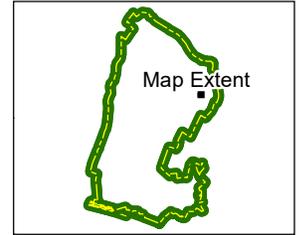
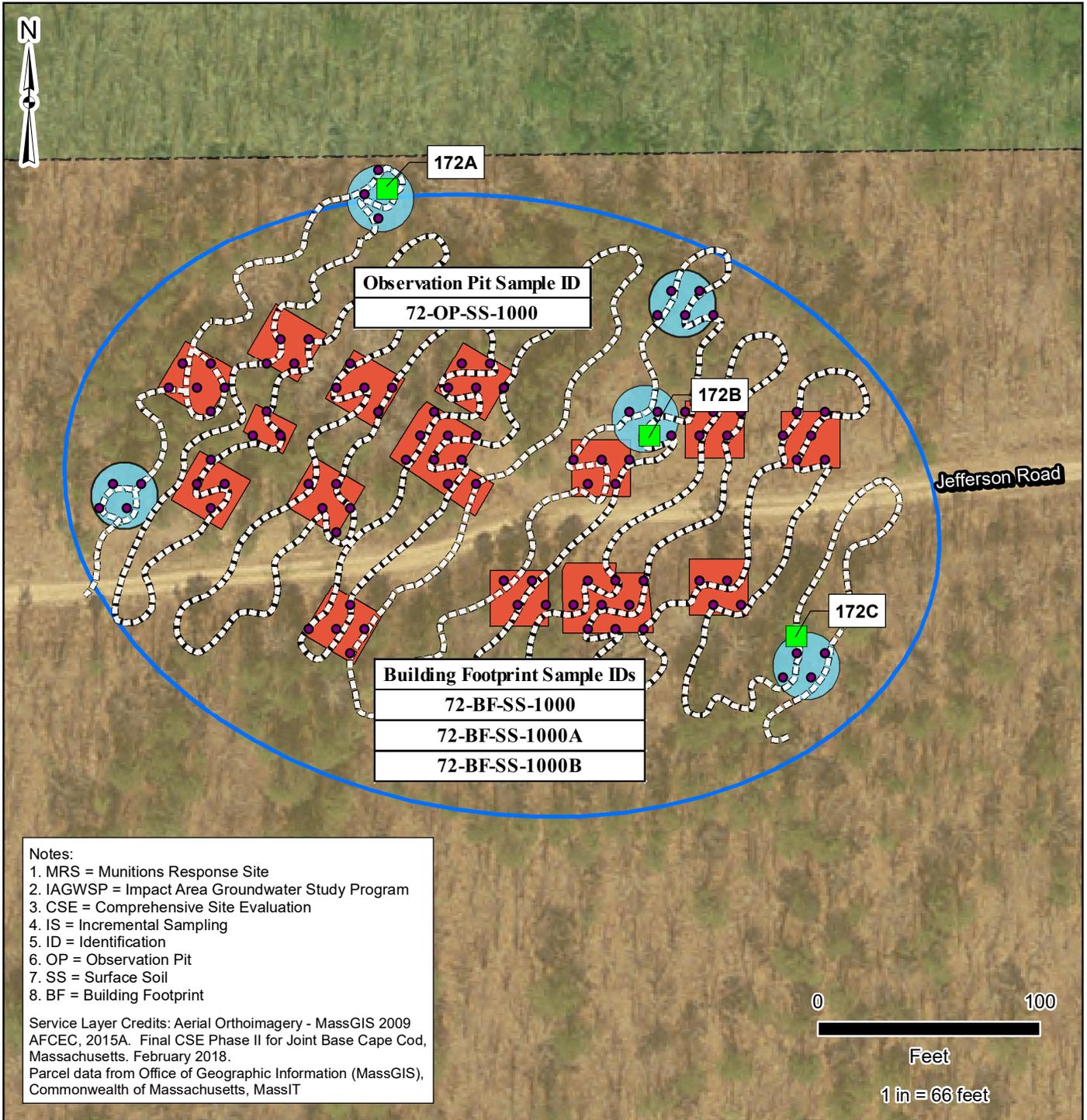


Figure 3
Previous Investigations at Mock Village MRS



Notes:
 1. MRS = Munitions Response Site
 2. IAGWSP = Impact Area Groundwater Study Program
 3. CSE = Comprehensive Site Evaluation
 4. IS = Incremental Sampling
 5. ID = Identification
 6. OP = Observation Pit
 7. SS = Surface Soil
 8. BF = Building Footprint

Service Layer Credits: Aerial Orthoimagery - MassGIS 2009 AFCEC, 2015A. Final CSE Phase II for Joint Base Cape Cod, Massachusetts. February 2018.
 Parcel data from Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, MassIT

- | | | |
|---------------------------|--|--|
| Legend | IAGWSP Phase II B Investigation | ● IS Increment Locations |
| Installation Boundary | Discrete Soil Sample Location | Magnetometer-Assisted IS Survey Transect |
| Mock Village MRS Boundary | CSE Phase II Investigation | |
| Army National Guard | Investigation Summary | |
| US Coast Guard | Observation Pit | |

Document Path: \\ovetongis\GISdata\Federal\NorthEast\Massachusetts\JB Cape Cod\MXD\MockVillage_RIFS\Figure 3 - Previous Investigation Proposed Plan.mxd

Remedial Investigation/Feasibility Study: The primary objective of the RI/FS at the Mock Village MRS was to define the nature and extent of MEC hazards and potential MC risks associated with historical military munitions use as a target area for urban training. Specifically, the following objectives were established:

- Define the nature and extent of potential risks associated with historical military munitions
- Characterize the fate and transport of MEC and MC
- Evaluate potential human health and ecological risks
- Conduct a MEC hazard assessment
- Develop and evaluate alternatives for mitigating any remaining risk or hazard associated with historical military munitions use.

During the CSE Phase II, a MEC magnetometer-assisted surface investigation was conducted over 40 percent of the 1.9-acre MRS and no munitions-related anomalies were found in the subsurface. Surveying was biased to the most likely locations where MEC would be found (i.e., the building footprints and pyrotechnic/timber-lined pits) as well as unbiased to include meandering paths around the rest of the MRS. The CSE Phase II investigation did not identify any MEC, munitions debris (MD), or range-related debris on the surface and no munitions-related anomalies were found.

Analytical MC data collected at the MRS during previous investigations (i.e., Phase IIB and CSE Phase II) were evaluated as part of the RI. A review of the conceptual site model indicated that MC (metals and explosives), if present, would have been found in surficial soils (0-2 inches). During the Phase IIB, detections of MC (metals) in surficial soils were only slightly above JBCC background levels and none of the analytes detected in soil exceeded their respective EPA regional screening levels or MassDEP S-1 soil standard. There were no detections of explosives in soil analyzed from the Mock Village MRS.

Results of the Risk Assessment

Munition and Explosives of Concern Hazard Assessment

Based on previous investigations, there is no evidence of MEC at the MRS. The CSE Phase II investigation did not identify any MEC, MD, or range-related debris on the surface and there were no munitions-related anomalies found. Data collection was limited to the surface and shallow subsurface where MEC would be anticipated based on the historical use of the site (e.g., building footprints, and pyrotechnic and target pits) and on meandering paths. Since the 100% of the site was not investigated with digital geophysical methods, there is a small possibility that MEC could be found. If MEC is found at a future time and is breached or has leaked explosive filler, or an item requires detonation-in-place, the soil beneath the item may be investigated to determine if the item is a source of MC.

Munitions Constituents Risk Assessment

MC of concern at the MRS include explosives constituents and metals associated with the potential use of fragmentation grenades (live grenades), TNT blocks, and associated detonators. During the Phase IIB, detected concentrations of metals were similar to site-specific background levels. In addition, none of the MC of concern detected in soil exceeded EPA industrial or residential RSLs or MassDEP S-1 Soil Standards. There were no detections of explosives constituents in surface soil samples analyzed during the CSE Phase II. MC data indicate that there were no MC impacts to surface soils. As such, there were no unacceptable risks to human health or the environment from MC associated with historical use of the site for training.

There are no limitations associated with the MC data evaluated as a part of the RI/FS. No source of MC was identified and, as a result, the nature and extent of potential MC contamination has been characterized and pathways to receptors are considered incomplete. However, in the unlikely event that MEC is found incidentally at a future time, and it is found as breached or has leaked explosive filler, or an item requires detonation-in-place, the soil beneath the item may be investigated to determine if the item is a source of MC.

Remedial Action Objectives

The *Remedial Action Objectives* (RAOs) for the Mock Village MRS are as follows:

- Reduce the risk of direct contact by current and anticipated future human receptors to potential MEC in the surface and subsurface soil.
- Prevent the release of contamination from the detonation of any MEC that would result in a total excess lifetime cancer risk greater than the target risk range of 10⁻⁴ to 10⁻⁶, and/or a non-cancer Hazard Index greater than 1.0.

Remedial Alternatives Considered for the Mock Village Munitions Response Site

The FS evaluated the following two remedial alternatives, which were developed with input from the regulatory agencies. A full MEC removal inclusive of 100% clearance of the site to achieve unlimited use/unrestricted exposure was evaluated as a technology; however due to cost, level of difficulty to implement and achieve, the technology was not retained for evaluation as an alternative. These alternatives differ in their overall costs, effectiveness, protectiveness, and implementability. These FS alternatives were evaluated and compared using seven of the nine criteria shown on page 10. The remaining two criteria, “community acceptance” and “state acceptance” are evaluated during and after the public comment period associated with the Proposed Plan.

Alternative 1 – No Action

Per the NCP, a No Action alternative is always assessed. This alternative does not include remedial activities to mitigate the possible MEC hazard for the site.

Cost: \$0

Remedy Timeframe: Unknown, not monitored.

Alternative 2 – Land Use Controls with Unexploded Ordnance Construction Support

This alternative consists of physical mechanisms (e.g., warning signs, on-call UXO construction support), administrative mechanisms (e.g., public education/training), and legal mechanisms (e.g., Dig Safe®). These LUCs would provide notification to persons accessing the property where the potential explosive dangers may be present. It would also provide on-call UXO construction support when any potential MEC hazard is identified. Annual inspections and five-year reviews would also be conducted.

Cost: \$115,427

Remedy Timeframe: 30 years¹ (including five-year reviews).

¹ The 30-year timeframe has been used for costing purposes as outlined in EPA’s Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (1988). The remedy will need to remain in place for as long as there are potential CERCLA risks posed at the site.

How Does the Air Force Choose a Final Cleanup Plan?

The Air Force uses nine criteria developed by the EPA to compare alternatives and select a final cleanup plan or remedy that meets the statutory goals of protecting human health and the environment, maintaining protection over time, and minimizing contamination while being cost effective. These nine criteria make up the assessment process regulated under CERCLA Section 121 and regulations promulgated in the NCP, and are the standard criteria used for all CERCLA sites. The following list highlights these nine criteria and some questions the Air Force must consider in selecting a final cleanup plan. More detailed definitions are contained in Section 12.0 of the Final Mock Village Munitions Response Site Remedial Investigation/Feasibility Study Report.

Threshold Criteria

1. **Overall protection of human health and the environment:** Will the alternative provide adequate protection of human health and the environment? The chosen alternative must meet this criterion.
2. **Compliance with *applicable or relevant and appropriate requirements* (ARARs):** Does the alternative meet all pertinent federal and state environmental statutes, regulations, and requirements? The chosen alternative must meet this criterion.

Balancing Criteria

3. **Long-term effectiveness and permanence:** How reliable will the alternative be at long-term protection of human health and the environment? Is contamination likely to present a potential risk again?
4. **Reduction of toxicity, mobility, or volume through treatment:** Does the alternative incorporate treatment to reduce the harmful effects of the contaminants, their ability to spread, and the amount of contaminated material present?
5. **Short-term effectiveness:** How soon will risks be adequately reduced? Are there short-term hazards to workers, the community, or the environment that could occur during the cleanup process?
6. **Implementability:** Is the alternative technically and administratively feasible? Are the goods and services needed to implement the alternative (e.g., treatment machinery, space at an approved disposal facility) readily available?
7. **Cost:** What is the total cost of constructing and operating the alternative? This criterion evaluates the total cost of each alternative, including capital and operation and maintenance costs, as a 30-year present value.

Modifying Criteria

8. **State acceptance:** Do state environmental agencies agree with the recommendations? What are their preferences and concerns?
9. **Community acceptance:** What suggestions or modifications do residents of the community offer during the comment period? What are their preferences and concerns?

Of these nine criteria, the two *threshold criteria* (overall protection of human health and the environment and compliance with ARARs) must be met for a candidate cleanup alternative to be selected. The five *balancing criteria* are used to evaluate and compare the elements of the alternatives that meet the threshold criteria. This

comparison evaluates which alternative provides the best balance of trade-offs with respect to the balancing criteria outlined above (criteria 3 through 7). State and community acceptance are considered *modifying criteria* and are factored into a final evaluation of all criteria to select a remedy. Consideration of state and community comments may prompt the Air Force to modify aspects of the preferred alternative or decide that another alternative provides a more appropriate balance.

Preferred Mock Village Munitions Response Site Remedy

The Air Force's preferred remedy for the Mock Village MRS is Alternative 2, LUCs with UXO construction support. LUCs will consist of physical mechanisms (e.g., warning signs, on-call UXO construction support), administrative mechanisms (e.g., public education/training), and legal mechanisms (e.g., Dig Safe®). The proposed sign locations for the Alternative 2, LUCs with UXO Construction Support, are depicted on Figure 4.

These LUCs would provide notification to persons accessing the property where the potential explosive dangers may be present. In addition, the preferred remedy would include annual inspections and five-year reviews. It would also provide on-call UXO construction support when any potential MEC hazard is identified. In the unlikely event that MEC are found, they would be either removed and disposed of offsite or if that could not be done safely, they would be denotated in place. The presence of any breached or leaking MEC or the requirement to detonate MEC in place would also require the further assessment of the area for MC.

The use of LUCs will inform the public of hazards associated with potential MEC. While MEC are not anticipated to be found at the MRS, if they are found (e.g., during UXO construction support) they will be removed, thus decreasing the volume of MEC over time.

Overall Protection of Human Health and the Environment

Alternative 1 is not protective of human health and the environment. Potential MEC would be left in place and the potential exposure to human receptors to the explosive hazards would not be minimized. RAOs would not be met.

Alternative 2 is protective of human health and will meet project RAOs. Based on the results of previous investigations conducted at the Mock Village MRS the probability of encountering MEC is low. The implementation of annual inspections and maintenance of signage provides warnings of hazards associated with potential MEC and the implementation and maintenance of educational materials provides for public knowledge of the potential hazards from MEC and the appropriate response to potential MEC finds at the MRS. The tenant will be required to provide AFCEC with advanced notice prior to conducting work at the site, which will trigger the requirement for on-call UXO construction support by AFCEC. Dig Safe® notices will also be reviewed to ensure that the tenant and AFCEC are aware of any other planned subsurface work at their site. These actions will reduce human contact with MEC during routine intrusive maintenance activities at the Site (i.e., utilities). In the unlikely event that a breached MEC leaking explosive filler is identified onsite the surrounding soils will also be assessed for MC. If MEC is detonated onsite the area impacted by the detonation will be assessed for MC. Annual inspections and five-year reviews will be conducted to ensure that the remedy continues to remain protective of human health and the environment. Data collected will be used during the Five-year Review process to determine if the selected remedial action is protective or if it should be reassessed.



Mock Village Proposed Plan Joint Base Cape Cod, Massachusetts

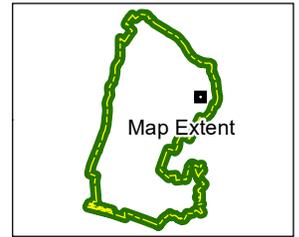
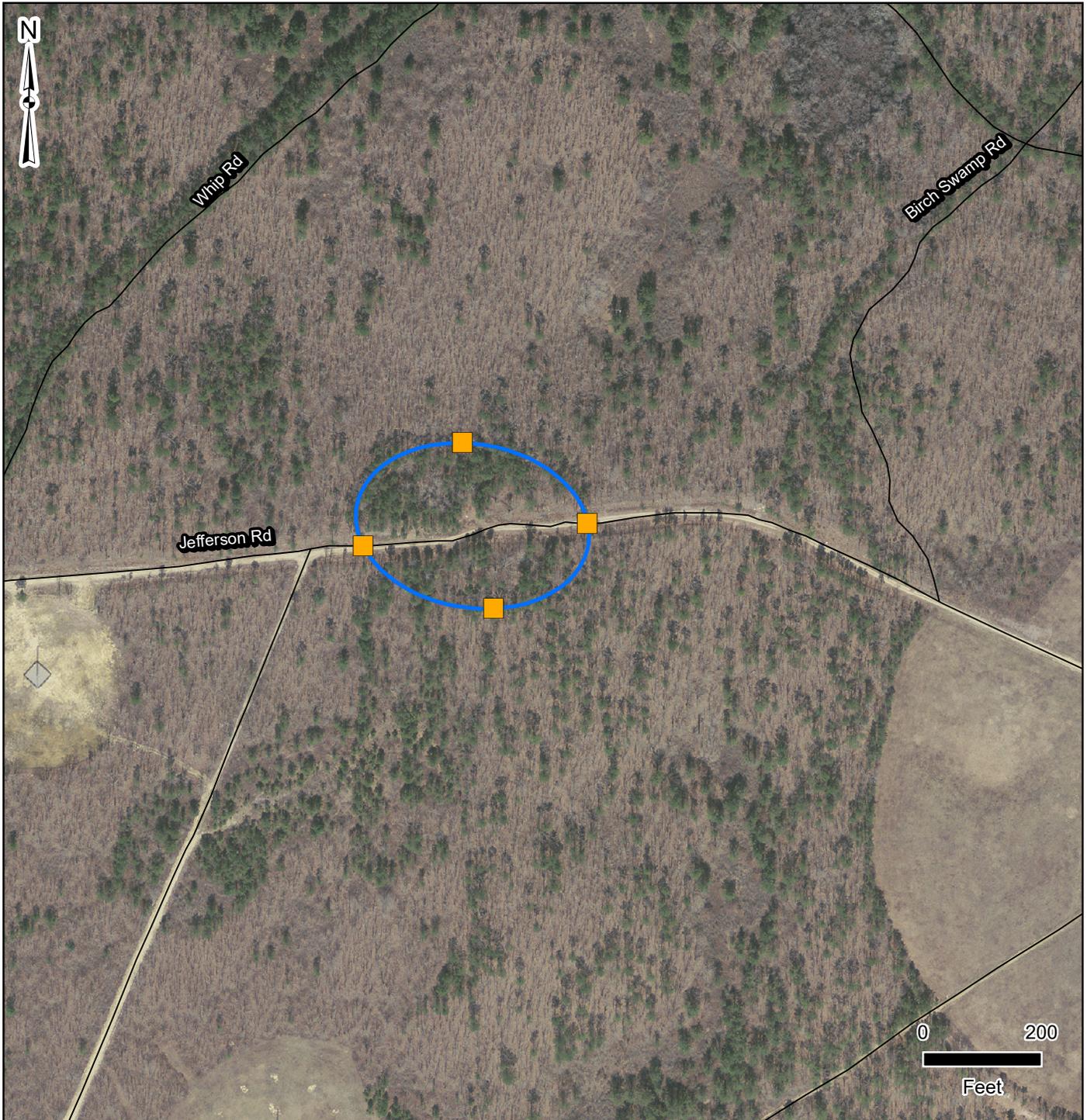


Figure 4 Alternative 2: Land Use Controls



Legend

- Installation Boundary
- Mock Village MRS Boundary
- Road
- Proposed Sign Location

Document Path: \\ovetongis\GISdata\Federal\Northeast\Massachusetts\JB\CapeCod\MXD\MockVillage_RIFS\Figure 11-1 Alternative 2 Land Use Controls.mxd

Compliance with ARARs

Alternative 1 has no location-specific and action-specific ARARs. As no action will be initiated, the remedy will not address potential MEC or MC risks calculated using chemical specific ARARs and To Be Considered Guidances.

Alternative 2 will meet the ARAR requirements and will follow the guidance standards. These primarily relate to standards for addressing any potential MEC discovered onsite and the assessment of any potential threat of release of MC from breached, leaking MEC or MEC that is required to be detonated.

Long-Term Effectiveness and Permanence

Alternative 1 is ineffective in the long-term because potential explosive hazards posed by potential MEC will not be mitigated.

Alternative 2 will be moderately effective in the long term by informing the public of the potential for MEC, which would minimize human encounters to the potential explosive hazards within the MRS. AFCEC will coordinate with the Commonwealth of Massachusetts (i.e., landowner) and any tenant federal agencies to establish CERCLA-enforceable LUCs on the property. AFCEC will be notified prior to any excavation activities (i.e., maintenance of existing infrastructure and utilities) and will provide the on-call UXO construction support and removal of any MEC, if encountered. To prevent any additional subsurface work, Dig Safe[®] notification will be monitored. AFCEC will also conduct annual inspections and five-year reviews will be conducted to ensure that the remedy continues to remain protective of human health and the environment for as long as there are potential CERCLA risks posed at the site.

Reduction of Toxicity, Mobility, or Volume through Treatment

Neither Alternatives 1 nor 2 include any treatment so do not meet the criterion.

Short-Term Effectiveness

Under Alternative 1, neither workers nor the community would be subjected to any additional exposure hazards from removal activities, transportation, or disposal since no actions will be implemented. Although no time is needed to implement this alternative, Alternative 1 is not effective in reducing the risk to human health in the short-term and RAOs will not be met.

Alternative 2 would pose no additional health hazards to the community related to implementation in the short-term because no large-scale removal, transportation, or disposal of MEC would take place. This alternative has the potential to adversely affect human health during the removal of MEC if it is discovered during UXO construction support activities or annual inspections. Workers may be exposed to potential MEC during MEC removal. This exposure will be minimized by using UXO personnel to perform subsurface activities and annual inspections, and to remove MEC (if found). UXO personnel are trained and experienced in identifying MEC, proper response procedures, and MEC safety requirements. There would be no additional short-term adverse environmental impacts. Alternative 2 is effective in reducing the risk to human health in the short-term as LUCs can be implemented quickly, UXO construction support would be available with prior notice, and RAOs will be met.

Implementability

Administrative implementation of Alternative 1 would not be difficult because no action would be taken.

Public education and services required under Alternative 2, LUCs with UXO Construction Support, are commonly used and relatively easy to develop. Education is implemented by providing training materials and displaying signage on site. The required services include development of the LUC Implementation Plan,

distribution of education/training materials, installation of warning signs, and UXO construction support. Services also include annual inspections and five-year reviews that are commonly used and easy to implement. AFCEC does not own or control the Site; as such implementing the LUCs will pose a moderate challenge and will depend on their acceptance by the Commonwealth of Massachusetts (i.e., landowner), by the current tenant, and future tenant(s).

Cost

Total costs associated with Alternative 1 would be \$0.

The total marked-up cost associated with Alternative 2 for the Mock Village MRS is \$115,427 (\$61,983 direct-cost) including UXO construction support and removal/disposal costs, MC sampling as necessary, annual inspections, and five-year reviews for the first 30 years. Costs for UXO construction and disposal support are difficult to estimate due to the uncertainty of frequency. For costing purposes, it is assumed that a UXO response action would occur once every 3 years.

Summary

The 1.9-acre Mock Village MRS is located in the northeast area of JBCC on property currently owned by the Commonwealth of Massachusetts that is leased to the USCG. The MRS was used to simulate a mock German village and used as an urban training complex from 1943 through the early 1950s. Based on a review of historical aerial imagery, the former building structures were demolished prior to 1966. Since then, the MRS has become non-operational and there has been no development of the site. Remnants of the timber-reinforced and earthen dugouts have been found onsite and the remainder of the site has become forested with dense trees and thick underbrush. Based on previous investigations, there is no evidence of MEC at the MRS. The CSE Phase II investigation did not identify any MEC, MD, or range-related debris on the surface and there were no munitions-related anomalies found. As such, there is a low probability that MEC exists at the Mock Village MRS. In addition, MC data indicate that there were no MC impacts to surface soils.

The Air Force proposes to implement Alternative 2, LUCs with UXO Construction Support, as the preferred remedy for the Mock Village MRS. Alternative 2 would consist of physical mechanisms (e.g., warning signs, annual inspections, and on-call UXO construction support), administrative mechanisms (e.g., coordination with owner/tenant and public education/training), and legal mechanisms (e.g., Dig Safe[®]). These LUCs would provide notification to persons accessing the property where the potential explosive dangers may be present and are necessary due to the uncertainty about the potential MEC at the site since 100% of the site area was not investigated with digital geophysical methods. In addition, the preferred remedy will include annual inspections and five-year reviews. It would also provide on-call UXO construction support when any potential MEC hazard is identified.

Based on the information currently available, the Air Force believes that the preferred remedy meets the threshold criteria and provides the best balance of trade-offs among the other alternatives with respect to balancing criteria. The Air Force expects the preferred remedy to satisfy the following statutory requirements of CERCLA Section 121(b): (1) be protective of human health and the environment, (2) comply with ARARs, and (3) be cost effective.

How to Submit a Public Comment

Formal comments on this Proposed Plan can be submitted during the public comment period or at the public meeting/hearing. The 30-day public comment period extends from 12 March 2021 to 10 April 2021. Please note that comments received outside of the formal public comment period may not receive a response. Comments may also be provided during the virtual public meeting/hearing, which will be held on 24 March 2021. The Air Force and the regulatory agencies will consider public comments prior to making a final decision for the Mock Village

MRS. All responses will be documented in the *Responsiveness Summary*, which will be part of the official record and published in the *Record of Decision*. The Record of Decision with Responsiveness Summary will be found in the Administrative Record file for this site <https://www.massnationalguard.org/JBCC/afcec.html> or <https://ar.afcec-cloud.af.mil/>. In addition, the Air Force will announce the decision through a news release to the media and provide a copy of the responsiveness summary to each commenter.

You may submit a formal comment in any of the following ways:

1. Mail written comments to

Doug Karson
AFCEC/JBCC
Attn: Mock Village MRS
322 East Inner Road
Otis ANG Base, MA 02542-5028

2. E-mail comments to

douglas.karson@us.af.mil

3. Offer verbal/written comments during the virtual public meeting/hearing to be held on 24 March 2021. You may participate in the meeting two ways:

- Virtual participation, <http://bit.ly/JBCCPublic>
- Or call in (audio only),
+1 443-342-4948, access code: 676126952#

For More Information – Access

This Proposed Plan summarizes the information that can be found in greater detail in the [Mock Village Munitions Response Site Remedial Investigation/Feasibility Study Report](#) dated January 2021 (AR# 605208). The RI/FS and this Proposed Plan are available at the libraries of Bourne, Falmouth, Sandwich, and Mashpee. The Proposed Plan and RI/FS can be found on AFCEC's webpage <https://www.massnationalguard.org/JBCC/afcec.html>. The RI/FS is also found on AFCEC's online Administrative Record at <https://ar.afcec-cloud.af.mil/> (search for AR# 605208) or you can call the AFCEC Community Involvement Office at (508) 968-4678 x2.

Upon completion of the public comment period and public meeting/hearing, the Mock Village MRS Record of Decision will be completed to document the selected remedy for the site and will include a Responsiveness Summary which provides a response to each comment received during the public comment period. The Record of Decision and Responsiveness Summary will be added to the Administrative Record.

For Additional Information, Please Contact:

AFCEC/JBCC

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Glossary

Applicable or Relevant and Appropriate Requirements (ARARs): These requirements specify that CERCLA remedial actions meet any federal standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant to the remedy.

Administrative Record: A collection of documents generated during the investigation of the site that form the basis for selection of a remedial action and are placed in a central location for public review. <https://www.massnationalguard.org/JBCC/afcec.html> or <https://ar.afcec-cloud.af.mil/>.

Balancing Criteria: A set of criteria that are reviewed during the remedy selection process that form the basis for comparing alternatives in light of site-specific conditions.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A law that authorizes the federal government to respond directly to releases of hazardous substances that may endanger public health or the environment. It provides authority and funds for the EPA to conduct hazardous waste emergency response and long-term removal and remedial activities. These activities include establishing the *National Priorities List*, investigating sites for inclusion on the list, determining their priority level on the list, and conducting and/or supervising the ultimate cleanup and other remedial actions.

Comprehensive Site Evaluation (CSE): Process to serve as the initial munitions response action of the MMRP. The goal of the CSE is to obtain sufficient data to support informed decision-making to effectively manage areas where munitions were formerly used, stored, or disposed. For the MMRP the CSE Phase I is equivalent to a CERCLA Preliminary Assessment and the CSE Phase II is equivalent to a CERCLA Site Inspection.

Contaminants of Concern (COC): Compounds that are present in environmental media (e.g., soil and groundwater) at concentrations that pose a threat to human health or the environment.

Decision Unit (DU): A defined volume of sample media (i.e., soil) where a contaminant can be sampled and represented by a mean.

Discarded Military Munitions (DMM): Military munitions that have been abandoned without proper disposal.

Feasibility Study (FS): A study that identifies and evaluates potential cleanup alternatives.

Federal Facilities Agreement (FFA): An agreement between the EPA and individual federal facilities that establishes a procedural and legal framework for investigating and remediating CERCLA sites.

Five-Year Review: Periodic review of site monitoring data to evaluate how the selected remedy(ies) is progressing toward achieving the RAOs.

Incremental Sampling Methodology (ISM): A technique where a statistically significant number of sample aliquots (i.e., a minimum of 30) are combined, homogenized, and then analyzed to provide a sample result representing the entire area from which the sample aliquots are collected, such as a DU.

Installation Restoration Program (IRP): The DoD program implemented at military bases to identify, investigate, and clean up contamination resulting from past operations. The IRP does not address MEC or MC, which are covered by the MMRP. At JBCC, AFCEC is the lead agent for the IRP.

Land Use Controls (LUCs): Legally enforceable restrictions for a site that will serve to reduce the unintentional exposure to UXO and/or COCs. LUCs may consist of fencing, signage, or deed restrictions that prohibit certain activities from occurring at the property.

Military Munitions Response Program (MMRP): The DoD program that addresses issues related to MEC and MC that may include UXO and/or COCs in areas other than operational ranges. At JBCC, AFCEC is the lead agent for the MMRP.

Modifying Criteria: A set of criteria that are factored into the evaluation of all criteria to select a final remedy.

Munitions Constituents (MC): Any material originating from UXO, DMM or a detonated munitions item. The material may be explosive or non-explosive and may result from detonation or breakdown of the item.

Munitions and Explosives of Concern (MEC): A term that distinguishes specific categories of military munitions that may pose unique explosives safety risks, such as UXO, DMM, or MC.**National Oil and Hazardous Substances Pollution Contingency Plan (NCP):** The federal regulation that sets forth the procedures for implementing cleanup under CERCLA.

National Priorities List: The EPA list of uncontrolled or abandoned hazardous waste sites that are priorities for long-term remedial evaluation and response.

Preliminary Assessment: The first step in the CERCLA process that is used to gather information about potential contamination at a site and to determine if further investigation or data analysis is necessary. For the MMRP the CSE Phase I is equivalent to a CERCLA Preliminary Assessment.

Proposed Plan: A document that summarizes the findings of the FS, identifies the preferred remedial alternative, presents the rationale for the selection of the preferred alternative and solicits public comment prior to preparation of the Record of Decision.

Record of Decision (ROD): A document that formally documents the accepted remedy for a given site. The Record of Decision documents the findings and outcome for each component of the CERCLA process (RI, FS, Proposed Plan).

Remedial Action Objective (RAO): Cleanup objectives that specify the level of cleanup, area of cleanup, and time required to achieve cleanup (restoration time frame).

Remedial Investigation (RI): An investigation to gather and analyze the data necessary to determine the nature and extent of contamination at a site, evaluate the risks to human health and the environment, and provide information for identifying and evaluating options for remedial action.

Responsiveness Summary: A document presenting formal comments received during the public comment period and responses to the comments.

Risk Assessment: An evaluation to determine the risk posed to human health and the environment as a result of exposure to contaminants.

Site Inspection: The second step in the CERCLA process that includes investigation at a potentially contaminated site. Sample collection and data analysis may be conducted to confirm or deny the presence of contamination (and whether further response actions or investigations are needed). For the MMRP the CSE Phase II is equivalent to a CERCLA Site Inspection.

Threshold Criteria: A set of criteria that are reviewed during the remedy selection process that must be met for a candidate cleanup alternative to be selected.

Unexploded Ordnance (UXO): A military munition that has been primed, fused, or armed, but remains unexploded by malfunction, design or any other cause.

Acronym List

AFCEC	Air Force Civil Engineer Center
ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSE	Comprehensive Site Evaluation
COC	Contaminant of Concern
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DoD	Department of Defense
DU	Decision Unit
EPA	U.S. Environmental Protection Agency
FFA	Federal Facilities Agreement
FS	Feasibility Study
ISM	Incremental Sampling Methodology
IRP	Installation Restoration Program
JBCC	Joint Base Cape Cod
LUC	Land Use Control
MassDEP	Massachusetts Department of Environmental Protection
MC	Munitions Constituents
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
NPL	National Priorities List
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
SARA	Superfund Amendments and Reauthorization Act
SVOC	Semivolatile Organic Compound
TNT	Trinitrotoluene

USC	United States Code
USCG	U.S. Coast Guard
UXO	Unexploded Ordnance